JUL 92

# GLEANINGS IN BEE CULTURE


## TRAINING FIRE FIGHTERS

## OPTIONS FOR CONTROLLING STINGING INSECTS

## CRITICAL INFORMATION FOR EMERGENCIES

JOHN ROOT

KIM FLOTTUM

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



| | |
|---|---|
| **John Root** | Publisher |
| **Robert Stanners** | Assoc. Publisher |
| **Kim Flottum** | Editor |
| **Kathy Summers** | Production Coordinator |
| **Susan Steppenbacker** | Photo Supervisor |
| **Buzz Phillips** | Circulation Director |
| **Dawn Feagan** | Subscriptions & Display Advertising |

**Contributors:**
• Roger Morse • Richard Taylor •
• Michael Burgett • Dewey Caron •
• Richard Bonney • Sue Cobey •
• Clarence Collison •
• B. A. Stringer •

SUBSCRIPTION RATES: United States, one year, $14.40; two years, $27.00. **Newsstand Price: $1.95.** All other countries (U.S. Currency only), $7.50 per year additional for postage. Published monthly. Change of Address: Return completed form inside issue. Articles are solicited. *Opinions expressed by the authors are not necessarily those of the publishers.*

**Advertising:** For Display advertising information contact our office at 216-725-6677 Ext. 220.

POSTMASTER: Please send form 3579 to: The A. I. Root Co., 623 W. Liberty St., Medina, OH 44256. Tele. 216-725-6677.

Circulation figures reviewed by Deloitte & Touche, CPAs.

# Columns

**•Research Review** ..... *Roger Morse* **384**
*Honey bee attractants seem to be less effective than earlier reports indicate.*

**•Do You Know** ..... *Clarence Collison* **385**
*Royal Management.*

**•Home Harmony** ..... *Ann Harman* **390**
*Finding good recipes is easier if you know where to look. And where are recipes found? In recipe books, of course.*

**•Beauty & The Bees** ..... *B.A. Stringer* **403**
*Poppies bloom from May to September and bees like them every month.*

**•Bee Talk** ..... *Richard Taylor* **410**
*Several subjects need examining, so this is what we'll do.*

# Departments

The Inner Cover ..... *Kim Flottum* **376**
*Covering new ground*

Mailbox ..... *Reader's Forum* **379**
July Honey Report ..... *Field Reporters* **382**
Questions & Answers ..... *Richard Taylor* **412**
The *Globe* ..... *News & Events* **413**
*W.A.S. meeting, new Food Triangle and Honey Board News*

Classified Advertising ..... *Bargain Pages* **416**
Bottom Board ..... *Howard Scott* **420**
*Metaphors*

*COVER ... Fire fighters and beekeepers may seem like odd partners, but when a honey bee emergency comes up, they'll need each other.*

*photo by Kim Flottum*

# JULY '92
# CONTENTS

(ISSN 0017-114X) Vol. 120, No. 7
*119 Years Continuous Publication by the Same Organization*

## Features

*Dress For Success, Pg. 386*


- **DRESS FOR SUCCESS** ..... *O.B. Wiser* **386**
  *What's the best gear to wear to the bee yard? How can you make yours better? O.B. Wiser sheds some light on what works and what doesn't.*

- **PSEUDOSCORPIONS** ..... *Dewey Caron* **389**
  *These shy honey bee predators 'probably' aren't in the U.S., but we won't know unless we look.*

- **CONDUCTING A HONEY BEE EMERGENCY DEMONSTRATION** .....
  *...Kim Flottum, Diana Sammataro, Pamela Moore & Jeff Ott* **393**
  *Preparing a fire / rescue department to safely handle a honey bee emergency is a proactive step in preparedness. But do your homework, have lots of help and expect the unexpected.*


*Emergency Demonstration, Pg. 393*


- **SUBDUING STINGING INSECTS** ..... *Eric Erickson & John Estes* **394**
  *The ground work for dealing with honey bees, wetting agents and fire fighting equipment was worked out in Tucson, but the technology is applicable everywhere.*

- **PICNIC POINTERS** ..... **401**
  *A news release format to give to your local paper, the county extension agent or any group that meets outside, even once this summer.*


*A Most Profitable Year, Pg. 406*


- **A MO$T PROFITABLE YEAR** ..... *Richard Bonney* **406**
  *If you're selling one of your colonies this summer setting the price may be more difficult than first expected. Our newest contributor looks at every aspect of a colony and comes up with a realistic, and understandable price. Know what your equipment is worth, even if you're not planning to sell.*

# INNER·COVER

I answer a lot of how-do-I-do-this questions on the phone every spring. During May and June it sometimes gets pretty hectic. Not a bad way to spend my time, though, and it keeps me in touch with beekeepers, if only electronically.

About the third week of May I got an early call from a couple who had found a swarm the night before. They were completely and hopelessly taken with honey bees, and beekeeping surely was in their future – they just knew it. But first they sort of needed to know what to do next. So they called an Extension Agent, who put them in touch with me – at 7:30 in the morning.

I discussed the equipment they needed to get started, how to capture the swarm before it went on its way and how to get that swarm started in their brand new equipment. They took notes, and asked a lot of questions.

They were going to put the swarm in a wooden wine box with a top and keep it in the garage until they got their equipment together. Then they'd get back to me if they needed anything else.

About an hour after lunch they called back. They had all their equipment put together and were ready to install their new bees in their new equipment and would I please tell them how – something I've done a couple hundred times since April, I guess. I poured a cup of coffee and leaned back, ready with my spiel.

"First, put your new equipment where you want it to stay" I said, "because once you install your bees they'll want the same address for awhile."

"O.K.", he said, "we're ready, what's next?"

"When you are at the site", I said next, "take the cover and inner cover off the super and remove the three middle frames", I said.

Bang, clump, thump.

"What's that," I asked.

"Just removing the cover", he said "I'm ready to go, what's next?"

I asked what he was doing, and he said he and his wife were in the back yard, the wine box full of bees at the ready, and their new equipment all set-up.

"We have a remote phone with a speaker", he said, "and we can hear you quite well. What's next?"

I was somewhat taken aback I suppose. People have been putting swarms in boxes for probably thousands of years. It's an activity as ancient as plowing fields or harvesting grain.

During that time neither the technique nor the bees have changed much. And although teaching technology has evolved steadily (who hasn't watched a video at a meeting recently?) talking this couple through this important phase of their beekeeping career long distance, *while they were doing it* was a first for me.

I could hear the process – the gasps as the bees were dumped, an involuntary curse when the box dropped on someone's appendage, some "hand me the " talk, always bees buzzing and an occasional "What's next?"

It took less than 10 minutes and they put the cover back on – finished. They were effervescent in their praise and I felt like the guy in the control tower who had just talked down a pilotless plane with a 10 year old at the stick. It's nice getting that kind of response once in awhile, even if overdone.

There wasn't much more to do, and by the time they needed to take the next step they'd have already read the books they ordered and could probably take it from there. I gave them the name and number of a nearby association, told them to enjoy what they were doing and signed off.

It was a little thing, really, but new ground had been covered, at least by me, and after all, there were now two more bee people in the world. Not a bad day.

A few years ago we published an article entitled "To Kill A Honey Bee", detailing how to handle a few rouge honey bees when the situation called. Using soapy water in a sprayer or hand mister works magic when dealing with a nuc, a small swarm or bees in your honey house.

But handling a bee spill or other nasty emergency, an accident involving bees, or an abandoned colony causing problems calls for more than a hand mister.

With proper training, *your* local fire department can handle *any* of these situations, safely and without undue stress or (more importantly) cost.

Our feature article this month shows how, and as uncomfortable as the subject may be, it's important that *beekeepers* help fire/rescue departments learn this skill.

We've gone to a lot of expense, time and effort to make this project work, and we feel, *strongly*, that making this information available to beekeepers, firefighters and rescue personnel everywhere will save lives, and enhance the image of our industry.

And while you're at it, use the "Picnic Pointers" news release to help educate citizens about all the rest of those stinging insects out there. Send a copy to your local newspaper, put it in your newsletter, or send one to your Extension Agent.

Be *PROACTIVE,* before you have to be reactive.

*–Kim Flottum*

# New Ground

# Reader Assistance

To subscribe to *Gleanings In Bee Culture* remove or copy the form below, fill it in and return it and your remittance to the address at the bottom. Please allow 3 - 5 weeks for your first copy to arrive. And Thank You!

792

☐ Please Renew ☐ New Subscription ☐ Send Sample

☐ **2 Years - $27.00** ☐ **1 Year - $14.40**

Foreign Postage — $7.50/year additional for Foreign and Canada.
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 are reviewed by Deloitte & Touche Accounting/Auditing.
- 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

For the hard-core beekeeper, our next issue has more than enough good information covering a variety of subjects.

We start with the companion piece to this month's article on 'Selling Bees' by Dick Bonney – 'Buying Bees' We'll take you through a colony and show everything you need to know when buying somebodies bees. Don't go home with a headache – take home more money.

O.B. Wiser talks about that tiny piece of time between removing supers and when you begin to extract. You may not think much about getting from here to there, but a hundred things can go wrong that will affect the quality of your product, the efficiency of your operation and the continued goodwill of your neighbors.

Pam Spence, Editor of the Mead Journal and one of the elixir's most ardent supporters, has the first in a short series on mead – history, kinds, techniques and more. If you favor the flavor of the nectar of the Gods, don't miss this collection.

Pollination stories in August? And Bumblebee pollination no less? Yes, we'll take a look at this tiny but effective market. Just so you know if somebody asks – and just so you know.

But there's more – Roger Morse, Richard Taylor, Clarence Collison, Up Close and Personal, the Honey Report and more.

All in August, and all in *Bee Culture!*


# MAILBOX

## ■ The 'Origin' of Natural Selection

I very much enjoy Bee Culture and read most of the articles each month. I keep two hives simply as a hobby, and our family and friends reap the sweet result.

I do wish that fine writers, such as Susan Cobey, would not make assumptions that no one can prove. She is not alone in this, but she does provide an example in the "Communication Confusion" article on page 204 of the April issue. She wrote, "The various races of honey bees originated by natural selection and were separated by geographical isolation."

Surely she cannot prove that these various races 'originated' by natural selection, or does she have a sensible mechanism actually explaining how natural selection accomplishes this feat? Natural selection, if there is such a phenomenon, may plausibly eliminate various races of honey bees, but I doubt that it ever originated even one.

Let's write about that which we know, and, if we are speculating, let's indicate that. But let's not mix fact and speculation as if there is no difference!

Arlie D. Rauch
Glendive, MT

**Cobey's Reply:** Arlie Rauch writes that there is no scientific proof that various races of honey bees originated by the process of natural selection. In reply, we find it useful to first define what is meant by the terms "race" and "species" and second to point out what the term "evolution" means. Species refers to variations of animals that cannot interbreed. Thus there exist at least four *species* of honey bee, among which genetic crosses cannot be biologically successful. Race refers to variation *within* a species, such that races of a given species can usually interbreed. The different races of the common honey bee used here in the U.S. are all capable of interbreeding.

Evolution refers to the observation that races and species exist and that these groups can be described according to variation in how similar they are to one another. Furthermore, for many animals these similarities can be traced back through the fossil record, and either sudden or gradual change of extinct forms into presently living forms can be described. One only need visit any natural history museum to observe evidence that evolution occurs. It is a common misconception of creationists, however, to equate the observation that evolution takes place with theories of evolutionary change.

Several theories have been invoked to explain the evolution that is observable in living and extinct forms of animals. One theory, that of natural selection, proposes that certain races of animals are more fit to survive in specific kinds of environments. Thus these races prosper at the expense of others. Certainly races of animals can be selected either by criteria established by humans or by nature. For example, all of the variety of dogs, from the smallest Poodle through the largest Great Dane, are but races that have been selected by us from a single species – *Canis familiaris*. This process of selection of racial variants is well documented. Like dogs, there are many racial varieties of the common honey bee. Many of those races possess traits that we instill in them through selection. Many other traits have been selected naturally. For example, traits expressed in the African honey bee, which make this race of bee difficult to manage from a beekeeping standpoint, have been selected by the tropical environment in which the race evolved. (We refer readers to a recent book *The "African" Honey Bee* (Spivak, Fletcher, Breed, eds: Westview Press) for an insightful discussion of how behavioral traits of honey bees can be selected.)

To imply that there is no evidence that selection can work on racial variation to adapt that race to a new geographic environment is to deny the tremendous amount of scientific work that has gone into selecting races of honey bees. This process has happened and has been well documented within our own lifetimes. The fact that we can take over for nature and perform the selection process ourselves is strong evidence that selective processes in nature have acted to shape racial variants long before we ever managed honey bees.

*Dr. Brian H. Smith & Susan Cobey*
Rothenbuhler Honey Bee Laboratory
Department of Entomology
The Ohio State University
Columbus, OH

## ■ Fine Points

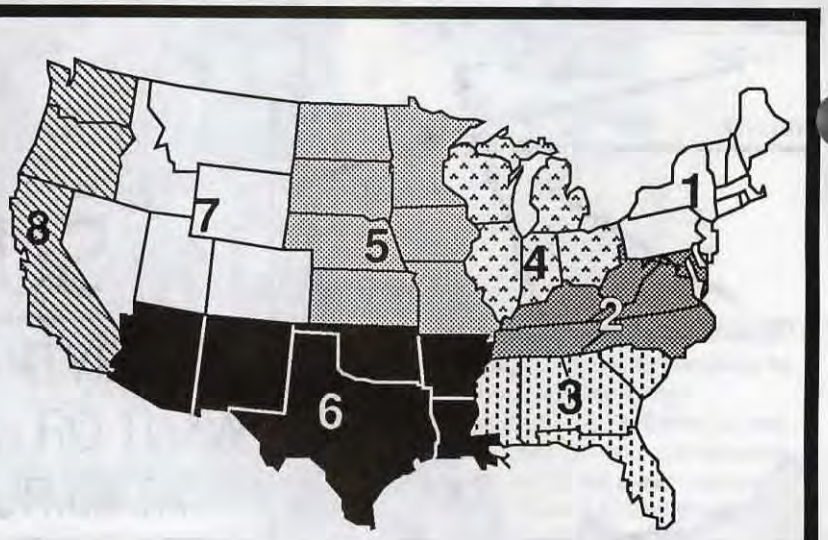
Concerning *"The Lofty Heights of Queen Rearing"* – I enjoyed the article but F.Y.I. the "Queen Rearing Schedule is not correct and probably will cause someone some grief.

If you graft on any given day, the resulting cells must be removed from the cell builder on the 10th day, not on the 12th day as the schedule states. You can and many do graft with larvae that is up to 2-1/2 days old. This means that it is really 5-1/2 days old as it was an egg for the first three days. Since egg to virgin queen is 16 days, the cells must be removed on the 10th day from grafting. This makes them removed the day before hatching on the 16th day.

I enjoy *Bee Culture*. Keep up the good work.

Robert J. Guntren
Storm Lake, IA

# JULY
# Honey Report
**July 1, 1992**




## REPORT FEATURES

Prices shown are averages from many reporters living in a region, and reflect that region's general price structure. The Range Column lists highest and lowest prices received across all regions, from all reporters.

| | Reporting Regions | | | | | | | | Summary | | History | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | | Last Month | Last Yr. |
| **Extracted honey sold bulk to Packers or Processors** | | | | | | | | | Range | Avg. | | |
| **Wholesale Bulk** | | | | | | | | | | | | |
| 60 #Wh. | 43.32 | 47.38 | 42.69 | 40.47 | 40.69 | 45.20 | 46.11 | 37.65 | 31.60-62.00 | 42.37 | 44.49 | 42.03 |
| 60 # Am. | 42.70 | 41.79 | 37.90 | 38.45 | 40.03 | 40.23 | 40.58 | 35.86 | 28.20-52.00 | 39.89 | 41.51 | 38.37 |
| 55 gal. Wh. | .730 | .675 | .545 | .627 | .572 | .633 | .630 | .570 | .53-.77 | .614 | .594 | .51 |
| 55 gal. Am. | .640 | .605 | .505 | .614 | .573 | .520 | .570 | .521 | .49-.68 | .549 | .541 | .47 |
| **Wholesale – Case Lots** | | | | | | | | | | | | |
| 1/2 # 24's | 19.65 | 23.39 | 29.94 | 20.23 | 18.19 | 23.50 | 21.24 | 21.50 | 15.12-26.88 | 21.26 | 20.95 | 20.18 |
| 1 # 24's | 29.52 | 30.77 | 33.80 | 31.50 | 26.92 | 31.34 | 31.74 | 28.51 | 23.52-42.00 | 30.31 | 29.70 | 29.76 |
| 2 # 12's | 27.29 | 27.47 | 31.40 | 28.70 | 24.81 | 29.97 | 29.88 | 29.48 | 22.20-40.80 | 27.42 | 27.26 | 28.23 |
| 12 oz. Bears 24's | 25.75 | 29.20 | 31.56 | 27.62 | 27.64 | 27.92 | 21.14 | 26.85 | 19.00-36.00 | 27.92 | 26.05 | 26.06 |
| 5 # 6's | 30.38 | 30.50 | 35.70 | 31.30 | 34.61 | 33.82 | 34.16 | 27.55 | 24.72-48.00 | 31.10 | 30.58 | 29.00 |
| **Retail Honey Prices** | | | | | | | | | | | | |
| 1/2 # | 1.10 | 1.34 | 1.32 | 1.13 | .89 | 1.27 | 1.26 | 1.06 | .83-1.79 | 1.18 | 1.19 | 1.10 |
| 12 oz. Plas. | 1.53 | 1.66 | 1.80 | 1.54 | 1.24 | 1.49 | 1.54 | 1.53 | 1.13-1.98 | 1.55 | 1.53 | 1.47 |
| 1 # | 1.66 | 1.85 | 1.94 | 1.82 | 1.48 | 1.74 | 1.78 | 1.69 | 1.29-2.25 | 1.77 | 1.76 | 1.75 |
| 2 # | 3.41 | 2.95 | 3.44 | 3.27 | 2.59 | 2.95 | 3.26 | 3.14 | 2.39-4.29 | 3.11 | 3.14 | 3.04 |
| 3 # | 3.93 | 3.89 | 5.06 | 5.85 | 3.59 | 4.19 | 4.56 | 4.24 | 3.10-6.19 | 4.35 | 4.40 | 4.05 |
| 4 # | 4.50 | 5.17 | 5.12 | 5.16 | 5.42 | 5.34 | 5.28 | 4.82 | 4.25-6.49 | 4.74 | 5.15 | 5.03 |
| 5 # | 7.54 | 6.82 | 7.22 | 6.69 | 6.65 | 7.31 | 7.22 | 5.79 | 5.25-9.99 | 6.75 | 6.61 | 6.25 |
| 1 # Cream | 2.35 | 2.31 | 1.83 | 1.94 | 1.83 | 2.92 | 2.28 | 2.13 | 1.55-3.25 | 2.11 | 2.07 | 1.98 |
| 1 # Comb | 2.35 | 2.38 | 2.50 | 3.17 | 2.88 | 2.92 | 3.17 | 3.43 | 1.75-5.00 | 2.77 | 2.66 | 2.62 |
| Round Plas. | 2.50 | 2.45 | 2.64 | 2.58 | 2.67 | 2.37 | 2.59 | 2.75 | 1.99-3.50 | 2.52 | 2.37 | 2.37 |
| Wax (Light) | 3.18 | 1.21 | 1.28 | 1.22 | 2.14 | 2.10 | 2.11 | 1.24 | 1.10-3.80 | 1.53 | 1.53 | 1.39 |
| Wax (Dark) | 2.00 | 1.09 | 1.12 | 1.15 | 1.48 | 1.46 | 1.45 | 1.17 | 1.00-2.25 | 1.19 | 1.27 | 1.15 |
| Poll./Col. | 31.75 | 23.13 | 30.00 | 30.62 | 29.29 | 30.00 | 30.00 | 28.13 | 20.00-40.00 | 28.73 | 29.85 | 28.78 |

## MARKET SHARE

The effect of large producers holding their crops for higher prices, while packers import to fill immediate needs is showing up on the grocery shelf. Prices are generally soft, and, with some large U.S. producers beginning to sell at lower than hoped-for prices, there appears to be no let-up soon. The strategy seems questionable, but all the facts aren't in, yet.

### *Region 1*

Prices flat, declining in some areas and absolutely awful in others. Demand flat also, with little promise of improving soon. Colonies generally in good shape after early flows with main flows promising

### *Region 2*

Honey prices strong, demand strong and looking better every week. This is due, in part, to the incredibly aberrant weather the region has experienced. Cold and rainy, warm and sunny, and somewhere in between. Tulip poplar crop erratic great and lousy and unpredictable - just like the weather.

### *Region 3*

Prices strong and demand right where it should be steady and growing. Citrus crop ranged from 'good' to 'incredible', first in a long time. Colonies in good shape generally, and most of the crop already in.

### *Region 4*

Prices, demand and sales all steady to slightly less than last month. A trend for the last several months. Cool, damp weather has hampered build-up and production and expectations are only average.

### *Region 5*

Prices steady, although not particularly strong. Cool weather has helped demand, but not the bees. Build-up has been slow and erratic. Soil moisture low in many areas, but too wet in others - a real mess so far.

### *Region 6*

Demand and prices continue strong generally, and no let-up in sight. Wet weather has actually helped flows in many areas, and good crops expected.

### *Region 7*

The mountain states keep up their strong prices and sales, and show no sign of changing. Prices are actually down but less so than other areas.

### *Region 8*

Prices not gaining, but not dropping much either. Demand seems steady, though, and promising. Crops in south seem average to strong, but up north it's too dry, and crops are too short.

# RESEARCH REVIEW

DR. ROGER A. MORSE

Cornell University • Ithaca, NY 14853

*"What does it take to make bees happy?"*

In Oregon, the application of "Bee-Here" to flowering red clover did not attract more honey bees or bumble bees to the field and it did not improve seed set. In Massachusetts, Wisconsin, and British Columbia, the application of "Bee-Scent" to flowering cranberries did not improve production. Both of these products, which mimic natural attractants, have been widely advertised and sold as aids in pollination.

The imitation pheromone mixture was applied by air to a portion of a commercial red clover seed field in Oregon. Two applications were made in July following manufacturer's recommendations. Pollinator activity was monitored several times daily after the treatments. Seed production was checked by harvesting seed heads and counting the number of seeds present.

In the Massachusetts tests on cranberries, the chemicals were applied either by air or through a sprinkler system. In Wisconsin, a low-pressure boom-type sprayer was used. In British Columbia aerial application was used. Observations were subsequently made on bee activity and/or fruit production.

The authors of the cranberry study wrote, "We conclude that Bee-Scent was ineffective in attracting honey bees to treated areas" "fruit set and yield were not increased in treated areas." The author of the Oregon study wrote, "This trial application of "Bee-Here" did not result in increased pollinator visitation or increased seed set."

## Commentary

During the past 50 or more years a great number of people have observed honey bees on flowers in an attempt to increase the number of bees foraging on a particular crop. There have been many tests in which sugar syrups of varying concentrations, and in a number of formulations were sprayed on flowering plants for this purpose. Some of these formulations have been marketed commercially. None of these products increased pollinator activity or production of the crop onto which they were applied. However, they were widely sold before the fad ended.

More recently, the use of natural honey bee pheromones has been tested and the first of the above pheromone substitutes was marketed. These products contain predominantly citral and geraniol. It had been discovered in the 1960s that these are natural substances produced in the worker honey bee's abdominal scent glands. In nature, honey bees release these pheromones to mark food sources, the presence of a lost queen, or a new home. The pheromone mixture sends the message, "Come here" or "This is the place" To release the scent gland pheromones a bee raises her abdomen, bends the tip downward and fans her wings sending a current of air back over it and the exposed scent gland. On a still day one can smell these materials as much as three feet away from a wing-fanning bee. There is no question that under natural circumstances these substances carry a clear, strong message and attract bees.

The idea that these scent gland pheromones might be of practical value in pollination has had considerable appeal to researchers. There have been numerous studies, but the majority who have tested these products agree they are not of value.

Not too many years ago several researchers made strong efforts to find chemicals that would repel honey bees from fields treated with pesticides. These materials, even though they were good bee repellents under other circumstances, had no effect. If food was available in the field the bees were not slowed or stopped from foraging because of a foul odor.

In other words, while we understand parts of the honey bee pheromone language system, we have not learned to manipulate it for our benefit. We do not know how to fool a honey bee, at least not for very long.

It appears that our long-standing recommendation that there is no substitute for good colonies of honey bees for pollination is still best.

The Oregon paper cited below contains an excellent literature review and will serve as a useful base for anyone who wants to pursue the subject further. I suspect there will be more studies in this area. And, just because these tests failed to show any benefit does not mean that a change in formulation or application may not have an effect. ○

McGourty, M. A. *A field evaluation of "Bee-Here", a pheromone based forage attractant for honey bees, applied to red clover.* Oregon State University Master of Agriculture Research Paper. 45 pages. 1992.

Roper, T. R., A. L. Averill and D. L. Mahr *Does Bee-Scent attract honey bees and enhance cranberry pollination?* Cranberries Magazine 54(7): 6, 8-9. 1990.

# ? DO YOU KNOW ?

## *Royal Management*

CLARENCE H. COLLISON

Once the swarming season has passed, colony management is primarily concerned with providing adequate space to handle the incoming nectar flow and storage of the honey crop. In addition, you need to check if conditions are ideal for brood production and population maintenance. Food stores, both pollen and honey, need to be checked and brood patterns evaluated to determine the quality of the queen. In addition, keep an eye open for any sign of disease or other conditions that may affect colony strength or survival. To effectively evaluate colony conditions and the quality of the queen, it is important to understand basic bee biology and factors that affect colony development. Since the quality of the queen is so important to the productivity of the colony, management decisions are directly related to her performance and characteristics.

How well do you understand the biology and functions of the queen, factors that regulate her productivity and steps required to replace her? Please take a few minutes and answer the following questions to determine how well you understand these important topics. The first nine questions are true and false. Place a T in front of the statement if entirely true and F if any part of the statement is incorrect. (Each question is worth 1 point).

1. ____ Queens have 2-3 times more venom in their poison sacs than do workers.
2. ____ Queens are highly specialized and when they are in isolation, they are unable to feed themselves.
3. ____ Virgin queens introduced to a colony are more acceptable to workers than queens in egg-laying condition.
4. ____ The presence of queen cells in a colony decreases the acceptance rate of a newly introduced queen.
5. ____ Strong colonies more reluctantly accept a new queen than weaker colonies.
6. ____ Young bees accept a queen more readily than older.
7. ____ Gentle bees are more reluctant to accept a new queen than temperamental bees.
8. ____ It is easier to introduce a new queen during a nectar dearth than during a heavy honey flow.
9. ____ Removing attendants from the queen cage prior to introducing a new queen will increase the chances of queen acceptance.

**Multiple Choice Questions (1 point each).**

10. ___ The first observed change in worker behavior associated with the loss of a queen in a colony with brood is:
    A) construction of queen cups.
    B) apparent nervousness, aggressiveness and increased walking throughout the colony.
    C) increased scenting behavior.
    D) the production of a roaring sound.
    E) the production of emergency queen cells.
11. ___ The retinue of attendants that form around a queen first occurs:
    A) within the first 24 hours after a virgin queen emerges from her queen cell.
    B) when the queen returns from her mating flight.
    C) after the queen begins to lay eggs.
    D) just before the queen is ready to take her mating flight.
    E) when the queen is three days old.
12. ___ Honeydew is often an important food source and originates from:
    A) Floral nectaries
    B) Extra-floral nectaries
    C) Plant resins
    D) Anthers
    E) Secretions of plant feeding insects
13. ___ Melanosis is a disease of queen honey bees that affects the:
    A) Mandibular gland
    B) Ovaries
    C) Spermatheca
    D) Spermathecal gland
    E) Intestine
14. ___ The function of the spermathecal gland is to:
    A) Supply nutrients to the stored sperm
    B) Provide oxygen to the stored sperm
    C) Immobilize the stored sperm so that viability is maintained while the are stored.
    D) Secretion of the mucous component of the semen.
    E) Maintain a proper pH level within the spermatheca
15. ___ When you install a 2 pound package of bees in the spring, how long will it be before the queen approaches maximum egg laying rate?
    A) 60 days
    B) 20 days
    C) 40 days
    D) 80 days
    E) 100 days
16. ___ The maximum egg production of a queen is reached when colony populations are at _____ bees.
    A) 20,000 bees
    B) 30,000 bees
    C) 40,000 bees
    D) 50,000 bees
    E) 60,000 bees
17. ___ If your primary honey flow normally begins on July 1, when would the queen have to be laying eggs at her maximum rate to produce the best honey crop?
    A) May 1
    B) April 20
    C) June 15
    D) May 20
    E) June 1
18. Please explain why queens produced in supersedure or swarm cells are normally better than those produced in emergency queen cells. (2 points).
19. While pollen is being packed in cells by worker honey bees, chemicals are added to the pollen for what three reasons? (3 points).
20. Name three situations in which you would find the queen honey bee outside of the hive. (3 points).

ANSWERS ON PAGE 411

# DRESS FOR SUCCESS

I was putting my gear in the truck in preparation for dividing time recently, and I looked at my specialized bee veil I have used for over nine years now, and I thought I ought to share my years of trial and error when looking for the best veil, coveralls and gloves. In short, how to Dress for Success, for the bees.

**The Veil** is the crowning touch when preparing to work bees. Have a poor one and the misery you will suffer is beyond measure. You will spend more time chasing bees in your veil and picking stings out of your throat and eyelids than you do taking care of bees.

Well, I have worn every type of veil known to beekeeping over the last three decades. Here are my comments on veils that offer protection and are also serviceable.

First of all there are two basic types of veils — square and round veils. I soon learned the square veil is a claustrophobic chamber that makes me feel like suffocating, and for some reason seems ten times hotter than a round veil. The two have different, flexible material below the screen. The round veil allows better circulation, while the square veil seems to hinder movement.

Now there are tie down veils and zipper veils that are round or square. Some tie down veils have an odd arrangement with a plastic ring that hangs down from the back that one is somehow supposed to put the strings through. It seems this just makes sure the bees can get in. If you can not afford a zipper veil and coveralls, then use the round veil without those plastic hoops and bars to mess it up. Tie it down by pulling the strings across your chest loop around to your back, go around your waist to the front and tie securely below your belt in the front. Using a tie down veil has a major problem, though. It always, always bunches where the two strings come together in front at the neck, giving a channel for the bees to crawl up your chest and enter the veil about at the Adam's apple. The trick is to put a handkerchief in the veil and pull its corner through, effectively blocking this hole.

*Round veils seem to work best for me.*

It is clear that I do not like square veils. They are cumbersome, and I have never been able to see through those darn bars on either side, which effectively block your peripheral vision. In beekeeping, peripheral vision is vital when looking for the queen. In short, square veils are good for the manufacturers and darn poor for beekeepers.

I wore a tie down round veil for years because, guess what, they do not make a round veil that zips into a pair of coveralls. No one makes one — except my wife, of course.

**The Ultimate Veil** My wife has made the ultimate veil. I bought a good tie down round veil and Lynn bought an extra strong and **big** zipper made of plastic — not metal that was the right length to accommodate the veil. Then it is not too difficult to sew the veil to one side of the zipper and the other side to your coveralls after removing the small zipper that some manufacturers put on their coveralls to accommodate those square veils. The perfect touch is adding a piece of Velcro to the ends of both zippers for a sure-tight fit.

Now take this and put it on a proper straw bee hat and you have the best veil there is. Unfortunately, the builders of veils have not changed their design in 75 years. I am not sure if they are aware that they could make zippers out of heavy duty plastic that will not bend or corrode with time. But then the bee industry has always been a bit slow to catch on to progress.

**Coveralls** There have been a lot of attempts to change the basic cotton coveralls. None have been cooler or more durable. I bought three pair in 1980 made of a cotton mix, complete with the zipper veil and all. I took all the tiny metal zippers off and put on the heavy plastic ones. I packed one pair in my

*Make sure they're cotton or a cotton-mix.*

O.B. WISER

truck today. Sure they have been patched, but for seven of the past 12 years I've had 2,000 hives to take care of. So don't tell me they do not wear. They wear like iron, with a little bit of care.

I have two suggestions. Buy your coveralls extra big, not a close fit. Stings can go through if the material is right next to skin, but more important than anything else is the affect all that loose space has on your personal cooling system.

For ultimate cooling the Arabs knew what they were doing when crossing the Sahara Desert, the hottest place on earth. They wore loose robes and turbans for a good reason – they allow air circulation to evaporate the sweat on your skin.

When it is hot I do not wear any clothes under my bee suit — just my undies, that's all. On even the hottest day I can put my hand on my chest and it will be cool from evaporation. Wearing clothes messes up this program of evaporation and you feel wet; but not so with real loose coveralls. So there you have it — the secret of beekeeping when it is hot. You will never read that in any book, but believe me, it makes all the difference in the world. By the way my female employees soon learned to only wear their undies under their bee suits in July and August, too.

When you wear a bee suit, you always put the **collar** up to give protection to the back of your neck which becomes vulnerable when the flexible netting rubs near your skin. If you have a shirt on underneath, make sure it has a collar as well and make sure you put it up to protect the back of your neck.

One more suggestion to those who *build* coveralls. The knees need to be reinforced from above the knee to below

the knee. This would avoid the tight knee sting and it would put more material where the maximum wear takes place, thus a better product.

**Hats** There are all types of bee hats out there. I know a hard headed beekeeper that wears a metal hard hat and swears by it. Hot, Hot, HOT and the veil slips on it. I was with him in the yards and he just automatically was pulling his veil elastic down around the top of his hat. Then there is the new generation of plastic hats. The same problem, the veils ride up and the hat does not form to your head and it is like wearing a plastic plate on your head. Last but not least , they are not, I repeat not, cool. They are hot. They do not breath and do not soak up your sweat. They are not natural. The straw hat breaths, holds the veil in place because it is not smooth, and most important, the leather band soon molds exactly to your head, making a perfect fit.

**Gloves** If you want to be stung constantly through your gloves, buy those cheap brown cloth gloves. If you want your hands to smell like a sewer buy the plastic gloves. If you want to wear out three pair in one year, buy the brown cloth ones. If you want to not feel the life of the frame (like kissing through a plastic bag), buy the plastic yellow gloves.

The best off-the-shelf glove is a good pigskin or cow-leather glove with a built in sleeve they call a gauntlet and a screen half way up. You can make a glove that is nearly as good by buying leather gloves and making a gauntlet out of denim and with elastic in the wrist and arm ends.

When they are new, oil them up, and every time they get wet and real dry, add more oil. Neetsfoot oil is the best. Gloves (from all the manufacturers) have weak spots and a hole will develop, somewhere. All you have to do to fix this is get a good strong thread and while the glove is wet, sew the hole up. The propolis will seal them off.

**Socks** Regardless of the weather, you wear boots or shoes and need to have two pair of WHITE tube socks on. Never, never, never, never wear dark street socks to the bee yard unless you enjoy pain. Bees normally do not sting through two pair of tube socks. The ankles are the main target of every robust guard bee that ever tried to sting a beekeeper. Use two pair of socks for protection. I wear Nike air cross trainers with the socks and go days without ever getting stung. They try, but do not make it through.

If you want a good bee veil, write your congressman, Dadants, or somebody and ask them to make a round zipper veil. While your at it, ask them to reinforce the knees as well.

Over the years I have been stung in lots of places — too many places to mention and the outfit I have just suggested keeps the stings to a bare minimum. It makes working bees a delight instead of a pain endurance contest that must be survived. And **I learned that the hard way.** ○

# PSEUDOSCORPIONS

DEWEY CARON

Pseudoscorpions are an interesting bee pest. They are not common and few beekeepers are even aware of them. They are one of a large group of organisms that nest in beehives and eat bees and the food storesfound there.

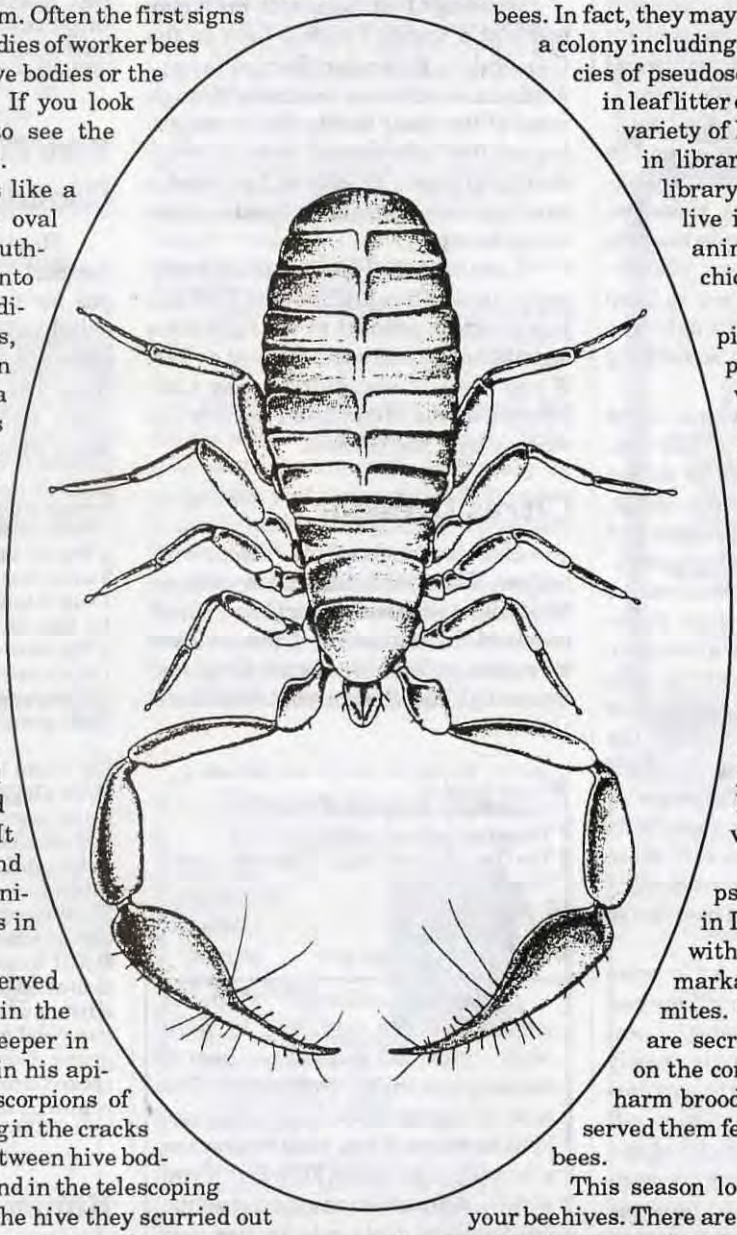
Pseudoscorpions are related to spiders, and like spiders they are predacious. Most are small and not readily visible unless you really look for them. Often the first signs of their presence are dead bodies of worker bees protruding from between hive bodies or the cracks of the hive corners. If you look closely you will be able to see the pseudoscorpions themselves.

A pseudoscorpion looks like a scorpion but they have an oval body with no tail. The mouthparts are greatly enlarged into strong pincers (termed pedipalps). They use these pincers, which resemble the claws on lobsters or crabs, to grab a honey bee. The bee becomes paralyzed from an injection of enzymes and then is dragged backward to a crevice where it is lodged so the pseudoscorpion can feed on it for the next day or so.

Several different species of pseudoscorpion have been found in beehives and stingless bee colonies on all continents. *Chelifer cancroides* has been found inside beehives in Europe and Asia, feeding on honey bees. It also has been found around barns, on other insects and animals and even inside homes in England.

In Central America I observed a different pseudoscorpion in the apiary of Pablo Cal, a beekeeper in southern Belize. Each hive in his apiary housed several pseudoscorpions of varying size. They were living in the cracks of dove-tailed hive bodies, between hive bodies where they fit together, and in the telescoping top cover. When we opened the hive they scurried out of the light but continued to feed on the bees.

The pseudoscorpions I saw grabbed bees with their large pincers and backed into their shelter location with the bee. The bee struggled to get free but quickly became paralyzed. Then the bee was wedged into the crack and the insides consumed. Numerous cadavers of bees were evident alongside the dove-tailed corners of the hive in the apiary and in the crack between hive bodies. The pseudoscorpions didn't eat the captured bee but seemed to suck body fluids from them.



Pseudoscorpions are not serious predators to honey bees. In fact, they may feed on other organisms in a colony including wax moth larva. Most species of pseudoscorpions live under stones, in leaf litter or under tree bark in a wide variety of habitats. One species lives in libraries and feeds on pests of library books. Many other species live in barns or with domestic animals such as sheep and chickens.

Virtually all pseudoscorpions are predators. They play an important but not well studied role in areas where they occur as they feed on insects and other arthropods. In some situations, such as in compost piles, oak forest leaf litter and in the nests of pigeons, they may be very numerous. They never seem to attain such high numbers in bee colonies. One of Pablo Cal's hives had easily over 200 individuals but an adjacent colony of bees harbored only about 10 individuals.

One article on pseudoscorpions in beehives in India reported that colonies with pseudoscorpions were "remarkably free" of wax moths and mites. Since the pseudoscorpions are secretive, they seldom appear on the combs so they probably don't harm brood. In Central America I observed them feeding only on adult worker bees.

This season look for pseudoscorpions in your beehives. There are no reports of them being in colonies in North America but they probably do exist here. I would be extremely interested in hearing from you if you find them or suspect you have them in your bees. Let me know if you find one of these exotic, but seldom seen creatures in your colonies. ○

# HOME HARMONY

ANN HARMAN
6511 Griffith Road • Laytonsville, MD 20882

# RECIPE BOOKS

Honey is appearing in more and more cookbooks these days, which I think is wonderful! I like to send for cookbooks through coupons and brand offers. You are familiar with them – send in a coupon torn from a food package and perhaps a dollar or so and in several weeks you receive a little cookbook in the mail. Of course, these are "sight unseen" but my theory is that the recipes are bound to be very good because the company wants you to keep buying their product, and the only way you will do that is to make something that is very good.

When I receive the cookbook I head straight for the index, if it has one. Some of the smaller cookbooks do not have one, but they really need an index. I look up "honey" to see if it is featured in the recipe title. Increasingly cookbooks are using "honey" in their recipe names. Next, I scan the recipes themselves. You are bound to find a few more that contain honey, although the title emphasizes some other ingredient or characteristic. As I read through the recipes I usually find some in which honey can be substituted for sugar or molasses or brown sugar. So these little recipe books can furnish us with more ways to use honey in our cooking. I think it's great! I get to use a new recipe and honey, too!

You can find recipe books in some surprising places. Our little village had a centennial celebration recently. Local artisans, crafters (I think this is a newly created work that is gaining in popularity) and businesses were invited to sell their wares along the village street as a country market. (In case you are wondering, yes, I took honey and beeswax candles.) There I discovered a woman who had published several recipe books, one of which I bought, and congratulated her on using honey in some of her recipes. Now I can have fun this summer trying out those recipes new to me.

Although I was busy with my honey booth at a Spring Festival held on the Cooperative Extension Service farm, I did find a few minutes to wander through some of the other booths. One was giving out free information on various agricultural items. Of course I selected a small cookbook, and discovered a recipe using honey.

I am certain I have missed many recipe book offers just because I did not buy a certain product at the right time or I did not attend some festival or fair. If you know of something I may have missed, let me know, and I'll share the recipes with the readers.

## Citrus Dressing

Here are some of my "discovered" recipes. The first is from a very attractive booklet with recipes for Grey Poupon mustard. I found out that the mustard name came from Messieurs Grey and Poupon. (I had always wondered about the name.)

1/3 cup salad oil
1/3 cup fresh orange juice
2 Tbs white wine vinegar
2 Tbs Grey Poupon Dijon Mustard
1 Tbs honey
1/2 tsp salt
dash white pepper
1/4 tsp grated orange peel

Combine ingredients; mix well. Serve with fruit salad or tossed greens. Makes 1 cup. Grey Poupon brings color to "one of life's finer pleasures".

*The Grey Poupon Dijon Mustard Cookbook*

> The "old fashioned" whipping cream certainly was easy to work with – provided you did not beat it too long and end up with butter. The new whipping cream really does not hold its shape if you wish to prepare a topping in advance. However if you whip one cup of whipping cream with one teaspoon plain gelatin, you can prepare the cream several hours in advance of serving and it will hold its shape. It does need to be kept chilled, of course.

## Five Minute Cooked Beef Salad

Meat salads make an excellent summertime lunch or dinner and good recipes for them are hard to find. I was delighted to find this recipe in the little cookbook handed out at the Spring Festival. The salad looks pretty, is quickly made and is delicious. It's great for using some leftover beef roast.

6 ounces cooked lean rare beef, sliced 1/4 inch thick
2 Tbs slivered almonds
2 cups torn romaine lettuce
1 cup thinly sliced red cabbage
1/4 cup red wine vinegar
2 Tbs olive oil
1 tsp honey
1 Tbs crumbled blue cheese
fresh ground pepper, if desired

Cut sliced beef into thin strips 1/4 x 3" Place almonds in 1-cup microwave-safe glass measure. Microwave at HIGH 1-1/2 to 2 minutes, stirring after 1 minute or until lightly browned. Combine lettuce and cabbage and arrange on 2 dinner plates. Place vinegar, oil and honey in 1-1/2 quart microwave-safe casserole. Microwave at HIGH 2 minutes. Add beef strips, stirring to coat. Microwave at HIGH 1 minute, stirring after 30 seconds. Spoon an equal portion of beef and hot dressing over greens. Garnish with almonds and blue cheese. Season with freshly ground pepper, if desired. 2 servings.

*Beef Is A Microwave Favorite*
published by Beef Industry Council

## Honey Dijon Fruit Boat

Cereal boxes seem to be a great place for coupons, recipes and offers. I suppose a cereal box is meant to be read at breakfast along with the newspaper. A coupon and $1 brought me a great

cookbook that listed three recipes with the word "honey" in the title. A number of the other recipes can certainly have honey substituted for the sugar. Since it will soon be fresh peach season, always use fresh when available. Otherwise choose canned or frozen peaches.

1/3 cup mayonnaise
3 Tbs honey
2 Tbs Grey Poupon Dijon or Country Dijon Mustard
1 Tbs lemon juice
1 medium fresh pineapple
1 16-oz can peaches, drained (or fresh or frozen, thawed)
1 cup red or green seedless grapes, halved

In small bowl combine mayonnaise, honey, mustard and lemon juice. Set aside. Slice pineapple in half lengthwise. Scoop out fruit leaving a 1/4 inch thick shell. Reserve shell. Cut pineapple into 1" pieces. In reserved shells, combine pineapple, peaches and grapes. Serve with dressing. Serves 8.

*Round The Clock Creations*
Nabisco Food Company

## Berries With Lavender Cream

Honey and blossoms are a natural combination. This unusual but delicious recipe requires some fresh lavender blossoms. If you do not grow lavender perhaps a neighbor does and will supply you with some flowers. Fresh flowers and fresh berries are courtesy of our honey bees.

1/2 cup whipping cream
1/2 cup milk
5 Tbs honey
pinch salt
5 lavender blossom spikes, 2-1/2 to 3" long
2 extra-large egg yolks
1/2 cup whipping cream, stiffly whipped
about 2 pints berries: raspberries, blueberries, blackberries either singly or any combination

In a double boiler over very hot water, combine the 1/2 cup cream, milk, honey, salt and lavender blossoms. Cook over simmering water for 10 minutes, stirring occasionally. Beat yolks in a small bowl. Pour about 1/2 cup the lavender cream mixture over the yolks while whisking well. Return the cream and yolk mixture to the double boiler and mix well. Cook over just-simmering water for 10 minutes, stirring, until the mixture thickens. Remove from heat and strain the custard cream through a sieve into a stainless steel bowl. Discard the lavender. Let the custard cream cool to room temperature with a piece of waxed paper covering the bowl, then chill. Or to cool it more quickly, place the bowl of custard cream in a larger bowl filled with ice, and stir occasionally until cooled, then chill. The cream will thicken a bit as it cools.Remove the lavender cream from the refrigerator 10 or 15 minutes before serving. Fold in the freshly whipped cream. Spoon a little lavender cream onto each dessert plate and arrange the fresh berries on top. Serve immediately. Serves 8.

*Flowers In The Kitchen, A Bouquet of Tasty Recipes*
Susan Belsinger

Except for the flower cookbook, the others were either free cost very little. Is it worth the bother to send away for something you've never seen? If you try these recipes I think you will agree with me that it is definitely worth addressing an envelope and filling out a coupon. I like to try a new recipe AT LEAST once a week and I am certain that you would like to try "something different" instead of "the same old thing"

# Conducting A Honey Bee Emergency Demonstration

KIM FLOTTUM
DIANA SAMMATARO
PAMELA MOORE
JEFF OTT

*"There's nothing like real world experience, and this was* definitely *real world."*

*Dave Sullivan, Chief, Erhart Fire Dept.*

*We had done the research, worked out the kinks, and had a good idea what to expect. It worked just like we expected – only better.*

*Richard Hill, Asst. Chief, Erhart Fire Dept.*

The chance your fire department will ever have to handle an emergency involving honey bees is very, very unlikely. But when challenged by a reporter on that point, "If it's so unlikely, why spend the time, effort, money (and bees) on a demonstration?", the only response I could give was "In the six years I've lived near Cleveland, there's been only one incident at the airport with thousands and thousands of take-offs and landings. The probability of an accident occuring is very remote. Does that mean the fire and rescue people at the airport shouldn't train? In fact, why have them at all?" The reporter got the point. And so, I hope, do you.

Several incidents in the past two years point out the need for designing a formal S.O.P. (Standard Operating Procedure) when a fire/rescue team is called to handle an emergency involving honey bees and people. Erickson, in his article elsewhere in this issue, describes the TN incident, and this spring in Florida another accident that drew international attention focused on the lack of a good rescue plan.

More recently, in the Cleveland, OH area a citizen was trapped in a car when an innocent swarm decided the hood should be home at least for a while. After several hours a beekeeper was located and the situation handled.

All of these cases have several things in common – a citizen in trouble; a fire fighting department uncertain how to proceed; and the inability of local officials to rapidly locate a beekeeper.

Fire and rescue departments are well trained in removing people from most precarious locations. But extricating individual(s) from accidents where honey bees pose a distinct and measurable threat is one of the few locations they are generally not familiar with. That uncertainty can be deadly for seriously injured victims, or for rescue personnel unschooled in how to proceed.

And there's no doubt that locating beekeepers is becoming more difficult. There are, flat out, fewer of us out there (140 - 160,000 in 1990, and approximately 10% fewer in 1992. *Bee Culture* survey of State Inspectors, 1990, 1992).

This sets the stage for two possible scenarios – a major incident involving people and honey bees that cannot be quickly controlled by a local department, and lives are lost, rescue personnel are injured (or worse) and lawsuits by the dozens follow; or a well trained department responds to an emergency situation, has the proper equipment ready before they arrive, controls the situation, rescues the victim and handily cleans up the mess, no lives lost, no (additional) injuries and no lawsuits.

At *Bee Culture*, we think the latter scenario is best.

•

The first step was to contact a small, rural volunteer fire department. The group we chose, the Erhart Volunteer Fire Department, is typical of most smaller outfits. They don't have state-of-the-art equipment but what they have works. Nor do they have unlimited funds and personnel to draw on.

This unit represents the average rural department. The kind most likely to respond first to an incident involving honey bees and people. The belief was that if this unit can handle an emergency, certainly a larger, better equipped outfit can.

Like most groups they were eager to learn a new skill – especially one they hadn't encountered before, and one that would save lives – their's included.

We designed four 'incidents' for the department to control: 1) a small, non-threatening swarm in a tree; 2) an abandoned colony; 3) a large, airborne swarm causing problems, and; 4) removing a victim from a threatening situation.

The event was staged at one end of a four acre field. We were video taping each incident so needed correct light and appropriate background, plus it was a more realistic setting than a parking lot and the isolation offered maximum safety.

The first incident was a simple swarm on a tree branch. A beekeeper removed most of it, then another used a commercially available vacuum device to pick-up stragglers. Finally, the department moved in with a single hose to control any remaining in the air, on the branch or on the ground. This was an easy task with no problems and complete control was gained in less than a minute – as expected.

The second 'incident' involved an abandoned colony. The department used two hoses for this. They first approached the colony from the front, training a stream on the entrance to stop guards from leaving, which was extremely effective. Then, a second team moved in with a second hose, removed cover and inner cover and sprayed straight down.

*Continued on Page 396*

# Subduing Stinging Insects

Eric Erickson • John Estes

Fire departments across the United States provide a variety of services to the people and communities they serve. Included is the removal of unwanted wildlife such as skunks, snakes and venomous arthropods (insects, scorpions, spiders etc). Now, with the attention being given to the recent migration of Africanized Honey Bees (AHB) into southern Texas, firemen and paramedics will be asked to remove swarms of honey bees and wasp nest, and to rescue victims being attacked by bees and wasps. While AHB may be the insect of greatest concern, similar problems in subduing or removing troublesome populations may be encountered with wasps and indigenous honey bees; and these may be misidentified as AHB. (AHB are, to the naked eye, *indistinguishable* from other honey bees.)

Unfortunately, most fire departments do not provide their personnel with either the training or specialized equipment needed to handle large populations of stinging insects. This shortcoming is particularly acute among the many rural and volunteer fire departments who are most likely to be called upon for assistance with bee and wasp problems.

There are three very different problems involving stinging bees or wasps that fire and rescue personnel are likely to encounter: 1) the removal of swarms of honey bees; 2) the removal of honey bee colonies and wasp nests; and 3) the rescue of a victim(s) being attacked by large numbers of bees or wasps. The means of resolving these problems will be discussed in detail following some basic rules on how to properly remove an insect sting embedded in the skin, and a discussion of protective equipment.

### Removing An Embedded Bee Sting

When wasps attack, they first insert and then withdraw their sting. They may do this several times in rapid succession as they crawl, leaving a short trail of miniscule puncture wounds before they fly away intact. Unlike wasps which have a smooth sting shaft, honey bees can sting only once. This is because their sting has eight to 10 barbs at the tip which become embedded in the skin. When the honey bee pulls away it leaves behind its sting with the venom sac attached. The partially disemboweled bee may remain near the victim in an act of further intimidation, but it dies soon thereafter. However, the white, translucent, venom sac, with its essential nerves and muscles attached, continues to pulsate for a minute or more, pumping additional venom into the wound. Obviously, it is important for the victims' well-being that honey bee stings be removed as quickly as possible.

Proper removal of the sting involves simply scraping it away with a fingernail, credit card or similar instrument. *Never pinch, tweeze or otherwise attempt to pull the sting out* as this will simply inject the remaining contents of the venom sac.

> "Most fire departments do not provide their personnel with the training or specialized equipment needed to handle large populations of stinging insects."

### Protective Measures

Most, but not all, beekeepers choose to work their bees wearing full protective apparel. Their work outfit includes a pair of zippered white (usually cotton) coveralls, boots, gloves and a hat with net veil. Pants are tucked into their boots or cuffs are secured.

Fire fighter turn out gear, as well as the various suits designed to provide protection against hazardous materials are acceptable alternatives to the beekeepers' coveralls. The heavy turnout gear worn by most fire fighters provides adequate protection for all areas of the body except the head and neck. Be aware however, that leather areas of this clothing and leather gloves may antagonize bees and wasps. Plastic or rubber gloves are best. **Veils, the only article of protective apparel not normally issued to fire fighters, are essential and should be included as part of the standard equipment on rescue vehicles.** Bee veils are readily available from beekeeping supply houses. Alternatively, mosquito veils can be obtained at military surplus and sporting goods stores. The veil must be sealed at the top and bottom with string or duct tape. Tape should also be used around the waist, wrists and ankles and to close any other gaps.

Disposable hazardous materials suits, such as those made of Chemrel®, aranex® or Tyvek®, provide adequate protection, especially when donned over street clothing or uniforms. (Tyvek suits have been worn successfully by beekeepers and researchers.) Reflective aluminum suits are also adequate, but they may limit movement. Again, veils and duct tape must be employed as outlined above.

### Swarm and Nest Removal

Honey bee colonies multiply through the process known as swarming. During times of plenty, the population of a colony increases, a new queen is reared and ultimately a swarm of several thousand bees and the old queen issues from the parent colony. The swarm may land temporarily at one or more locations as it travels in search of a new cavity to inhabit.

Most emergency calls for assistance, when someone feels threatened or is attacked by stinging insects are made following the sudden appearance of a swarm of honey bees. Swarms, most common in spring and early summer, exhibit an impressive level of activity, yet are usually quite docile, and represent only a minor threat unless severely disturbed. However, if the swarm is in an area known to be inhabited by Africanized bees, they may be highly irascible; thus, extra precau-

tion should be taken. In the fall, similar calls for assistance usually involve wasp nests or aggregations of foraging wasps. Wasps are almost always highly defensive and should be approached with ion while wearing protective clothing.

**Established honey bee colonies** may precipitate calls for assistance throughout the year. However, it must be understood that the methods of dealing with swarms and established colonies are usually quite different.

**Honey bee swarms** are relatively easy to capture or kill. A beekeeper, or other person with some experience, wearing protective clothing can usually cut down or scoop up a swarm and put it in a box or bag for removal. If this is not possible, or if immediate action *must* be taken to prevent human endangerment, one of several wetting or foaming agents or soap solutions (see below) can be sprayed directly on the swarm. A relatively gentle spray with a fine mist will be most effective. This will prevent flight and cause the bees to fall to the ground where they will crawl around before they eventually suffocate and die. When immobilized, the insects may be scooped up, bagged and disposed of.

"Expect increasing numbers of requests for assistance from people faced with stinging insects."

**Established honey bee colonies** are difficult to remove because they normally inhabit cavities within the walls of structures, hollow living trees, rock outcroppings and other similar protected spaces. Their removal usually requires the assistance of an experienced pest control operator or beekeeper.

**Most wasp nests** are suspended from branches in a bush or tree from the eves of a structure. They can be removed at dusk by ly slipping a large plastic bag up and over the nest and quickly ing it shut before cutting off the branch(s). Protective clothing should be worn when attempting this. Alternatively, a commercially available pesticide can be used, spraying the stream directly into the hole on the bottom of the nest. The nest is then bagged as before.

### Victim Rescue

Obviously, victims of multiple stinging attacks should first be removed from further harm. However, this is seldom easy without the right equipment. Once a victim is "marked" by alarm odors which are chemical components of the insect venom, additional bees or wasps will follow and find the victim unless they encounter some kind of barrier. The victim may be carried into an enclosure such as a house, a van or an ambulance; however, numerous insects will follow and be trapped inside once the doors are closed. There they will continue their attack. Here, the only option indoors is to vacuum up the bees around windows when they are attracted to the light, or if in a vehicle, drive away and then roll down the windows and chase the insects out.

The safe removal of a victim from a mass attack by bees or wasps requires only thoughtful planning and a few materials normally carried on most fire/rescue vehicles: After arriving at the site rescue personnel should remain in the vehicle and assess the situation. They should then retreat several hundred yards and put on their protective clothing as described above. Onlookers should be moved.

Two things must be done as quickly as possible once rescue personnel are properly protected. First an adequate insect barrier st be established and then the alarm odor must be neutralized. of these objectives can be accomplished by implementing a single procedure that establishes a physical and odor barrier.

Insects are easily immobilized and killed by wetting agents (surfactants). A non-toxic water-plus-surfactant barrier can be established quickly by most fire-rescue units responding with standard fire fighting equipment. The wetting agent may simply be a common liquid dishwashing detergent. Environmentally compatible wetting agents like the non-foaming fire control chemicals and fire fighting foams with surfactant characteristics such as the aqueous film-forming foams (AFFF) are equally effective.

Using standard fire fighting procedures, a line should be set up with an eductor capable of delivering a one to three percent spray of one of the foaming/wetting agents described above and a nozzle capable of delivering a wide fan pattern or straight wall of water. A light initial application of a non-toxic foam/wetting agent to the victim will terminate the attack by most of the insects on or near the victim within sixty seconds (often less). These insects, now unable to fly, begin to suffocate and can be quickly brushed aside.

Then, if an obvious line of insect flight can be determined, a vertical wall of spray, 20 to 30 feet in the air should intercept further flight activity. Alternatively, the nozzle can be inverted to provide a curtain of safety over the victim. Using the liquid barrier, the victim can now be moved to an enclosed vehicle or structure for treatment and transport.

We tested several chemicals in the lab with caged bees. Tested as a representative sample were; original Palmolive dishwashing liquid, 9-55® fire control chemical, Silv-ex ® foam concentrate and FC-600 Light Water brand ATC/AFFF, and a commercially available agricultural wetting agent, used by farmers when applying farm chemicals. Most had a light but distinctive odor.

We found that a one percent solution of all of these products was sufficient to immediately immobilize honey bees and apparently kill them within 60 seconds (or less) following exposure. A 0.1 percent solution was inadequate since it merely induced a temporary disorientation from which most of the bees recovered after a few minutes. If there is doubt as to the efficacy of a particular chemical and further testing is deemed necessary, rescue personnel should find it relatively easy to enlist the aid of a local beekeeper for this purpose. Clearly, mammalian toxicity must be a paramount consideration in the choice of product. *The Environmental Protection Agency has conditionally approved detergents for treatment of AHB.*

Once the victim is protected, the stings should be quickly removed as described above. Removal of the outer layer of garments may facilitate this process as those stings embedded through the fabric will be dislodged in the process.

Finally, we should point out that rescue personnel should make an effort to familiarize themselves with the normal activities of stinging social insects indigenous to their area. While this knowledge is critical, we further recommend that every fire department develop a close working relationship with a local bee expert or beekeeper. These experienced professionals can provide invaluable advice and assistance, particularly when unusual situations arise. All states have an active beekeeper organization as do many local communities. These organizations usually welcome requests for assistance and most are willing to help rescue personnel in the development of relevant training exercises, such as

Entomophobia is the all too common fear of insects. With heightened awareness of the migrating Africanized honey bee, the general public will react more vigorously to the presence of stinging insects, even if they are domestic in origin. Thus, fire/rescue departments can expect increasing numbers of requests for assistance from people faced with such dangers, whether real or perceived. We hope that with the information provided in this packet, and by attending a training session led by trained beekeeping and rescue experts, rescue personnel will be able to handle future incidents safely and expeditiously.

*EMERGENCY ... Cont. From Pg. 393*

Meanwhile, the first crew increased their coverage to include the top while it was opened to protect the second group. When the cover was off they again concentrated on the front, while the second group poured in from the top. Within seconds the colony was controlled, even though it had been kicked and banged just previous! Every bee that emerged was brought down immediately.

The third 'incident' was complicated to both set up and control, but for the first time exposed the firemen to thousands of airborne bees.

The incident was staged on a small road that passed through the line of trees surrounding the field. An artificial swarm was placed on one side of the road the night before, using a caged queen. About 20 minutes before the 'incident' was to begin, the queen was moved from the swarm to the other side of the road – about 50 feet.

The bees began searching almost immediately, and in 15 minutes the area over the road was filled with bees – darting back and forth, up and down, toward and away from the fire fighters.

The participants were noticeably more intent, and less cavalier after their first two easy successes. They approached the area with two hoses, on high pressure and relatively widespread. The intent was to block the line of flight from source to destination, and concentrate on each with a single hose, but it didn't work as well as intended.

The bees outflanked both hoses easily, flying higher and wider than both hoses could cover. The result was although some bees were controlled at both source and destination, nearly half scattered far and wide. While this 'controlled' the situation, the bees returned in 20-30 minutes to the original site.

Analysis by observers and fire fighters indicated the original approach lacked adequate pressure and volume to both control *and* contain the bees.

This information was absolutely necessary for the fourth 'incident' – removing a victim from the middle of a similar situation. Again, an artificial swarm was set up, the queen moved and shortly there were bees in the air. There were differences though. Nearly twice as many bees were used, the queen was moved a bit further and attached to the aerial of a car. And, a victim was placed right in the middle.

The goal was *not* to control all the bees, but rather to create a 'safe' area that would keep bees out, move in with

*Continued on Page 400*

# When You Don't Know Who To Call . . . .

*"This is something else my husband won't be home for dinner because of," said the wife of a volunteer fireman. She has faced the fear of his not returning from a fire – that happened to a friend of theirs on the force – and she is accustomed to him jumping up from a family gathering to answer a fire call. But she doesn't want to get used to him going out to control a honey bee emergency.*

This was the reaction of a volunteer fire fighter's wife when she overheard the question put to her husband, "How do you feel about controlling honey bees with your existing fire fighting equipment?"

Fire fighters have seen their role grow steadily from just 'fighting fires'. Emergency Medical Teams, most often affiliated with volunteer fire departments in rural areas, now handle all kinds of life threatening situations. They have become chemists so they can control hazardous material spills at truck stops, and paramedics with advanced training to administer life-saving techniques on the spot.

These brave men and women, who have spent their own time trying to stop the world from explosively combining with oxygen, and saving lives in the process are now in the *primary* business of saving lives.

When this obvious fact settled into the minds of our volunteer fireman and his wife, they both agreed that – yes, this was very possibly another duty a fireman could do and could save lives doing it.

Opposition to the idea of including one more disaster in their menu of duties soon faded away, but it is always there when introduced the first time to others on an already overworked rural fire department.

One seasoned veteran volunteer responded to the challenge, by saying, "You don't need the fire truck out on a swarm call, just bang a big pot with a big spoon and they'll leave." He was showing country good sense and opposing a modern method at the same time. It might work, a little bit, but a hose with the right chemicals WILL work, every time, and he admitted that if his livestock were threatened by an out-of-control situation including honey bees he would very much like a truck at the scene rather than a neighbor beating a pot.

Any new idea meets with resistance, at first. That makes the idea a challenge, and firefighters have always overcome challenge.

That was one of the reactions of Buck Adams, director of Emergency Management for Medina County, OH. His is an office that grew out of necessity for one of the fastest growing counties in the U.S. Once an agricultural haven, it has seen an increasing number of people literally create bedroom communities as they migrated from two large nearby cities – Akron and Cleveland. Most residents probably wouldn't know how to deal with a single honey bee, let alone thousands. Adams sees using volunteer fire departments as a real plus in saving lives, although he also uses common sense in meeting the problem.

"If the situation were not life threatening, we would probably refer it to a private contractor and simply cordon off the area till he got there," said Adams. He added, "Sometimes, the best action is no action and this would be treated somewhat like a hazardous material problem."

"If the situation were life threatening, we would handle it," he said. He also said that many fire departments may have *some* way of dealing with bee swarms, but "this is a better way."

In his over 16 years as a volunteer fire fighter before becoming director of Emergency Management, Adams said he had to remove stinging insects once from a tree and once from the back of a house. "I don't think this will happen very often, but it's good to know that there's something we can do about it," he said.

Adams also said that protecting lives from bees would fall in naturally with fire department duties. "When you don't know who to call – you call the fire department," he said with a smile.

*Pamela Moore*

*The Erhart Crew brought two working trucks. A pumper, and a tanker carrying 2000 gallons of water. They were prepared.*

*The tank truck was hooked directly to the pumper, and two hoses were used.*

*Running the pump station can be tricky, and two hoses running simultaneously requires constant attention – to the firemen on the hose who signal what they want, and to the meters and valves that indicate what's going on.*

*Kathy Gray, a regular volunteer and Cadet Supervisor made it look easy.*

*Continued on Next Page*

*We also had an emergency rescue vehicle on hand. Just in case, and so this crew could see the show, too.*

*The first thing on the agenda was to hose down the dry grass under the truck, to avoid a fire from the hot muffler.*

*Richard Hill has on full turn-out gear. Head cap, made of knit material under the helmet covers all but the face. The helmet, with face shield and chin strap protects head, face and back of the neck. Canvas coat and pants, quilt-lined no less, and leather gloves protect the body, while heavy rubber boots rise to mid-calf, under the pants.*

*Because there were so few bees in each demonstration they did not wear veils, but said they could see their value – except they didn't have any. At least not yet.*

*Chief Sullivan shows the back of the bib pants he wears. Lined and thick, on a hot day like the demonstration (85°) firemen can only work for short periods before cooling off.*

*When running a demonstration like this, you must have someone in charge. Have a good plan, lots of help, and make sure everyone knows what everyone else is doing.*

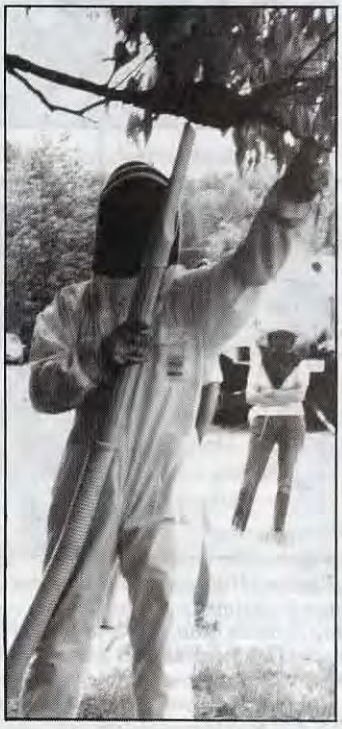
*Just before we began, all involved reviewed, again, the sequence of events and who would do what, when and why.*

*When dealing with untrained personnel and honey bees complications can arise. Bees, no matter how well rehearsed, don't always follow the rules.*

*Introducing a firefighter to a honey bee can be enlightening, at least to the fire fighter. Diana Sammataro discusses this artificial swarm with one of the firefighters before he suits up.*

*Jeff Ott, our Weekender, was on hand to help out wherever needed, but mostly to assist with the first demonstration – a regular swarm in a tree. . . .*

*After most of the bees were shaken into a box, some of the remaining bees were captured using a commercially available vacuum collector.*



*The remaining bees were left for the fire department to control.*

*They were aware that swarming bees not only are very high.*

*. . but that some were on the ground, and these needed attention, too.*

*The third event, controlling a moving swarm, required two groups, one concentrating on the source of the bees, the other on the destination.*

*Bees are in the air and on the ground, and both sets need to concentrate on both areas.*

*Bees in the air are controlled by putting up an* umbrella *of water, protecting the firefighters, covering as wide an area as possible and 'touching' as many bees as possible.*

*Working together, the teams crisscross the entire area, covering trees, the ground and even each other.*

*The last event was the most realistic of all. It involved removing an individual from a threatening situation involving honey bees. It starts with the rescuers moving in with a high, fine spray.*

# ANAPHYLAXIS

Nearly everyone has an allergic response to honey bee venom, but less than 5% of the population ever develops a life threatening reaction.

There are two types of allergic reactions to bee stings, "local" and "systemic" A local begins with the initial sting and the resulting pain. Within minutes the site will become red and swollen, sometimes a little, sometimes a lot. Although it may be painful, it is generally not life threatening.

The most serious reaction is a *systemic* reaction to the bee's venom. When this happens the victim's entire body reacts to the venom. The person will feel the sting and shortly the effects of anaphylaxis.

The person experiencing anaphylaxis will feel the onset of symptoms within 20 minutes of being stung. Initially the person may get sweaty, flushed, and become short of breath. They may have difficulty swallowing, experience dizziness, or develop abdominal cramps. The most serious reactions are the swelling that occurs in the throat that may eventually block their airway or a rapid drop in blood pressure. Unconsciousness will follow either reaction, and if left untreated, death.

Speedy action is required to save this person. Get them to a hospital or call for emergency medical personnel.

You can help by applying a constricting band between the wound and the heart to slow the spread of venom. Do not use a tourniquet because it may cause severe tissue damage. Scrape the stinger away and apply ice to the stinger site.

Consider having your doctor prescribe a "bee sting kit". You may have been keeping bees for years and can take many stings at a time, but it is good insurance. A bee sting kit in the truck, pocket or five-gallon pail will help on the outside chance you develop a reaction not counted on.

*Jeff Ott*

*The goal wasn't to completely control the bees, but to protect the victim and the rescuers long enough to have two rescuers move in and remove the victim. To accomplish this, with a minimum of equipment, two men moved in with a fine spray (150 PSI pressure), aimed straight up, forming an umbrella over the victim and the two who were to remove the victim. This effectively kept bees from entering the area, reducing any encounters with bees.*

*Continued on Next Page*

*Once the victim has been reached, the carriers (draggers, actually) and hose carriers slowly retreated, leaving the situation to be controlled later. No stings were received by rescuers or victim, and a minimum of honey bees were killed.*

*This was an incredibly successful demonstration, and the most realistic. Everyone involved was a bit anxious, (there were about four pounds of bees in the air, heading for the aerial of the car where the queen had been attached). That many bees were hard to control, but with the fine spray and active chemical applied as an umbrella,* protection *was achieved.* SUCCESS!

***EMERGENCY ... Cont. From Pg. 396***

a large area spray and pick up the victim. Meanwhile, the second crew provided an umbrella of water over the rescuers and victim as they retreated to safety.

This technique worked perfectly. The rescuers moved in, removed the victim and all escaped unscathed. Again, the bees were not to be 'controlled', but rather the victim and rescuers were 'protected'. An important difference if the bees are to be saved and rehived later.

During the debriefing after the events, the consensus among all participants and observers was that you can't have enough water or pressure. Our 'incidents' were fairly low key with small bee populations so were generally easy to control. However, the last two 'incidents' proved that "more was better", and *definitely* safer.

Several suggestions were made afterwards, and some conclusions reached that bear repeating.

- Training sessions reinforce a fire/rescue team's confidence and experience in handling a honey bee emergency.
- If you are involved in a session, make sure a single person is in control, and that that person is knowledgeable about bees and bee behavior.
- Confer with the lead fire fighter (chief) and talk about hoses, nozzles, pressures and chemicals, personnel and anything else that comes up. Make sure everybody knows what to expect. How many volunteers will take part, are any allergic to honey bees, will there be a cost.

  – Any of the foaming agents available to fire fighters are effective in killing or controlling honey bees (see below). But for a demonstration we make the following suggestions: 1) use the least expensive compound available, probably an agricultural wetting agent; 2) if you intend to keep the bees use a concentration in the 0.1% range (see Erickson's article.) If you intend to kill bees, use a 1.0% solution, minimum.

  – Foaming agents obviously create foam and when pressure is increased, the thickness of the foam increases. Foam is slippery, hides obstacles and can be a hindrance in a rescue situation.

  – Agricultural sufactants or wetting agents work equally well, and produce no, or little foam making rescues safer.

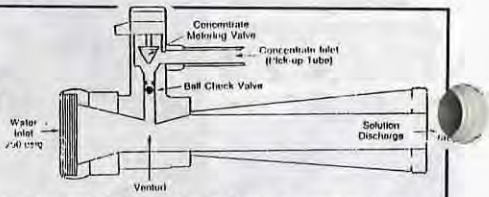
  – No matter what chemical is chosen DO NOT under-mix the ratio. Erickson found that a minimum of a 1.0% mixture was required to *kill* honey bees. Less would control, but not kill. If lives are at stake, we recommend a 3.0% mixture. When a mixture in the 0.1% range is used the bees are immediately knocked down and stay down for a quarter hour to an hour or more. They revive when the solution dries. This technique saves bees, but if the demonstration lasts an hour or more you will have bees up in the air again.

  – All of these chemicals irritate the eyes and to some degree the skin. Keep that in mind when 'protecting' a victim.
- For a large spill (a semi, for instance) water will be the limiting factor. Starting a rescue mission and running out of fuel may be disastrous.
- Make demonstrations as dangerous as you safely can. Consider the experience and skills of volunteers; observers; helpers, equipment limitations and available bees.
- Make your demonstration as realistic as possible. Small bee populations are great for confidence builders but will be seldom encountered by fire fighters. Thousands or millions of bees in the air is more realistic – and definitely more difficult to control.

  – a 'spill' incident could be simulated by dumping several colonies off the back of a moving truck.

Presenting this information to your fire/rescue department is the first step in taking a 'proactive' approach to forming a working relationship with your local officials. Our session took just over an hour to finish, and only two or three meetings with fire and police departments beforehand. It was time well spent. ○

## Foam or Surfactant Eductors




Fire fighters have been using foam to fight fires since the industrial use of petro-chemicals began during the first part of this century. Water is naturally "heavier" than the oils and fuels that burn. When fire fighters used water to douse a flame, the oil would rise and continue burning, riding on top of the water. If a fire fighter directed water from the fire hose at the burning pool of oil or fuel, the burning mixture would splatter and intensify the spread of the fire. A foaming agent added to the water makes the water "lighter" than the burning fuel, helping the water to ride on top of the fuel. This action cools and smothers the fire, knocking it out.

There are several methods of adding a foaming agent to the fire fighter's water. One way is to add the agent to the water supply. This may work in rural situations where large trucks called water tankers are used to shuttle water cross-county to a fire's location. However, this would be impractical in large-scale or where water is supplied by hydrants. Because of this limitation, most fire departments are equipped with a type of foam injector, called an "in-line eductor".

This eductor is based on the Venturi Effect basically defined as: A gas or liquid will speed up as it passes through a narrow passage. This is why it is windier in cities between the buildings.

Water enters the eductor at 200 psi. (pounds per square inch), and is then forced through a narrow passage. Because of the venturi effect it speeds up. This creates negative pressure at the narrowest point, drawing the foaming agent through a connecting pick-up tube like soda through a straw. The concentration of the foaming agent can be regulated through a simple metering valve on top of the eductor. The cost of this effect is a 35-40% drop in water pressure, but fire departments take this into account when using the equipment.

The eductor that has been part of most fire department's fire fighting hardware for years now has a new application. It is no longer limited to use in fires and petro-chemical spills. It can be used to save time and lives in honey bee incidents with a *little* additional training and *no* additional cost.

*Jeff Ott*

# P·I·C·N·I·C P·O·I·N·T·E·R·S

*It's a hot, lazy August afternoon and you and your family have just finished a game of badminton in the back yard. This is the time that beer commercials dream of, and you've got a cold one waiting on the nearby picnic table. But just before you take that long, cool swallow you notice – BEES! – floating in the brew you were about to drink. And they're not even dead!*

• • • • •

*It's a wonderfully mild, pleasant Sunday afternoon and you and your entire family are enjoying the annual outdoor cookout in the city park. Hamburgers, hot dogs, beer and pop, potato chips and potato salad – the works.*

*The food's been on the table for quite awhile now, all during the softball game and the horseshoe pitching contest. Even during the photo session Aunt Julia insists on every year. All during the day.*

*Kids have been snitching chips and marshmallows, cold hot dogs and candy bars, and around the table on the ground are bits and pieces that they've dropped. Half full and forgotten plastic cups of beer, pop, milk and even water are scattered around the picnic site like Ma and Pa Kettle's living room in a rain storm.*

*When it's finally time to eat you notice the mess on the ground; the flies taking advantage of the carelessness; and a BEE or two flying around. Suddenly, it seems there's more than one flying around. In fact there seem to be hundreds. Landing on your hamburger, dive bombing the hot dogs while they're still on the grill. There's three on your beer glass and even one crawling on Aunt Julia's nose!*

• • • • •

This is the time of year "Picnic Panics" most often occur, and they can ruin a day at the park, or an afternoon in the backyard. But with just a little understanding of why those bees are around, and by following a few suggestions you can avoid, or greatly reduce these hymenopteran encounters. But the best part is you won't have gallons of toxic pesticides polluting your home, backyard or picnic area.

First, let's take a close look at who these uninvited guests really are. Unless you live in the extreme southwestern part of the U.S. you can be almost certain that the critters buzzing your hot dogs are either yellow jackets, or their close cousins, the hornets.

Yellow jackets, hornets and bald or white-faced hornets are members of the Vespid family of insects, and nearly all follow the same basic life style.

## Lifestyles of the Venom Vendors

Adults forage in the area around their nest, searching for food for themselves and their young. Workers catch flies, caterpillars and other high protein snacks and return them to the nest to be fed to the young. During late summer nest populations reach maximum, and the pressure to gather food is at its greatest. This forces the workers to forage further from home and to investigate less than optimum food sources – like hot dogs and steaks.

Adults need to eat, too, but their diet consists primarily of sweets – like flower nectar, fruit juices and pop. Many naturally occurring sweets tend to ferment as they ripen, like rotten apples on the ground, and give off a characteristic sour odor, very much resembling beer. Adults and young need water on a regular basis, too, and some foragers are always on water patrol.

Though eating habits may be similar, these picnic pests have different, and distinct living arrangements, and are also easy to tell apart at a glance.

## Yellow Jackets

Yellow jackets are shiny yellow, with black markings. They are just a little over three quarters of an inch long, and have long, spiny legs. They are stout, robust insects, and are rapid flyers. They generally nest underground in large colonies which can reach 5,000 individuals by fall. Members will aggressively defend their nest when disturbed by lawn mowers, or volley ball games. Maximum populations and increased outdoor activity by people are why yellow jackets are noticed most often during late summer.

## Hornets

Hornets are shiny black, with bright yellow markings. They're easy to distinguish from yellow jackets though. Primarily black, hornets have a very narrow waist and a short, nearly blunt abdomen. They're also smaller than yellow jackets, measuring just over a half-inch long. They live in large paper nests which hang in trees, eaves of houses and the like. They are very sensitive to vibrations, and will aggressively pursue attackers throwing stones or shaking limbs.

## Bald, or White-Faced Hornets

Bald, or white-faced hornets are similar to regular hornets. They are shiny black, but with whitish/yellow markings. They are between a half-inch and an inch long, and live in somewhat smaller paper nests than their cousins. They are very aggressive when defending their nests, and are sensitive to vibrations and other disturbances.

## Honey Bees

Very rarely will honey bees visit your picnic. They are one-half to three-quarters inch long, brownish black and golden colored and have stout, very hairy bodies. It is the vast amount of hair that makes them so easily distinguishable from other bees. They are relatively slow moving when compared to our friends listed above. They are attracted to sweet drinks because they are primarily flower nectar feeders. Honey bees nest in man-made hives, hollow trees, rock cavities or buildings.

# Beauty and the Bees

B.A. STRINGER

The abundant, high quality pollen produced by poppies is extremely attractive to honey bees, even when other pollen sources are available. Oriental poppies, corn poppies and opium poppies are all species of *Papaver*, the true poppies. There are over 50 *Papaver* species all together, all of which have milky sap. Most are native to the Old World. These plants are easy to grow, thriving in sunny places with good drainage, moderate watering, a little fertilizer.

Oriental poppies, *Papaver orientale*, are hardy perennials blooming in May through July. The large flowers, up to 6" across, are commonly bright scarlet-orange, but other varieties may include such colors as pink, maroon, apricot and white. Many have darker spots or blotches at the petal bases. The plentiful supply of dark purple pollen is very popular with bees; frequently four or more honey bees may be seen reveling in the pollen of a single flower. Mature plants may grow to four feet in height, but a dwarf variety, 'Allegro', flowers at 18" The plants die back after blooming and leaves resprout in the early fall, remaining green through winter.

Oriental poppies are best sown where they are to bloom, as they resent being moved. However, if transplanting is necessary, it should be done in late summer when the plants are dormant. This is also a good time to divide and reset plants which have become overcrowded and are producing fewer or smaller blooms than in past years.

These poppies are native to southwest Asia, from whence comes their descriptive name. The red and orange flowers reflect ultraviolet light, making them very visible to honey bees.

PAPAVER RHŒAS FLORE-PLENO

Corn poppies, *Papaver rhoeas*, were common weeds in European corn fields, from which garden varieties have been selectively bred. They are no longer widespread in Europe because of changed agricultural practices and use of herbicides. Corn poppies are the scarlet flowers that grew "in Flanders fields", and the modern single-flowered red selections with black blotches at the petal bases are presently known as "Flanders Field" or "American Legion" poppies.

From a single corn poppy with white-edged petals, found in the corner of a field, the Reverend W. Wilkes developed Shirley poppies. These are available in a wide range of colors including pink, white, orange, scarlet and purple, as well as bi-colors. Many of these derivatives show no trace of black in petals or pollen.

Summer annuals, blooming from July to September, these poppies may be sown successively for prolonged bloom. Shirley poppies are generally sown where they are to remain as they transplant poorly. Sown in fall or early spring, seeds grow quickly into 2-4' high flowering plants by summer. Dead-heading, or removing the spent flower heads, will encourage further bloom production. Flowers of Shirley poppies have been used medicinally, and the petal pigment used to color medicine and wine.

Opium poppies, *Papaver somniferum*, are hardy annuals which reseed easily. Morphine, first isolated from these poppies in 1805, is only one of about 25 alkaloids present in the plant. Opium is the dried latex from the unripe seed capsule and is usually produced under official control.

Garden varieties of the opium poppy furnish abundant pollen

*Continued on Next Page*

*BEAUTY ... Cont. From Pg. 403*

which is very attractive to bees. There are accounts of bees becoming narcotized or stupefied and being unable to continue their work, when collecting pollen from this flower or the corn poppy. Large pink, red, white or purple floppy flowers of this plant open in the summer. Single flowered varieties are well worked by honey bees, but 'peony-flowered' or doubled varieties, while showy in the garden, are of little use to bees. The bloom period may be lengthened by dead-heading after the petals drop. If left to ripen on the plant, the dried capsules are the source of "mawseed", which is the poppyseed commonly used in baking. The genus name of Papaver is said to be derived from the ancient Latin describing the sound made while chewing the seed.

The Poppy Family, Papaveraceae, contains many plants called "poppies" in addition to the true poppies. *Romneya* and *Meconopsis* are two genera of plants also called poppies.

Both nectar and pollen are produced by the Matilija Poppy (Tree Poppy), *Romneya coulteri*, which blooms from July to September. The fragrant white, satin textured flowers have a large golden center of stamens which produce abundant pollen. The Matilija Poppy is a herbaceous perennial which dies back to the roots in fall. In a warm site, it grows 3 - 6' tall in summer. Because seeds are difficult to grow and larger plants are sensitive to disturbance, plants are generally propagated by root cuttings. Potted plants may be purchased from nurseries.

The name of the plant honors Irish astronomer Thomas Romney Robinson, who was a friend of the botanist Thomas Coulter.

Two species of *Meconopsis* poppies, both short-lived perennials, are sometimes found in gardens. These plants are named from the Greek 'mekon' = poppy, and 'opsis' = like, referring to the floppy, poppy-like flowers. The startlingly bright blue Himalayan Poppy, *M. betonicifolia*, native to the Himalayas and western China, blooms from June to July. Bright yellow, the Welsh Poppy, *M. cambrica*, is native to western Europe and blooms from June to September. Both produce copious amounts of pollen sought after by bees. While these poppies are more difficult to grow than the true poppies, established plants are spectacular in bloom.

There are poppies for almost any sunny site in your garden. Select single-flowered varieties, and plant in masses for most use to bees and best floral display. ○

# A MO$T PROFITABLE YEAR

RICHARD E. BONNEY

Sometimes selling a colony is the right thing to do. But how much do you charge? How much is it worth? Don't give them away, but don't price yourself out of the market, either.

Have you ever had the feeling it's time to toss it all in, time to sell those hives and take up something sensible like collecting match book covers or mountain climbing? It happens. A lousy season with no honey, excessive winter kill, mites moving in; any of these can set if off. You know deep down that you really don't want to sell, but you have to ventilate a little bit now and then. It will pass. It always does.

All right, it's passed, you're not going to sell off, you never really meant it. But there sure are a lot of hives out there. Perhaps you should sell a few of them. After all, it is just a hobby.

Yeah, what a great idea. Get rid of one or two of those outyards. That one you just set up last year, maybe. It's too far away and the location didn't turn out to be just right. O.K., then, that's it. You'll sell those hives. Your spouse will probably be pleased, too.

Now what? Just set a price and advertise, right? That's not hard. First, the price. Well, maybe it's not all that easy. What is a hive worth these days?

There's no pat answer to that question, at least, there shouldn't be – there are too many variables. The queen, the workers, the age and condition of the equipment, the configuration of the hive, all of these should be considered. Perhaps the best way to approach this is to think of all the possible questions a *knowledgeable* buyer might ask. Then, if you sit yourself down and answer each of these questions, you should have a good idea of the value of your hive when you are through, and be able to justify that price to the potential buyer. So let's start with those questions.

For each colony, no matter what the configuration of the equipment, there are two basic components to look at – the bees and the hive. Each component has elements and each element should be considered separately. Taking the bees first, let's look at the most important personage in the hive. Let's start with the bees, and the most important bee in the hive.

## The Queen

What do you know about the queen in your colony? A lot, I hope. For instance, how old is she? If you requeen periodically and use marked queens you'll have a good idea of her age. Otherwise, age may not be so easy to pin down. If you don't mark, you may have to go a little on trust. For instance, was your colony established last year? New queen at that time? No guarantees, but it is *probably* the same queen. Was the colony established from a swarm last season. The queen who accompanies the swarm is usually superseded sometime after the swarm settles in, so you probably have a relatively young queen. Has the colony been on its own for a while? Maybe you're a let-alone beekeeper who doesn't requeen unless you see a specific need.

But what does all of this mean? Perhaps at this point you are beginning to realize that unless she was marked, you cannot pin down the age or origin of the queen. At least you have now thought about it though, and that's a plus. Let's move on to a couple of things you can assess a little more accurately – appearance and brood pattern.

*THE BEES – how do they look? Is the queen old, new? How about brood, pattern, production, color?*

Is she good looking? Is she stately, are her movements deliberate and queen-like, or is she a runner, one you can never find. Is she large and full bodied, or is she undersized and perhaps *rat-tailed*? Is her appearance otherwise questionable? Usually, the better the appearance the better the queen.

Now look at her brood pattern. Assuming the size of the brood area is in keeping with the season, is the brood pattern wall-to-wall with few empty cells, or is it small or patchy, indicating an inefficient queen, or one who was not well mated, or whose eggs are not all viable?

## Workers

Next, let's look at the workers. The quality of the work force is at least in part a reflection of the queen, but we can also look at the workers separately. First, is there a good cluster, adequate in size for the time of year? Are these bees of acceptable temperament? Are they cool and collected when you open the hive, or is every opening a traumatic experience for all involved? This is a subjective judgment, of course. Your trauma threshold may be higher than some. You may be willing to tolerate aggressive bees because of some other desirable trait, but other beekeepers may have different thoughts. For some, a single sting is too much.

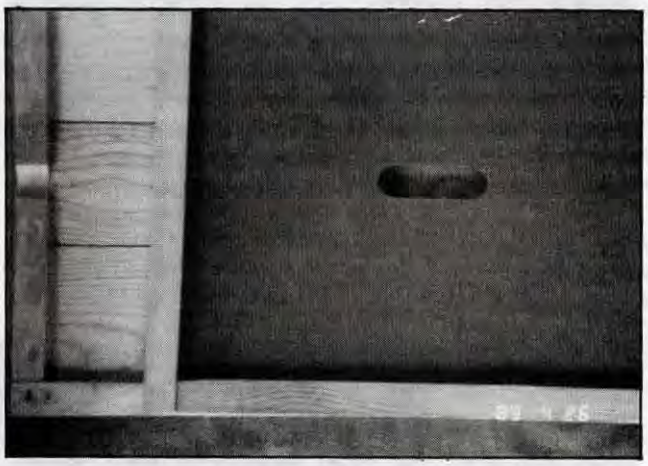
Has the colony been productive? What kind of crop did they give you last year? How did they compare to other colonies *at this location*? If the season is underway now, how are they doing relative to other colonies? Of course, if there is only one colony at this location, your possibilities for comparison are limited. You still have experience to draw on, though, and can call up a picture of what a colony should be doing this time of year.

## Wood

Going to the hive itself, look at the wooden ware. What is its age? There is nothing inherently wrong with elderly equipment if it has been maintained, but if it's old, look at it more critically. Is the wood sound, all of it? It is embarrassing to attempt to pick up a hive and have the bottom board fall away with rot, or to have the hive body begin to disintegrate as you begin hammering in a hive staple. These things do happen. However, if you maintain your equipment routinely, scraping burr and bridge comb periodically, reversing hive bodies in the spring so you expose (and clean) the bottom board, you shouldn't have any surprises. And you have kept it painted, haven't you?

Next, what was the origin of this equipment? Was it factory-made or home-made? If home-made does it have proper dimensions throughout, does it have good joints, and is it well nailed? Some home-made equipment is as good or better than factory made, but, of course, some is not. But even factory-made does not guarantee quality. For instance, are the covers made with masonite, a less than first class material for the purpose? You no doubt have noticed how those masonite inner covers sag and often touch the frame tops.

Finally, is the equipment standard for your area? Most of the equipment in this country is ten-frame. Eight-frame is not uncommon and eleven-frame turns up here and there. Considering depth, in some areas there is a preference for shallow extracting supers, while in others the medium depth is more common. It is all serviceable, but different sizes reduce the possibilities of matching when you start mixing,



*Inner Covers – wood is worth more than masonite.*

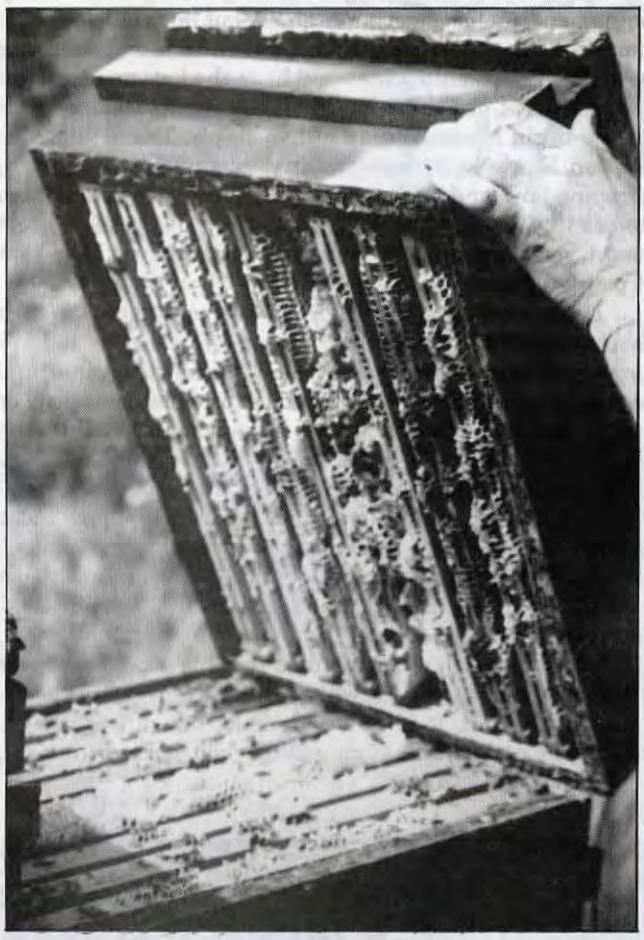
and even with seemingly standard equipment, there is more variation today than there once was. Some of the variations are not important, more cosmetic than anything, but some create a hassle. Nothing is worse than trying to transfer a frame or two of bees into a hive body that isn't quite deep enough. (Or were the frames too long?)

## The Comb

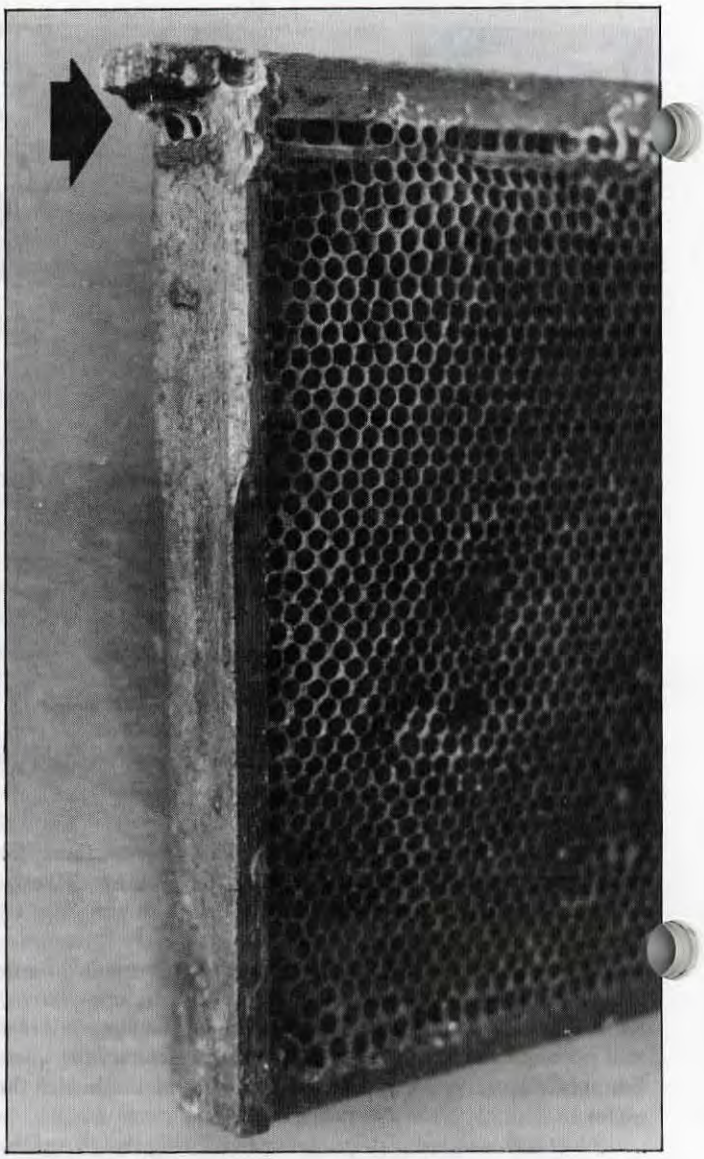
The comb is often overlooked when examining a hive but it can have considerable bearing on the success or failure of the colony. Age and condition are both important. Age, and the attendant long use, can make comb into a repository for disease organisms. Perhaps those organisms are not pres-

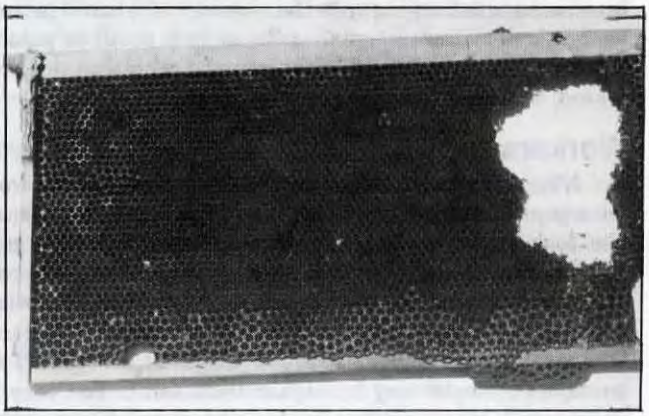
*Continued on Next Page*

*PROFITABLE YEAR ... Cont. From Page 407*



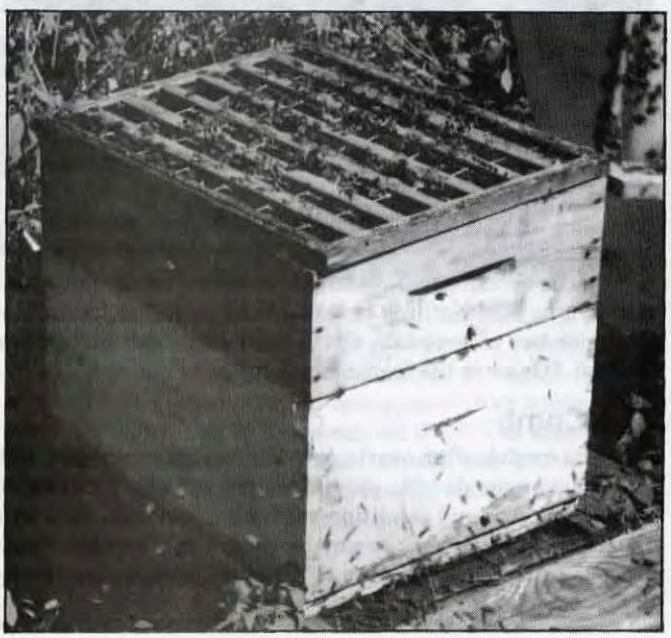
*Does your equipment always have a lot of burr comb and propolis? Maybe it doesn't fit as well as it should.*





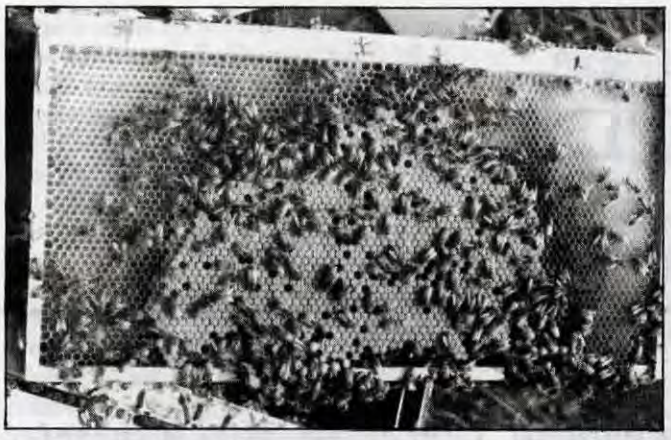
*Frames & foundation – Good shape? Or are they old, falling apart or damaged?*

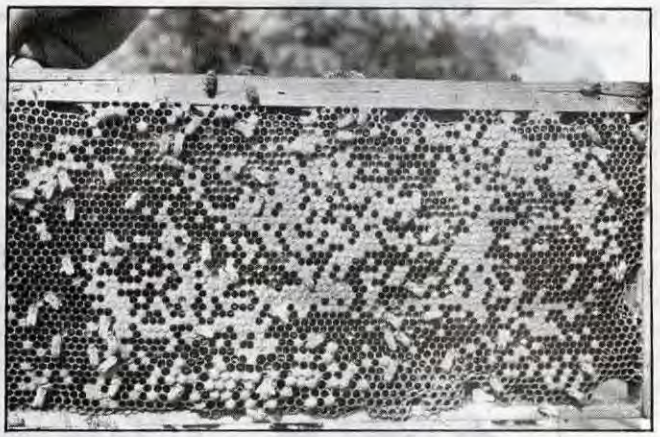
*Extras, like excluders, pollen traps, slatted racks, feeders and spacers will add to the price.*



ently causing a problem because the colony is strong and not under stress, or because at the moment there are not enough of the organisms, but their presence is a potential threat to the well-being of the colony. Moving a hive, splitting a hive or just a poor season – any of these can stress a colony to the point where disease takes over.

Finally, as a result of repeated use, the progressive buildup of discarded cocoons, and wax and propolis reinforce-





*Is the brood pattern solid, or are there gaps, spots, disease, lots of drone brood or other problems?*

ment, causes aged brood comb to have smaller cells, which, some say, make for smaller emerging bees.

Comb condition is usually a reflection of age but it must also be considered separately. Is the comb a reasonable mix of worker and drone cells, for instance? Are there holes in the comb, the result of mouse damage or of the bees chewing out wax to reuse elsewhere in the hive? Foundation placed in a hive when there is no nectar flow can be severely chewed if the bees use it as a source of wax. Later, they may repair the damage, but fill in with large areas of drone comb.

Were the frames themselves properly nailed? Cross nailing is important to keep the top bars firmly secured to the ends. Upward pressure on a top bar when removing a frame from the hive can cause the frame parts to separate. At the least, the result is a few damaged cells across the top of the frame. At worst the frame must be replaced.

## Putting It All Together

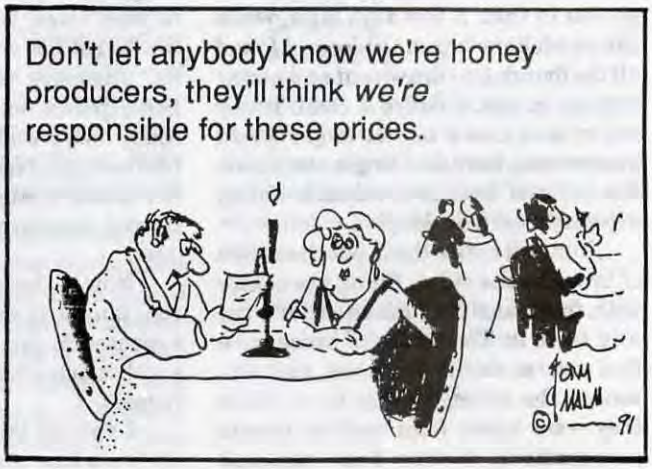
So far, we have been looking at parts of the hive. You probably have a fairly good sense now of the relative quality of your hive. You can put it all together and even come up with a price. But first, let's look at configuration a little more carefully. What are you offering for sale? Your hive may include only a bottom board, covers, and a single brood chamber. Then again, it may have two full depth brood chambers, one or more honey supers, and perhaps a queen excluder and a slatted rack. Whatever the configuration, it has a bearing on the price.

Perhaps you have a sense of the going price for a colony in your area. Then again, maybe you don't. Ask questions of other beekeepers, check classified ads in the bee journals, look in catalogs, talk to your local equipment dealer – you should be able to arrive at a ball park figure for a basic hive – a bottom board, two full depth hive bodies, inner and outer covers and of course, the bees. Let's say your research has shown a resale value of $60 for that hypothetical hive, assuming average condition. But your hive has extras, so, back to the catalogs. You need an interim step here, to figure the cost for a new hive of the basic configuration. With bees and all, you might find that you can set up a colony for $80. From this you can figure that in your area an existing colony is worth about three-quarters the cost of a new one. This gives you a basis for figuring the value of any extras that are included with your hive – extracting supers, queen excluders, or whatever. They, too, are worth three-fourths of the new price. If a new super, complete, goes for $16, then you have some justification for adding $12 to the price of your colony for each one included. Now for the final step, applying a quality rating.

You have analyzed your hive. You thought about the queen, the workers, the equipment, the configuration, and when you finished, you had a good sense of the relative quality of your colony. Give it a rating – on a scale of one to five, with three being average and five the top. What do you come up with? Is your hive better than average? Give it a four. Much better than average? Give it a five. I suppose it could be below average. It was a hard winter. Subtract one or two points accordingly.

Now, what was the average price for your area – $60? All right, and it's a basic two story hive with one extracting super. Add $12 for the super. That's $72. Now apply your quality factor. Add or subtract an amount from the total to reflect the number of points you awarded. You rated it a four? That's one point. Add $10 to your total price (or 10%, or whatever seems right to you). You rated it a five? Add $20. There's your price, and you have thought it all out carefully and can tell any prospective purchaser *exactly* why the hive is worth that much.

Now that you have been through all of this, you undoubtedly have a better understanding of those hives. Perhaps you don't want to sell anymore, or perhaps you will sell, but then you're going to evaluate all of your hives. What a great feeling you'll have after you confirm what you always knew deep down. They're all top quality hives. You've been doing a terrific job. Q



# BEE TALK

RICHARD TAYLOR

Box 352, Interlaken, NY 14847

*"Like beekeeping, there's several subjects to consider this month."*

No two years are the same in beekeeping, and that's one of the things that make this craft interesting. Even the first day was different this year. I didn't get around to my apiaries until the first week in May, and on that very first day I found a big swarm in one of them. I was astounded. The leaves had not even come out yet, and hardly anything had bloomed. I have never seen a swarm that early in these parts. And not only have I not seen another since (lat May), I have not even seen swarm preparations in any of my hives. Of course that is partly because I have been taking preventive measures against swarming, but still, it is all very unusual. Now I wonder what the rest of the year is going to be like. One thing is sure, it will be like no other.

Here's what I did with that swarm. I took three combs of brood from one of my strongest hives, brushed the bees off, and put the combs in an empty hive, to the side. Then I filled the rest up with frames of foundation, and hived the swarm in that. A few days later, when the dandelions began to bloom, I found all the foundation drawn out and nectar coming in fast. I added a comb honey super, and now I expect to get a real bumper crop from that single-story hive. A swarm of bees is a valuable thing, especially early in May!

You will notice that I put the combs of brood to the sides, filling the center with frames of foundation. That's the way to do it. The combs of brood gave that swarm an instant boost, and prevented the strong colony from which they were taken from making swarm preparations, having been replaced there with frames of foundation. You should never stagger frames of foundation with frames of drawn comb in a hive. You'll get combs of very uneven thickness if you do.

Now to change the subject. I've noticed that my idea of recycling used jars stirred up some controversy in the *American Bee Journal*. Some people thought it was a very bad idea. I still don't see why. I'm all the time picking up used jars to bottle honey in. They cost nothing or next to nothing. The lady that tends the recycling center here sometimes saves them for me. She just sets a box there with a crude sign, "MAYO JARS", and in a couple of hours it is filled up. A quart size mayonnaise jar holds three pounds of honey and takes a regular 5-lb. honey jar cap, same as a canning jar. They've always been rinsed out, and of course they get thoroughly washed again in our dishwasher, so they are sparkling clean. Saves a lot of money. Canning jars work fine too. You find those in yard sales, very cheap. And people like to get honey in canning jars. They are attractive and give the product a home-grown, non-commercial look. So I really don't understand what all the fuss is about. Needless to say, recycling is a positive step in terms of environmental considerations, so you win twice over.

Now to change the subject again. (I was taught in school that you are not supposed to jump from one subject to another, but what else can you do sometimes?).

I noticed this spring that some of my hives have quite a lot of drone comb. Sometimes I pull out a frame and find it almost entirely drone comb. Well, I try to keep combs like that off to the side of the hive, where they are more apt to have honey stored in them rather than being used for brood. But you know, it really doesn't make an awful lot of difference. Some people think that you should rigorously cull out drone comb, so as to get more worker bees and fewer drones, but it really isn't that important. Someone once did an experiment, comparing the per-colony crops in the same apiary of hives with very little drone comb and those with lots of it, and there was no difference. That fits in with my experience. What matters is that you have lots of bees in the hive, real strong colonies. If a lot of those bees happen to be drones, don't worry about it. Maybe the bees like having drones around and work harder.

Some beekeepers even think you should have a regular turnover of *all* the combs, by replacing them every few years. This seems to be a fairly common practice in England. The idea seems to be that after a comb has been in use for several years, then it not only turns dark, but the individual cells get smaller, from a build-up of wax and, they say, old cocoons. And this, they say, is going to result in smaller worker bees which will, presumably, be less good at getting honey.

I don't think it works that way at all. I have never replaced a comb just because it was old. Some of the combs in some of my very old hives must be very old indeed, but I don't detect any differences in the size of the bees. And in fact a beekeeper in Ohio, Mr. Harry Eisman,

found in one of his hives a comb with the date written on the frame, "April 16, 1943", which is when he had put the foundation in the frame, 47 years earlier! The cells appeared to be of normal size, and the bees, too.

Of course the question remains whether honey spun out of old dark combs is of the same quality as honey from new light combs, and on that opinions differ. Some beekeepers have carefully compared them and found no difference. I am very sure there is no difference in honey flavor. Honey spun from dark combs, properly capped over, is as good as any. But I do wonder whether it is as light and beautiful. I just produce comb honey, and I often find this honey to be perfectly water-white. And it is consistently lighter than any extracted honey, with the exception, of course, of honey from certain floral sources like buckwheat. So there is no doubt in my mind that comb honey is of consistently finer quality, in terms of color and, indeed, everything else, than extracted honey, but I am not sure why this is so.

Well, it's another new year, so far as my mood is concerned, and the only thing I'm sure it will bring is some surprises. ○

*(Comments and questions are welcomed. Use Interlaken address above, and enclose a stamped envelope for reply.)*



# Answers To ? Do You Know ?

1. True The queen's poison sac contains two to three times the volume of venom found in workers, possibly because the queen may need to sting many rivals in a short period of time.
2. False Isolated queens can feed themselves on sugar candy and survive for many weeks, but queens in colonies seldom, if ever, feed themselves.
3. False Introduction of virgin queens is very risky unless they are within a few hours of emergence. Bees will accept a queen the same age and in the same physiological condition as their own queen much more rapidly than they will one who is unlike their own.
4. True A colony should not be left queenless for a period of time prior to the introduction of the new queen. A queenless colony quickly learns of its condition and begins emergency queen cells. The presence of these queen cells reduces the probability of queen acceptance and cells should be destroyed prior to introducing a new queen.
5. True The greater the population of the colony, the more difficult the introduction of a new queen.
6. True As worker bees age, they become increasingly intolerant of queens not their own. Young worker bees usually do not pose a threat.
7. False The way in which bees react to a new queen with a different odor is partly dependent on whether or not the colony is in the state of alertness, which is a reaction to some type of disturbance, increasing the number of guard bees. Their temperament is also partly genetic.
8. False Queens are most readily accepted during a nectar flow because the old worker bees are occupied with other duties. Also with a honey flow there are fewer guard bees and bees alert to changes of any kind. In the absence of a honey flow, the colony should be fed a light syrup a few days before and after a new queen is introduced.
9. True A queen is easier to introduce if her worker attendants are removed from the queen cage prior to her introduction. The new queen will have an odor different than the colony and queen she is replacing. The workers in the cage with her will have the same odor as the new queen and this will intensify the strange odor to the recipient colony and thus increase their aggressive reaction to it.
10. B) apparent nervousness, aggressiveness and increased walking throughout the colony.
11. D) just before the queen is ready to take her mating flight.
12. E) Secretions of plant feeding insects
13. B) Ovaries
14. A) Supply nutrients to stored sperm
15. A) 60 days
16. C) 40,000 bees
17. D) May 20
18. Queens produced in preparation for swarming or supersedure of the old queen are normally higher in quality than queens produced in emergency queen cells. Quality differences are related to the selection of older larvae and consumption of less royal jelly in the emergency situation.
19. Prevents pollen germination; Begins the digestive process; Prepares the pollen for long term storage
20. Orientation Flights
    Mating Flight
    Swarming
    Absconding

There were a possible 25 points this month. Check below to see how well you did. If you scored less than 12 points, do not be discouraged. Keep reading and studying – you will do better in the future.

Number Of Points Correct
25-18 Excellent
17-15 Good
14-12 Fair

# QUESTIONS?

## Don't Mix Supers

**Q. I've tried to make comb honey along with my regular extracting supers, but the bees do nothing in the comb honey supers. Why is this?**

**William Bishop**
**Allegan, MI**

**A.** You are in a good honey producing area, so should be able to produce comb honey very well. The way you express your question suggests that you are putting both extracting supers of drawn comb and comb honey supers on the same hive together. Bees will always prefer drawn combs to foundation for honey storage. My own method of getting the bees to store in comb honey supers is to use small hives – one-and-a-half story or, sometimes, single-story – to reduce to a minimum the available drawn comb for storing honey.

## Eight is (probably) enough

**Q. Which is better, eight plastic frames or nine in a circular section comb honey super?**

**John Iannuzzi**
**Ellicott City, MD**

**A.** I prefer eight, leaving a space at each side of the super, with a piece of quarter-inch plywood the same size as a frame, but those who use nine frames, with no space on the sides, declare them satisfactory.

## Come Clean

**Q. What's the best way to clean the burr comb off circular section frames? Can they be put in boiling water? Also, is it true that you don't need a queen excluder when you use circular section supers?**

**Gary W. Becker**
**Aspers, PA**

**A.** Let the bees lick everything dry by exposing the supers in the apiary, and then scrape the worst of the burr comb off with a hive tool. Burr comb residue on the frames is harmless. They cannot be put in hot water. It warps them something awful. And yes, you can dispense with excluders *provided* there is honey in the hive *directly under the comb honey supers.* The queen does not cross over a honey barrier to lay eggs above it.

## Wax Worm Watch

**Q. Do wax worms ever attack combs of honey that are capped over?**

**Buddy Schmidt**
**Snohomish, WA**

**A.** Yes. The capped surface is no protection against wax worms, nor is it a protection against moisture and fermentation.

## Daily Paper?

**Q. Would you recommend uniting a laying-worker colony with a normal colony by using the "newspaper" method, in order to save bees of the laying-worker colony from destruction by the other colony?**

**Lewis S. Martin**
**Hagerstown, MD**

**A.** The bees of a laying-worker colony are of necessity old bees, and thus hardly worth saving. Probably the simplest way of dealing with a laying-worker colony is to combine it with a normal colony and then, when it has normal brood in the combs, set it onto its own hive stand and requeen it.

## Wax Melter Basics

**Q. Would it be all right to use aluminum as the bottom pan in a solar wax melter? How about stainless steel?**

**William F. Hahn**
**Devon, PA**

**A.** Normally beeswax should not be melted in the presence of aluminum, as this causes discoloration, but I'm sure there would be no significant effect in a solar melter, since the contact with the aluminum would be brief. Stainless steel is always okay. A plastic trough, such as can be cut from a plastic pail, is perfect. In planning a solar wax melter it might be well to begin with the concept a friend of mine utilized. He took two corrugated cardboard packing boxes of about the same size, stuffed one inside the other, covered the top with clear plastic, and fixed some sort of trough inside for the melted wax to run down. This works fine, and cost nothing.

*Questions are welcomed. Address Dr. Richard Taylor, Box 352, Interlaken, NY, 14847, enclosing stamped envelope for reply.*

# ANSWERS!

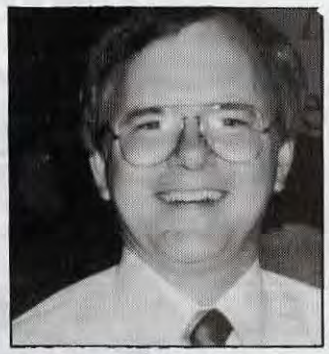
Richard Taylor

GLEANINGS GLOBE

JULY, 1992 ALL THE NEWS THAT FITS

# WESTERN GROUP MEETS IN OREGON

**The Oregon State University** campus in Corvallis will be the site of the 1992 annual meeting of the **W.A.S.**, August 10 thru 14, 1992. The program is complete with an expected western emphasis. The primary meeting venue will be the spacious LaSells-Stewart Conference Center. Educational activities include updates on Africanized honey bees, the honey bee mite problems, and the use of bumble bees as greenhouse pollinators. The speakers list includes Dr. Mark Winston of Simon Fraser University in British Columbia, Dr. Rob Page from U.C. Davis in CA. Also joining the group from the honey bee program at Davis will be Dr. Eric Mussen. Dr. Lynn Royce from Oregon State University will provide a presentation concerning her successful work on controlled queen mating in flight chambers. To give the group a taste of eastern beekeeping Dr. Jim Tew from Wooster, Ohio and Kim Flottum from *Gleanings In Bee Culture* will provide us with the latest views from the Federal Extension Service, and the world of beekeeping publications.



*Jim Tew*

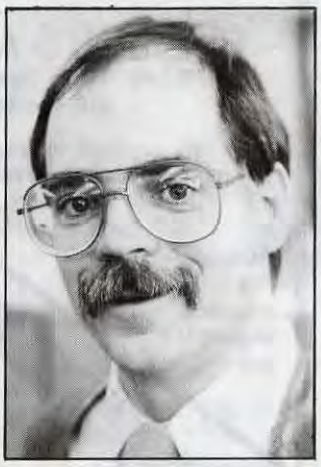
After several years absence, the **W.A.S.** Loyal Order of Bee Beards will return. Social functions will include a traditional Northwest salmon bake and a banquet to be held in the "sky boxes" of the newly renovated OSU football stadium.

*Rob Page*

The organizers invite all interested beekeepers to join us in August for an exceptional social and educational experience. Contact Dr. Michael Burgett, Entomology, OSU, Corvallis, OR 97331-2907 for further details.

*Mike Burgett*

*Sherry Jennings*



*Kim Flottum*

*Eric Mussen*

# WETLANDS DOWN

The U.S. Environmental Protection Agency is still reviewing more than 80,000 public comments submitted to the Bush administration regarding proposed changes to the *Federal Manual for Identifying and Delineating Jurisdictional Wetlands*. Due to the full legislative calendar this spring, as well as the politically charged nature of the wetlands issue, it is not certain whether Congress will address wetlands protection as it works in the coming months to reauthorize the Clean Water Act.

In other wetlands news, the U.S. Department of Agriculture recently reported that the pace of agricultural wetland conversions on nonfederal rural land is slowing significantly. The department says that, between the spring of 1987 and the spring of 1991, a total of 431,000 agricultural wetland acres were converted to other uses. This is down about 21,000 acres per year compared to the period from the spring of 1982 through the spring of 1987.

According to James Moseley, assistant secretary of agriculture for natural resources and the environment, about 1.1 million acres were converted from 1982 through 1991.

"Only about one-third of this total acreage converted during this nine-year period is agriculturally related," Moseley said. "This is a significant change from earlier data, which show that 87 percent of wetland conversions from 1954 through the mid 1970's were related to agricultural activities. Urban development is responsible for nearly 50 percent of the recent conversions," he added.

# FEDERATION DEFENDS BILL

*R. D. Plowman, left & Don Schmidt, right*

When the agricultural appropriations bill reaches the Senate floor this summer, opponents may try to kill the honey program.

"We have been warned by our friends in the Senate that an attempt will be made to delete the funds for the honey program," says Don Schmidt, president of the American Beekeeping Fed.

The opponents of farm programs are targeting the honey program as the most vulnerable program in the hopes that they will be able to kill it, then move on to other farm programs, either eliminating or reducing their funding.

"Every beekeeper who is interested in saving the honey program must contact his Congressional representatives to tell them how important the program is to him, to his state's beekeepers, and to American agriculture," says Mr. Schmidt. "At the moment, the focus is on the senate; however, if our foes win in the Senate, we will try to prevail in the House-Senate conference. Contact in each chamber is important. And the contacts need to be made now."

The contribution of honey bees to American agricultural crops through the value added by their pollination is $9.7 billion, but the honey program costs just $20 million per year. "There is no other industry which is more valuable to our country, nor is there any other program which gives the taxpayers a greater level of return," says Mr. Schmidt. "We must continue to tell our story to the Congress, if we are to maintain our current honey program."

The Federation has prepared a packet of information, entitled "The Truth about the Honey Price Support Program," which is available to beekeepers who need material for detailed discussions with Congressmen or their staffs. For the information packet or other information, including a record of your representatives' recent votes on the honey program, contact the American Beekeeping Federation, P.O. Box 1038, Jesup, GA 31545, ph. 912-427-8447.

# NEW EDITOR

The International Agency for Apicultural Development announces the appointment of a new editor for their newsletter, *Cornucopia.* Pamela Spence-Allen will fill the vacancy left by Diana Sammataro who has returned to graduate school to continue her research with honey bees.

Spence-Allen is director of the American Mead Association and editor of the *Meadmakers' Journal.* She has a particular interest in Women in Development as it relates to beekeeping and will add this perspective to the lively mix of topics that are a regular feature of *Cornucopia.* Address all inquiries relating to subscriptions and editorial matters to: IAAD-*Cornucopia*, P.O. Box 206, Ostrander, OH, USA 43061.

# HONEY BOARD NEWS

Editors from leading magazines peeked into a hive as part of an educational tour sponsored by the National Honey Board.

The "What's the Buzz" media tour included a trip to a bee yard, an extraction demonstration and a honey plant tour. "The editors had some hands-on experiences with the bees and even practiced using an uncapping knife," said Mary Humann, marketing director for the National Honey Board.

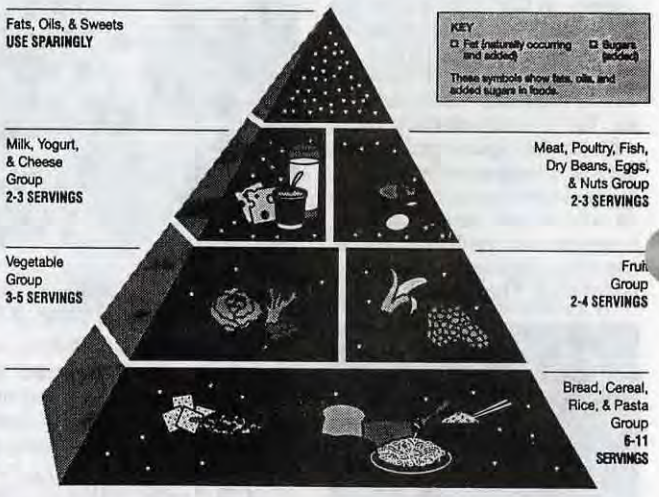
The trip was designed to educate leading food editors on bees, pollination and honey processing. Humann said that the editors were surprised at how calm the bees were. They also were not aware of migratory beekeeping, said Humann.

The two-day tour was accented with honey meals and a honey tasting. "Even food experts are astonished by the many different flavors of honey," said Humann.

Tour participants represented *Better Homes and Gardens, Cooking Light, Country Living, Good Housekeeping, Ladies Home Journal, McCalls, Parents and Woman's Day.*

# FOOD TRIANGLE

**A Guide to Daily Food Choices**




You'll be seeing more of this graphic in the future. Secretary of Agriculture Edward Madigan intends for the pyramid to be used in wide variety of government publications, in nutrition text books and hopefully by private sector cooperators.

# CALENDAR

## ☆ CANADA ☆

**The 1992 EAS Conference** will be held in Guelph, Ontario, Canada, July 27-31, 1992. The site will be the University of Guelph campus.

This conference will feature a number of Canadian speakers representing the research and regulatory efforts presently ongoing in Canada.

Guelph is an historic city founded in the 1800's and there are several museums to tour.

For more information, call (519) 822-8081 or write to Guelph Chamber of Commerce, 485 Silvercreek Parkway North, Unit 15, Guelph, Ontario.

## ☆ NEW ZEALAND ☆

**Global Nature Tours, Inc.** has arranged a two-week beekeeping and sightseeing tour of New Zealand. The departure date is mid-January, 1993. The guide will be Trevor Bryant of Alpha Bees, a widely known New Zealand beekeeper. There will be frequent contact with New Zealand beekeepers both on the North and South Island. New Zealand is one of the most progressive beekeeping countries in the world and this promises to be a rewarding trip.

For further information, please contact: Harold M. Liberman, Global Nature Tours, 2701 Oxford Circle, Upper Marlboro, MD 20772, (301) 627-4777.

## ☆ MARYLAND ☆

**The Maryland State Beekeepers Association** will sponsor a summer meeting July 10-11, 1992 at Salisbury State College in Salisbury, Maryland. The meeting will begin Friday, July 10, with fun activities including informal discussion groups. The conference continues on Saturday from 9:00 a.m. until 5:00 p.m. and will feature Dr. Dewey Caron. For more information call or write David J. Bernard, MSBA Secretary, 289 Sedgemoor Square, Sterling, VA 22170 (703) 450-8856.

## ☆ MINNESOTA ☆

**The Minnesota Honey Producers** will hold their summer convention July 16-18 at the Wilmer, MN Holiday Inn Convention Center.

Any questions please call (612) 689-1065.

## ☆ NEW YORK ☆

**The annual summer picnic** for beekeepers in New York State will be held at Dyce Laboratory at Cornell University in Ithaca, NY. The date is Saturday, July 25. Dyce laboratory is about three miles east of the main Cornell campus on Freese Road between Varna (Route 366) and Hanshaw Road. The meeting will start at about 11:00 a.m. Bring you own lunch.

A special guest this year will be Andrew Matheson, Director of the International Bee Research Association which is located in Cardiff, Wales.

For more information, contact Roger Morse, Dept. of Entomology, Cornell University, Ithaca, NY 14853

## ☆ OHIO ☆

**Instrumental Insemination and Honey Bee Breeding Short Course** at the Ohio State University, July 29-31. Enrollment for the three day course is limited and based on a first come, first serve basis. The instructor will will be Susan Cobey.

This course is designed for the beekeeper who wants to establish a breeding program or improve upon an existing program. Various breeding systems will be reviewed. Practical methods of selection will be presented.

Experience in queen rearing is required and beekeepers must bring their own insemination equipment.

Registration is $250.

For information and registration materials contact Susan Cobey, Dept. of Entomology, 1735 Neil Ave., Columbus, OH 43210, (614) 292-7928.

**The Ohio State Beekeepers and the Indiana State Beekeepers** will hold a joint two day meeting in Richmond, IN on July 17 & 18 at the Holiday Inn. Speakers include Phil May, Steve Forrest, Bud Dienhalt, Dewey Caron, Sue Cobey and more. There will be workshops on Friday and speakers and demonstrations on Saturday. Live bee demos, a chicken BBQ, a couple hundred like-minded friends and a terrific program. Don't miss this one. For more information call Kim Flottum in OH at (216) 722-2021 (eves) or Tracey Hunter (317) 537-9430 (eves).

## ☆ SOUTH CAROLINA ☆

**The South Carolina Beekeepers Association** will hold their summer meeting on July 16-18, 1992 at Clemson University, Clemson, SC.

Registration will begin at 11:30 a.m. on July 16, in the Poole Agricultural Center Lobby. Out-of-state featured speakers are Mr. Troy Fore, Editor, "Speedy Bee", Jesup, GA; Dr. John Ambrose, NC State University Extension Apiculturist; Mr. Paul Jackson, Texas Chief Apiary Inspector; Dr. Keith Delaplane, University of Georgia Extension Apiculturist and Mr. Fred Rossman, Rossman Apiaries, Moultrie, GA.

Some topics include National Beekeeping News, The State Botanical Garden of South Carolina, Latest on Bee Mite Research and more.

An afternoon of concurrent workshops will be held on Friday, July 17.

A spouse's program will be offered Friday morning that includes touring the Jervey Athletic Center, the President's Box, Death Valley, and a guided tour of the State Botanical Garden.

We invite all beekeepers and friends to join us for a time of education and fun. For further information, call Mike Hook, Executive Secretary, SCBA, Ph. (803) 656-3106.

## ☆ WEST VIRGINIA ☆

**West Virginia Honey Festival** 12th Anniversary, September 12 - 13, 1992, 8:30 a.m. to 6:30 p.m., Parkersburg City Park, Parkersburg, WV

*Continued on Page 418*

# Display Index


### *Bees & Queens*

Alamance Bee Co. ..... 387
Bee Bob's ..... 414
Glenn Apiaries ..... 404
Hardeman Apiaries ..... 391
Hawaiian Queen Co. ..... 391
Holder Homan ..... 392
Homan Honey Farm ..... 411
Koehnen, C. F. & Sons ..... 417
Kona Queen Co. ..... 383
Linkous Bee Farm ..... 380
McCary Apiaries ..... 405
Pendell Apiaries ..... 405
Plantation Bee Co. ..... 402
Rossman Apiaries ..... 415
Shuman's Apiaries ..... 402
Spell Bee Company .... Ins. Bk. Cov.
Strachan Apiaries ..... 388
Weaver Apiaries, Inc. ..... 388
Weaver, How. & Sons ..... 383
Wenner Honey Farms ..... 380
Wilbanks Apiaries ..... 405
York Bee Co. ..... 380

### *Education*

African Bee Video ..... 391
Bee Ware Computer Program ... 380
Global Nature Tours ..... 387
Honey Maker Productions ..... 404
WICWAS Press ..... 383

### *Equipment*

Better Way Wax Melter ..... 405
CC Pollen ..... 373
Clement's Apiaries ..... 418
Cook & Beals ..... 388
Cowen Mfg. Co. ..... 402
Dakota Gunness ..... 383
Fairfax ..... 392
Glick's Custom Tarps ..... 405
Golden Bee Products ..... 392
Hackler's Honey Punch ..... 404
Hive Tops ..... 405
Miller Wood ..... 387
Nucleus Specialties ..... 373
Olsson Distributing ..... 405
Pierce Mfg. ..... 415
Pierco Inc. ..... 392
Simon Super Frames ..... 418
Southwestern OH Hive Parts ..... 373

### *Related Items*

Beehive Botanicals ..... 391
Custom Labels ..... 388
R. M. Farms Labels ..... 391
St. Simons Trading Co. ..... 405

### *Suppliers*

B & B Honey Farm ..... 378
Better Bee ..... 402
Brushy Mtn. Supplies ..... 392
Chrysler, W.A. & Son ..... 391
Dadants ..... Inside Front Cover
Draper's Super Bees ..... 411
Economy Bee Supply ..... 404
Groeb Farms ..... 417
Jones, F. W. & Son ..... 404
Kelley, Walter ..... 419
Mann Lake Supply ..... 378
Maxant Ind. ..... 388, Ins. Bk. Cov.
Mid-con ..... 378,388
Mon Valley Supplies ..... 416
Perma-Comb Systems ..... 392
Ross Rounds ..... 392
Root Publications ..... 380,381,418
Scentry ..... 373

# Metaphors

HOWARD SCOTT

BOTTOM·BOARD

Beekeeping is poetry in motion, but is it metaphorical? Can we find metaphors in which the world of bees mirrors some aspect of the world of man. A metaphor, you remember from high school English, is a comparison of two disparate things. 'Life is a warm puppy' is a classic that comes to mind. Our job, then, is to find bee activities that have a parallel in human activity. Count the metaphors.

**Societal collapse.** When bees sense their lifestyle is changing (for whatever reason), workers produce a new monarch. Sensing a coup, the old queen swarms, taking half the population with her. The home population is decimated, all because confidence is lost.

Likewise, human revolutions happen because citizens lose confidence in their leader. We've just witnessed a Soviet revolution. We are caught in a recession largely because of lack of confidence in the economy; people aren't spending because they're not sure income will be coming in next month. Both beehives and human societies function through confidence in their leaders, and collapse when that confidence is lost.

**Self-sacrifice.** When a bee stings its barbed stinger stays with the victim, killing the bee. Most of the time a bee will go out of its way to avoid battle, but it will sting to protect its home. This is noble sentiment in that the bee gives her life so the colony can continue.

It is also a noble thing to die for one's country. *"Dulce et decorum est pro patria mori"* goes the Latin phrase – "sweet and glorious is it to die for one's country." We erect monuments to soldiers who gave their lives in wars. We celebrate veterans' holidays. In both worlds, self-sacrifice is highly valued.

**Punishing indolence.** At season's end worker bees remove drones from the colony, since they have no more impact on the life of the society, except eating more than their share of food, and, as such will only consume precious stores. Drones are expelled as excess baggage.

Intentionally or unintentionally our society punishes non-productive members, too. They are forced to live in poor quarters and endure low status. They receive poor medical care and live shorter lives. In fact, we, too "punish" the lazy. Or maybe, just as bad, we make their life a living hell. Both bees and people have little tolerance for sloth.

**Work as an end in itself.** Bees are prodigious workers. With a good nectar flow, they'll fill up five, six, or even seven supers. That's anywhere from 120 to 180 pounds of honey. But when we steal our share – whether its 10 or 100 pounds, are bees devastated? No, they continue on, gathering more and more. In their universe, the obsession with work, with doing the job, is what keeps them going.

Similarly, many claim we are obsessive workers. The only thing that really matters is the effort. Take away the fruit of our labors, and it seems to make little difference. We would still be obsessed with doing the job. Both bees and man are workaholics.

**Private greed and public good.** Bees collect nectar and pollen from flowers to satisfy their hunger. In the process, unwittingly, they accomplish massive public good, namely pollinating flowers for miles around, which helps advance the natural good. They accomplish this deed even though it is not their intent.

People base our economic system on the same principle. Greed, or the desire for wealth, properly harnessed, is converted into public good, namely the delivery of a higher standard of living. For example, an ambitious person starts a business to get rich, but in the process employs people, provides needed goods and services and purchases supplies from vendors. He is doing good just as the bee is doing good, although that is not the intent.

**A supreme being.** Beekeepers stand overhead watching what happens, occasionally interfering, but always seeking to keep the colony going. We could be considered a God to the bees.

In the same vein, possibly, God stands above earth like a beekeeper. Does he wear a veil? Does he use a smoker? We don't know, but he watches and occasionally intervenes. Perhaps he is harvesting some by-products that we don't know about? Maybe his *honey* is good deeds? As God stands ambiguously over us, so we stand ambiguously over bees.

**The sexual metaphor.** On the nuptial flights, the male that catches the queen dies for his efforts.

Appreciation extraordinaire!

Is this a rough equivalent to the sexual chase. Do women . . .

No! No more metaphors! We have the world of bees and the world of man. Make what you can of the similarities. Or, metaphorically speaking, keep on buzzin'.

*Howard Scott, a freelance writer, has been a beekeeper in Pembroke, MA for ten years.*