

July/Aug 2003

Charles R. Duncan 11/18/26 - 7/11/03
Glimpses of the 2003 WAS Conference

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California beekeeping will be changed for ever with the passing of Charles Duncan. Charlie was an avid supporter of honey bees and beekeeping, and he will be missed by members of the many beekeeping and other interest groups of which he was a member.

Charlie was born in Athen, Ohio, on November 8, 1926. The city boy was much happier after his family moved out of town. Charlie walked to school, roamed the forests, and was happiest sleeping out in the woods in his sleeping bag. He graduated high school at 17 and served in the Navy from 1944 to 1946 (WW II). Charlie then graduated from Ohio State University and the Milwaukee School of Engi-

neering as an aerospace engineer.

While in Milwaukee, Charlie met his future wife, Phyllis. When Phyllis obtained employment in Washington, DC, Charlie followed along and found employment in 1951 with Army Ordinance in the Pentagon, working for ten years on guided missiles. Then, in 1962, Charlie and Phyllis moved to California so that Charlie could work at McDonald-Douglas.

Charlie first became involved with honey bees in 1968. The bees had filled a swimming pool storage shed at Charlie's condominium. After reading a couple pages of a bee book and with no previous beekeeping experience, but armed with a garage-sale veil, black baseball cap, black leather jacket,

welder's gloves, and a watering can with burning paper in it, Charlie went in to remove the bees. The bees had a number of six foot combs in the shed and they defended them, vigorously. Charlie was stung more than 300 times and the bees chased him into a distant workshop, where he collapsed from the stings. Of course, this first introduction simply fascinated Charlie and he became a true lover of honey bees from that moment on. Shortly thereafter, he had another first. He built an observation hive, set it up in his condominium, filled it with bees, and left for a few days. Upon his return the bees still were in the condo, but outside the observation hive.

Charlie then worked for five years (1975-79) as an employee at the LA Honey Company, for Chase Walker. Charlie became thoroughly acquainted with the commercial beekeeping industry of southern California. Additionally, Charlie helped Dick Ruby do "bee extractions" from buildings. He developed a set of "rules" for finding the combs in a building, and he took slides and gave presentations on the famous Topanga Canyon Bee House, that had 58 active colonies in it at the same time. By this time, Charlie was a member of the Los Angeles County Beekeepers (President), California State

Beekeepers' Association (Lifetime Honorary Member), the Western Apicultural Society (President), and was the only non-commercial beekeeper to serve on the California Apiary Board.

Returning to government service in 1982, Charlie monitored contracts with British builders of aircraft and missile components for the Navy. Charlie had already had a business card printed in the U.S. that read, "Beekeeping Service to the Queen," referring to a honey bee colony. That card really impressed the "Brits" who saw it, before he had it modified to prevent confusion. While in Great Britain, Charlie joined the British Entomological Society so that he could use the library at Imperial College to study bees. He decided to terminate his pursuit of becoming a British Master Beekeeper when a three hour written examination (one of many) was "lost in the mail."

Retired in name only in 1990, Charlie and Phyllis purchased, upgraded, and sold properties in southern California and England. When in England, Charlie took microscopy courses with Brother Adam and visited frequently with Dr. Eva Crane (obtained replica bee house folklore fronts from Yugoslavia for her). He also was personal friends with Dr. Walter C. Rothenbuhler, Charles Mraz, and Bill Maxant, as well as

most U.S researchers and extension specialists.

Despite his fondness for bees and beekeeping information, Charlie's greatest devotion was to his wife, Phyllis, his daughter Suzie, and especially to granddaughter Carly (the apple of his eye) whom he had been visiting in Wisconsin just hours before he passed away at home on July 11, 2003, at the age of 76.

Glimpses of the 2003 WAS Conference

It was really tough leaving California's Central Valley and visiting British Columbia's 70° weather, nestled among the mountain tops, but somebody had to do it.

Dr. Mark Winston opened the Conference with a review of his current endeavors. His academic interests have evolved away from honey bees to quite an extent. While still working with "anarchist" honey bees, he spends more time downtown, at the Centre for Public Dialog, dealing with aspects of communication on societal problems, particularly related to nature, conservation and biodiversity. The impacts of genetically modified (GM) crops on, and possible use for pollination of, solitary pollinators now receive the emphasis. Mark

also hosted a nine week television program on bees, with the first 30 minutes recorded and the second 30 minutes "call in."

The next presenter was Michael Young, a special guest invited from Belfast, Ireland, to attend both the EAS and WAS Conferences. Michael is multi-talented: commercial chef, commercial artist, mead maker, and certified honey judge for Ireland, Scotland, England and Wales. He talked about some of the fascinating history of European beekeeping. At tax time, beekeepers were taxed by their landlords in honey, based on the load that could be lifted to a certain height:

Dairt - above the head
Colpach - to the
 shoulder
Samhaise - to the navel
Milch-cow - to the knee.

In 1609, Charles Butler (Father of British Beekeeping), who wrote the famous "Feminine Monarchie," reported a bee space that was only one-eighth of an inch off. He also was aware that the "big bee" laid the eggs. He called her the King because it was treason, at that time, to name anything the Queen.

In 1675 John Gedde built, patented, and sold a movable frame hive. In 1682 he was knighted for his efforts. This was followed

by a series of hive "improvements" over the centuries, but most designs still were based on the hive within a hive basis - Nadir, Stewartsall, Nutt's collateral, WBC, Smith, CDB, British National. To this day, the British National hive is the preferred model, even though Michael finds it too small to accomplish anything. Michael is one of three beekeepers in Ireland who uses Langstroth hives. They are blamed for every beekeeping problem in the vicinity.

In 1796 John Keys wrote the "Ancient Bee Masters Farewell." In that book was discussed the method of telling the bees that their master was dead. They put a black patch at the entrance, along with some honey.

The Reverend J.G. Diggs (Father of Irish Beekeeping) wrote newsletters on his beekeeping ideas. They didn't conform to the thinking of the Irish Beekeeping Committee. After years of arguing, the IBC dissolved. Diggs made one mistake, however. He used illustrations from Cohen's (England) book on beekeeping in his new textbook. Cohen took him to court, won, and got all the money ever earned on Digg's beekeeping book.

Irish beekeepers do not expect large honey crops. They produce small amounts of

specialty honeys from black-thorn (source of shillelaghs), may thorn (hazy honey), bell heather (good aroma), and heather or "ling" (best in the world, according to Michael). We tasted some ling honey - it would take a while for me to culture a taste for it!

These honey crops can be observed in one hive as three separate colors. So, they are extracted separately, then blended, if so desired. Extractors normally are not used - too little honey and incorporation of too much air (bubbles). The honey often is pretty high in moisture, so beekeepers "ripen" the honey over light bulbs (112°F for 24 hours to obtain 18.5-19% moisture). They strain the honey through two layers of nylon (the weight stretches meshes in a single layer enough to allow passage of particles).

Irish honey shows have only three colors of honey: light, medium, or dark. There can be 500 to 3,000 entries. The ways to get disqualified are numerous: finger print on glass jar or lid, scratch on lid, slack filled (can see light under jar cap), moisture content too high (determined by watching honey run down tasting rod), bubbles or other particles (scum) in honey (use flashlight - called "torch" - from bottom

of jar) or scum on bottom of opened lid, labels not in perfect spot, weight on label off, and aroma wrong (very dark honeys should have no smell - if so, they were overheated). They also torch the comb sections. Any pollen in cells or granulation will disqualify the entry. All disqualified entries are reversed on the shelves so that the label isn't showing.

The honey judges wear special white jackets and white hats. White gloves are worn until the jars have been inspected. Special honey tasting rods (now metal - were glass, but some broke in granulated honey) are used.

Roger Clapham, a local BC entrepreneur, shared his evolution from a honey producer to a manufacturer and distributor of products based on beeswax. His first attempts at furniture polish molded in storage. But, given time and research, his products are now among the most desired in the world.

Among the many products sold by the company, his "edible" wax is the one in which he takes the greatest pride. It is called "salad bowl" wax and one of his loyal customers is Arnold Schwarzenegger, California actor turned politician.

Roger has no desire to boost sales to the level of

WalMart, but dealing with smaller companies can be rather difficult at times. One of his favorite distributors went out of business, closing 104 retail outlets. He relies on word-of-mouth advertising, due to its costs! He fills mail orders and they are on their third generation Web site. The orders used to just make the mortgage payments, but now they are helping refurbish a vintage wooden boat that Roger brought up from San Francisco. He supplies the Home Hardware chain in Canada, as well as Lee Valley Tools. Talking Hands (Japanese do-it-yourself stores, all identically laid out) boosts sales to as much as Roger desires.

Anna Birmingham, one of Mark Winston's students, is digging into the details of how bumble bees forage in a greenhouse. Unlike honey bees, bumble bees work in the greenhouses pretty similarly all year. Honey bees are pretty good in the winter, but they really spend most of their time trying to get out to blooming plants in the summer. On the other hand, a bumble bee colony runs through its life cycle in months. Near the end, the queen seems to lose her grip on the population and things like laying workers and heavy drifting become apparent. To study those behaviors, Anna tags each bumble bee with a

distinctive mark. Then she periodically carries the nests into a little tent-like room in the greenhouse and examines the population. In her studies she found that bumble bees from nests located one above the other, at about head level for easy navigation around the tomato plants growing on strings, tended to be showing up in the wrong nest by the end of the first week. The top nest got most of them.

Attempts to help the bees orient, like hive entrance patterns and landmarks in the greenhouse didn't help. However, the bees worked faster on the plants in areas of the greenhouse that had landmarks added.

Dissections of the drifting bees determined that drifters often had eggs in their ovaries. This was especially true at the end of the colony cycle. Those drifters were quite aggressive toward other bees in the colony, especially if they were laying eggs. Also at this time, pollen stores were very low and foraging was apparently reduced significantly.

Anna is trying to determine if there is some way to extend the life of a colony instead of replacing them about every two weeks to get good pollination. At \$225 CDN for 100 bees (long-

established colony), the suppliers are getting \$40,000 CDN per year for bees. Perhaps Anna can save them some money.

Ron-Huarong Lin, a previous SFU student turned commercial beekeeper, described studies conducted to determine why *Nosema*-infected bees seemed to forage early during their shortened life spans.

The effect seemed to mimic results obtained when worker bees are given extra juvenile hormone. Juvenile hormone (JH) normally is produced in the corpora allata. Agar plate laboratory tests demonstrated that JH levels in hemolymph and dissected glands were significantly increased in bees fed *Nosema* spores. Then came the tricky part - allatalectomy. The glands were removed from live workers to see if other organs might be contributing to the increased levels of JH in *Nosema*-infected bees. They acted like non-infected bees. Can the corpora allata be suppressed in infected bees so that their behavior and life span could be returned to normal? Someone else will have to do that study.

Shelley Hoover, another of Mark Winston's students, is studying a phenomenon that is getting a lot more attention, recently: the production by laying workers of

eggs that manage to persist and develop into functional drones or pseudo-queens. A new term has been coined for bees showing a high propensity of such activity: "Anarchist bees." Such bees are becoming a real problem in South Africa, in Arizona, and perhaps in Ohio.

Among other things, Shelley is trying to breed lines of honey bees with extremely high and extremely low anarchist tendencies. She knows that this behavior can be reduced by adding synthetic queen pheromone into a hive, but this may not be the best way to try to solve the problem.

Another of Mark's students, Claudia Ratti, is surveying blueberry, strawberry and cranberry fields with white, yellow and blue pan traps, and with sweep nets, to try to determine the diversity of non-*Apis* pollinators in those fields. Currently, those crops are dependent upon honey bees to produce a crop. If we lost honey bees, what pollinator might replace them? This study is evolving into a study of pollinator diversity in southern British Columbia.

Former beekeeper and state apiarist, Jim Bach, shared with us some of his observations and opinions about honey bee queens and colonies.

Some of his more interesting statements included: 1. A winter cluster takes a predictable shape. If you don't have adequate space in the hive for it in any dimension, the population will be reduced until the cluster shape conforms to your space. That can really shrink an other-wise good cluster.

2. A winter cluster may match proportionally, in size, the amount of winter stores - short stores mean little clusters.

3. When bees get into the insecticide Monitor[®], they often go queenless. If there was a three to five day break in brood rearing, a new queen frequently would be accepted. If there was a ten day break in brood rearing (exposure to higher dose), there was no way a new queen would be accepted.

4. Queenright colonies buzz at about 50 decibels. Queenless colonies buzz at about 85 decibels. The noisy bees will "quiet down" when a caged queen is placed in the hive or when Bee Boost[®] (synthesized queen pheromone is introduced). But, some colonies buzz like they are queenless, while a queen is in there laying. She doesn't have a retinue and she isn't fed well. That colony isn't going to make it. That colony and any others like it should be rebuilt, using a new queen and bees from other sources.

5. "Solid brood patterns" don't mean that the brood underneath is all the same age. Some queens were getting only about 35% of their brood to emerge. Just on a lark, Jim fed those bees fumagillin (medication for *Nosema*) and the viability increased to 95%. There was no indication of disease in the colony that summer.

6. Partially "raised cappings" (not to drone height) can be due to worker bees with drone eyes. Jim calls those "hybrid brood caps."

What Jim was trying to say is that most people don't

really look at their bees in enough detail. They should uncap some brood and see what is really going on, especially if the bees are not meeting your expectations for the season.

Sincerely,

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