



The Diablo Bee

Newsletter of the Mount Diablo Beekeepers Association

MAY 2008

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ersten3@yahoo.com



*May's guest speaker:
Laurie Davies Adams
from the CoEvolution
Institute. Topic:
Biodiversity and
pollinators.*

HIGHLIGHTS OF THIS ISSUE

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What's the Buzz?



Steve Gentry once again showed why he is such a popular speaker! His April talk on preparing for our annual Spring Workday drew the largest attendance in recent memory.

Much thanks to the Lawrences, Gary and Joan, for continuing the tradition of opening their home and backyard to our annual Spring Workday! A wonderful, sun-filled day welcomed dozens of eager learners, both novices and veterans alike, to the largest such event in Northern California. View the photos at our website. Thanks to all members who brought this successful event to fruition!

Meetings

Important DATE!

Our next meeting is May 8 at 7:30 pm at the Heather Farm Garden Center in Walnut Creek.

Announcements

Please send interesting bee articles via email to:
ersten3@yahoo.com

Membership Dues

Your \$15 yearly dues should be sent to:

Jeff Peacock, Treasurer
Mount Diablo Beekeepers Association
3341 Walnut Lane
Lafayette, CA 94549

Or.... you can give Jeff your check at any monthly meeting.

If you have an active email address, you will receive this newsletter by e-mail unless you inform Kim Coleman at: Kdeem@caleng.com that you wish to receive a hard copy.

A honey hobby becomes a buzzing business



A disabled son's obsession spawns a thriving family business.

(FORTUNE Small Business) Lawrence, Kan. -- When Tony and Terri Schwager learned that their first child, Anthony, was developmentally delayed and had epilepsy, they worried themselves sick.

"We couldn't help but think, 'What is going to happen to Anthony when we move on?' " says Terri. "He is very sweet, gentle, and quiet. We were afraid that someone might take advantage of him."



Anthony Schwager holding a frame of "brood" and bees. He became obsessed with bees after seeing a video in the third grade.

By the time Anthony's parents learned of his condition, a result of low oxygen during birth, he was 1. When they discovered it, they looked for resources. They enrolled Anthony in a special-education program and hired caretakers to supplement their efforts.

Tony, then a manager at Home Depot (HD, Fortune 500), went back to school to further his career. The couple eventually had three more children and settled into their routines, grateful

for their close-knit family. Tony landed a job as a teacher at a local high school; Terri earned a nursing degree and also started working.

"A kid with a disability ... when it happens, you realize it is not the end of the world," says Tony. Still, they worried about the future. How would they take care of Anthony after they retired?

But then, to their surprise, Anthony himself found the answer.

Conditioning for growth

Excited by a video he saw in third grade, Anthony begged his parents to add bees to the small farm they kept on the side for fun. After a year they relented and eventually set up clear plastic tubes to house the hives in his bedroom. He was obsessed, not only with bees but with the honey. He harvested so much of the stuff that three years later he and his parents decided to try selling it at the farmers' market downtown.

They started small, displaying seven plastic squeeze bottles on a foot-square table. "Everything fit into my two-door Honda Civic," says Aaron Kim Luellen, a caretaker. Nine years later they're still in business, and transporting their inventory - which includes beeswax lip balm, lotion, candles, and other honey products -



Anthony and Tony Schwager standing in their booth at the Downtown Lawrence Farmer's Market. After just a couple of years of selling honey, the Schwagers began to see the business as an opportunity for Anthony to support himself with little help from the family.

now requires Tony's pickup truck and a tow trailer.

A big reason for their success is Anthony, now 21. He does math like a fourth-grader and reads at a high school level, but when he's manning the stall, marked with a cheerful ANTHONY'S BEEHIVE sign, customers respond. With a laid-back demeanor, he approaches passersby as if he were sharing news with friends.

"This honey is local, and there's no preservatives," he'll explain in his soft-spoken way, letting them sample all the merchandise.



Anthony and Tony Schwager making sheets of beeswax that can be embossed with a honeycomb pattern and then rolled into candles. This is a popular, unique, and profitable activity at farmer's markets. They built a special trailer with tanks of melted wax of different colors.

He also offers free candle making lessons for children, who watch enthralled, eager to wrap their fingers around the warm beeswax and roll it into a cylinder, just as Anthony, squatting down to their height, is showing them. With Anthony, there's no hard sell; once drawn in, his customers become fans.

"Your raspberry lip balm is the best!" a woman at the market says to him one afternoon late last summer. Soon another customer walks away with four large bottles of honey-lime-coconut lotion.

"It's fun to see how the business has evolved," says Carol Hampton, who has been shopping at Anthony's Beehive since the early days. She uses the brand not because she has taught three of the Schwager children in school, but because she likes the diversity of the offerings. "They're always trying to make it fresh and interesting."

Anthony's Beehive's growth spurt started early. After just a couple of years of selling honey, the Schwagers began to see the business as an opportunity for Anthony to support himself with a little help from the family. But how could he grow the business and gain a presence beyond the farmers' market?

The answer emerged when the Schwagers discovered an entrepreneurship course - sponsored by the [National Foundation for Teaching Entrepreneurship \(NFTE\)](#) and the [Youth Entrepreneurs of Kansas](#) - at a local high school. Anthony's father signed him up, convinced the course would provide Anthony with the sales and marketing skills necessary to maintain the business when his parents can no longer work.

Best colleges for family business

With his father's help and his own love for product development, Anthony held his own against his classmates. His business plan - which demonstrated how adding a honey-and-beeswax lip balm to the line would expand profits - won top prize for best display. (Unlike his competitors, he set up a working stall that offered the lip balms for sale.) He also made the list of NFTE's best entrepreneurs of 2005.

Today the \$1.50 lip balms come in 20 flavors (thanks to Anthony's enthusiastic experimentation) and are among the company's most profitable items. They also earned Anthony's Beehive valuable shelf space at retailers, including the Walgreens ([WAG](#), [Fortune 500](#)) in town, which showcases local

products. Mike Matt, the district manager, who says he likes the flavors and the "uniqueness" of the brand, put the product near the front of the store.



Anthony's Beehive Bee Honey Straws in a variety of flavors on display at the Downtown Lawrence Farmer's Market.

The beauty line impressed other retailers as well. "I like the quality," says Diana Endicott, founder of the [Good Natured Family Farms Alliance](#) and a partner with the [Hen House Markets](#) in the Kansas City area. "They are always finding a new product and figuring out how to make it better. They are truly entrepreneurs."

The ideas for flavors, says Anthony, "just come to me." He's constantly trying ingredients in the honey straws and lip balms. Some don't work - cotton candy, chocolate, and fruit punch stayed on the shelf - but many do, including blueberry muffin and lemonade. He introduces about half a dozen new flavors a season, and they keep customers interested.

It's this array of choices at low prices, says Tony, that will help the family business compete with [Burt's Bees](#), the most recognizable bee-inspired brand in the country.

These days Anthony's Beehive products fill a table eight feet long, as well as a tent, and have garnered an online following at [anthony'sbeehive.com](#). When a \$3,500 honey-straw-filling machine proved too difficult to manipulate, Tony invented a simpler model - the Goldrush 500 - and sold 25 of the \$600 machines online last year. The contraption caught the eye of a former government official in Malawi, who bought it to stimulate business in his locale. (The Schwagers have since developed a more efficient foot-operated version, which sells for \$900.) Total sales of all of Anthony's Beehive products, from the market, online, and retail, have doubled, reaching \$65,000 in 2007. It has been profitable since 2002.

Last year Tony quit his teaching job to focus on the company full-time. Anthony's sister, Mariah, 15, and brothers Brandon, 19, and Adam, 17, make \$15 an hour helping out. Anthony earns 10% of the farmers' market profits and is eager to see the company grow.



Anthony's Beehive Bee Natural Hand & Body Lotion on display at the Downtown Lawrence Farmer's Market in Lawrence, Kansas.

"I want to be in more stores," he says.

In May he will graduate from C-Tran, a transition program that teaches disabled adults skills (such as cooking and cleaning) necessary to live independently. When that happens, the Schwagers hope to involve him in sales calls and give him more responsibility. They also hope that

a sibling will eventually run the company, and that the business will be successful enough to secure their children's futures, especially Anthony's.



Pouring the beeswax and honey lip balm into a filling tray loaded with 50 empty tubes. Even though this is a manual method, one person can make more than 1000 tubes in one day.

"It is a hobby that has gone out of control," explains Tony. And he thanks his lucky stars for that.

NEWBEE NUGGETS

HOW BEES WORK (Part 2 of a 4-part series)

Bee Legs and Stingers

The legs have the same basic parts as other insect legs. Beginning with the part closest to the bee's body, they are the coxa, trochanter, femur, tibia and tarsus. These parts act basically like the bee's hip, thigh, shin and foot, and tiny joints separate each segment. A bee's legs can also have several specialized structures, including:

- Brush-, comb- and basket-like hairs for collecting pollen
- A pad and claw for holding and manipulating objects

- A small groove for removing pollen from the antenna
- A press for packing pollen

The abdomen has almost no appendages, but it houses nearly all of the bee's internal organs. Passageways called spiracles allow the bee to breathe, and a network of tubes and tracheae carry oxygen into the bee's body. An aorta in the thorax pumps blood, or hemolymph, directly over the organs rather than through a system of vessels. Oxygen floats in the hemolymph without the use of red blood cells, so the fluid is colorless instead of red. The abdomen also holds a tube-like digestive system that includes a crop, or honey stomach, where the bee holds nectar.



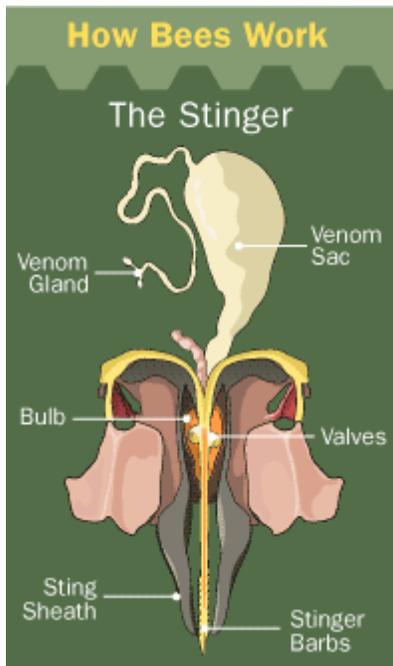
The baskets on this bee's hind legs, made of hair, are full of pollen.

A bee's abdomen does have one notable appendage -- the stinger, which is a modified ovipositor, or egg depositor. This stinger combines a poison sac with sharp lancets, which deliver the venom that the bee produces using its venom gland. Many scientists believe that bees inherited their venom from their wasp-like ancestors, used their ovipositors to lay their eggs in the bodies of other insects. Eventually, the substances that coated the ovipositor became venomous, which made it easier for prehistoric wasps to subdue prey.

Bees don't lay their eggs in meat, but they retain the ability to sting to defend themselves. However, some bees don't have stingers. Ovipositors are female reproductive organs, so male bees usually can't sting. There are also

several species of stingless bees, which do not have stingers at all.

Several honeybee species have barbed stingers, which stick in the bodies of mammals, pulling out part of the bee's abdomen when she flies away. As a result, the bee dies. Bees with barbed stingers can often sting other insects without harming themselves. Queen honeybees and bees of many other species, including bumblebees and many solitary bees, have smooth stingers and can sting mammals repeatedly.



In addition to its venom, a bee produces a number of useful substances in glands located throughout its body. The types of glands vary considerably depending on the species of bee and how it lives.

A bee's venom contains several substances that destroy cells. These include peptides and enzymes that break through and destroy the layer of fats lining each cell. The venom also destroys the skin's mast cells, which are part of the body's immune system. This releases histamine, which encourages blood vessels to dilate and allows immune cells to reach the sting site faster and neutralize the venom.

However, in people with bee sting allergies, this process releases too much histamine. The blood vessels' dilation response is extreme, and they can no longer do their part in regulating blood

pressure. As a result, blood pressure drops rapidly, and cells stop receiving oxygen. This type of anaphylactic shock also causes swelling and spasms and can lead to death. The typical treatment is an injection of epinephrine, which constricts the blood vessels, helping to restore blood pressure and oxygen delivery.

Types of Bees

In scientific terms, bees are in the insect superfamily *Apodidea*. This superfamily includes lots of families, subfamilies, tribes and approximately 20,000 bee species. The bees in each family have traits in common, like methods for building nests. Different species usually have different physical traits, like wing shape or tongue length.



A honey bee colony in the wild

Many people are most familiar with honeybees and bumblebees. These are both social bees -- they live in large groups. Social bees use waxy secretions from their bodies to build large nests and containers in which to store food and raise young. A third type of social bee is the stingless bee. Stingless bees are native to tropical areas, where some societies use them for honey production. Until recently, stingless bee husbandry was common in the Mayan regions of

South America, but the practice has nearly disappeared in the last 20 years.

Although honeybees and bumblebees are both social, their societies differ considerably. Honeybee colonies, or hives, are perennial. A queen and her daughters use wax from the wax glands on their abdomens to build a nest that lasts them for generations. If the hive becomes overcrowded, the workers, who are all female, will raise a new queen by feeding her royal jelly from a gland on their heads throughout her development. The old queen will leave the hive with about half of the workers in order to build a new nest, and the new queen will stay behind. The bees know that they need to raise a new queen when they stop receiving enough queen substance - a pheromone that the queen produces in her mandibular glands.

Bumblebees, on the other hand, have annual nests. Each year, the queen mates in the fall and then spends the winter underground. In the spring, she emerges and builds a nest in which she lays eggs. When her daughters hatch, they become workers, and they help the queen enlarge the nest. At the end of the summer, the queen lays eggs that hatch into new queens and male drones. The drones gather at a mating site in order to mate with the queens from various colonies, and the cycle continues.

Many people are most familiar with social bees because they can be more visible than solitary bees. Many social species produce substances that people use, like honey and beeswax, and people can see large groups of social bees feeding in orchards and gardens. But most bees aren't social -- less than 15 percent of bees live in colonies. The rest are solitary. They may exhibit some social tendencies, but they don't build large hives or store lots of extra honey. Instead, they build small nests that are big enough to hold a few eggs or a single egg. Sometimes, lots of solitary bees build their nests close together, but with the exception of mating and the occasional group defense of the nest site, these bees do not usually interact with each other.

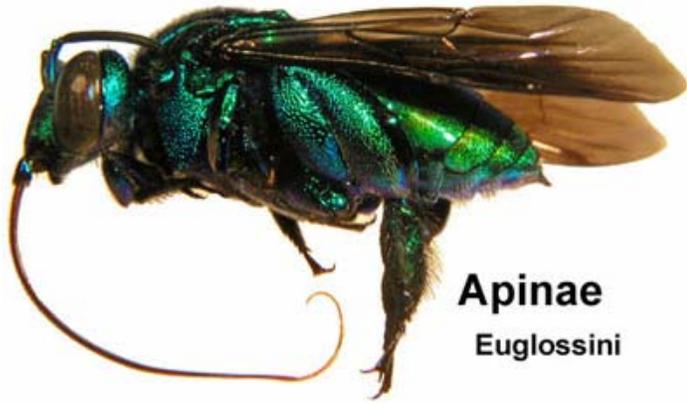


Some bee species use snail shells to make their nests.

Lots of solitary bees are known for how they make their nests. They may use cerumen, a type of wax secreted from their bodies, or propolis, a glue bees make from tree resins. Many bees add other materials to these substances. For example:

- Carpenter bees bore holes in unpainted, unfinished wood. Some people mistake carpenter bees for bumblebees.
- Plasterer bees dig holes and tunnels, lining them with a plaster-like glandular secretion.
- Leafcutter bees use their mouth parts to cut pieces of leaves, which they use to line their nests.
- Mason bees, which are in the same family as leafcutter bees, use their saliva and secretions from their maxillary glands to glue sand and pebbles together.
- Carder bees collect the furry or woolly parts of plants to line their nests.

Other bees take advantage of existing materials when they build their nests. Some use empty termite hills or wasp nests. A few species lay their eggs in empty snail shells, either dividing the cell into chambers using glandular secretions or laying one egg in each shell. A few bees, known as cuckoo bees, are parasitic - they lay their eggs in the nests of other bees. Some cuckoo bees don't have any structures for collecting pollen, since they rely on other bees' pollen to feed their young.



Apinae
Euglossini

The orchid bee, *Apinae euglossini*, has an extremely long proboscis that it uses to reach nectar deep inside of orchid flowers.

Other solitary bees are known for the types of flowers they frequent or other distinguishing traits. Tiny sweat bees, for example, are attracted to people's sweat. Orchid bees are brightly colored and often have a metallic appearance. Scientists believe that orchids and orchid bees have co-evolved so that the two are now dependent on one another. Orchid bees have a very long proboscis, and orchids store their nectar very deep within their blossoms.

Orchid bees are one of the few species in which the males perform productive activity other than mating. In some species, male orchid bees collect fragrant oils from blossoms using scraper-like segments of their legs. Since the female orchid bees do not collect these oils, scientists believe that the males may use them to attract a mate.

While social and solitary bees have considerable differences in how they live and build nests, they have a lot in common when it comes to reproduction.

**NEXT MONTH: The Honeycomb and Bee
Reproduction, and Dinner and Dancing: Bee
Navigation.**

CLASSIFIEDS

Major Branzel has 4 nucs for sale. He can be reached at 707-643-9433.

The Diablo Bee
21 Newell Ct
Walnut Creek, CA 94595

