

# Beekeepers' Glossary

## A

### **Abdomen**

The posterior or third region of the body of the bee that encloses the honey stomach, stomach, intestines, sting and the reproductive organs.

### **Absconding swarm**

An entire colony of bees that abandons the hive because of disease, wax moth, or other maladies.

### ***Acarapis woodi***

A mite, called the Tracheal mite, which infests the bees' breathing or tracheal system; sometimes called Acarine Disease, this refers to bees that are heavily infested with the Tracheal mite.

### **Acidity**

The state of being acid or sour; the acids in honey, called organic acids, including gluconic acid, formed by the enzyme glucose to produce the acid and hydrogen peroxide.

### **Adulterated honey**

Any product labeled "Honey" or "Pure Honey" that contains ingredients other than honey but does not show these on the label. (Suspected mislabeling should be reported to the Food and Drug Administration.)

### **Afterswarm**

Swarms which leave a colony with a virgin queen, after the first (or prime) swarm has departed in the same season; afterswarms are also referred to as secondary or tertiary swarms.

### **Africanized Bee**

A term used indiscriminately to describe the African honey bee *Apis mellifera scutellata* (formerly *A.m. adansonii*) or its hybrids; an African bee released in Brazil and known for its volatile nature, its aggressive behavior may cause concern to the non-beekeeping public.

### **Alarm odor**

A chemical (iso-pentyl acetate) substance released near the worker bee's sting, which alerts other bees to danger; also called alarm pheromone.

### **Alighting board**

A small projection or platform at the entrance of the hive.

### **Allergic reaction**

A systemic or general reaction to some compound, such as bee venom, characterized by itching all over (hives), breathing difficulty, sneezing or loss of consciousness.

## **American foulbrood**

A brood disease of honey bees caused by the spore-forming bacterium, *Bacillus larvae* and characterized by a rosy or gummy condition of affected larvae. It is the most widespread and destructive of the brood diseases, afflicting queen, drone, and worker larvae alike. Adult bees, however, are not affected by AFB. *Bacillus larvae* occurs in two forms: vegetative (rod-shaped bacterial cells) and spores. Only the spore stage is infectious to honey bees. The spores germinate into the vegetative stage soon after they enter the larval gut and continue to multiply until larval death. American foulbrood spores are highly-resistant to desiccation, heat, and chemical disinfectants. These spores can remain virulent for more than forty years in combs and honey. Spores are easily transported by either infested bees or infected equipment. Beekeepers moving contaminated equipment are, by far, the greatest source of AFB spread. Considerable progress was made in the application of chemotherapeutic agents to control American foulbrood. Of the sulphur drugs, sulphathiazole and sulphadiazine showed greatest effectiveness as preventive agents, though it was important to point out that the application of such drugs required careful supervision and that indiscriminate use, with undue reliance on their effectiveness, could result in masking the disease and therefore aid in its dissemination. The effect of antibiotics was also examined under laboratory and field conditions. Terramycin, fed in honey or syrup, provided the most effective protection; however, the sulphur drugs retained their potency on storage much longer than the antibiotics tested. Visual signs of AFB begin to show up in the hive after young, susceptible larvae eat the spores that have been mixed in the brood food fed by nurse bees. If left untreated, infection spreads rapidly until the colony population is so weakened it dies during cold months by the ravages of the wax moth, or just by sheer lack of population, since all larvae die.

## **Anaphylactic shock**

Constriction of the muscles surrounding the bronchial tubes of a human, caused by hypersensitivity to venom and resulting in sudden death unless immediate medical attention is received.

## **Anther**

From the Greek anthros (flower), referring to the pollen-bearing portion on top of the stamen or male part of a flower.

## **Antenna (pl –ae)**

One of two long segmented sensory filaments located on the head of the bee, which enable bees to smell and taste.

## **Apiary (pl-ies)**

The location and total number of hives (and other equipment) at one site; also called bee yard.

## **Apiculture**

The science and art of raising honey bees.

## ***Apis mellifera***

A native European bee that is kept for its honey and wax in most parts of the world, has developed into several races differing in size, color, disposition, and productivity, and has escaped to the wild wherever suitable conditions prevail; subspecies include: *a. m. ligustica* (Italian), the most common domesticated bee; *a.m. caucasica* (Caucasian); *a.m. carnica*

(Carniolan) *a.m. mellifera* (German black); and *a.m. scutellata* / *a.m. adonsonii* / *a.m. intermissa* (African).

### **Automatic uncapper**

Automated device that removes the cappings from honey combs, usually by moving heated knives, metal teeth, or flails.

## **B**

### ***Bacillus larvae***

The bacterium that causes American foulbrood

### **Balling**

Refers to the action of worker bees surrounding a queen who is unacceptable, they are trying to kill her by pulling her legs, wings, and by stinging and suffocation; the bees form a small cluster or ball around this queen.

### **Basket extractor**

A honey extractor that spins out one side of the frame at a time.

### **Bee blower**

A gas or electrically driven blower used to blow bees from supers full of honey.

### **Bee bread**

Pollen collected by bees and stored in wax cells, preserved with honey.

### **Bee brush:**

soft brush or whisk (or handful of grass) used to remove bees from frames.

### **Bee cellar**

An underground room used for storing bee hives during long cold winters; difficult to use as constant temperature and humidity must be maintained to ensure colony survival.

### **Bee diseases**

Diseases affecting adult larval honey bees, not all of which are infectious (such as dysentery); important diseases are American and European foulbrood, highly infectious larval diseases.

### **Bee escape**

A device constructed to permit bees to pass one way, but prevent their return; used to clear bees from supers or other uses.

### **Bee Go**

A chemical, such as benzaldehyde, repellent to bees and used with a fume board to clear bees from honey supers.

### **Beehive**

A box or receptacle with movable frames, used for housing a colony of bees.

### **Bee metamorphosis**

The three stages through which a bee passes before reaching maturity: egg, larva, and pupa.

### **Bee space**

A space big enough to permit free passage for a bee but too small to encourage comb building, and too large to induce propolizing activities; measures ¼ to 3/8 inch (9.5mm).

### **Bee suit**

A pair of coveralls, usually white, made for beekeepers to protect them from stings and keep their clothes clean; some come equipped with zip-on veils.

### **Bee tree**

A tree with one or more hollows occupied by a colony of bees.

### **Bee veil**

A cloth or wire netting for protecting the beekeeper's head and neck from stings.

### **Bee venom**

Poisonous matter secreted by honeybees, used chiefly in defense and communicated by stinging; the poison is secreted by special glands attached to the stinger of the bee [Middle English *venom*, *venum*, *venim*, from Old French *venim*, from (assumed) Vulgar Latin *venimen*, alteration of Latin *venenum* drug, poison, magic potion, charm; akin to Latin *venus* love, sexual desire]

### **Beeswax**

A substance that is secreted by bees by special glands on the underside of the abdomen, deposited as thin scales, and used after mastication and mixture with the secretion of the salivary glands for constructing the honeycomb. After the bee forms it into comb, beeswax is glossy and hard but plastic when warm, insoluble in water but partly soluble in boiling alcohol and in ether, and miscible with oils and fats. Beeswax is a mixture consisting of the palmitate of myricyl alcohol and other higher esters, free cerotic acid, and hydrocarbons. Its melting point is from 143.6 to 147.2 degrees F. **2.** a wax obtained as a yellow to brown solid by melting a honeycomb with boiling water, straining, and cooling and used especially in polishes, modeling, and making patterns -- called also *yellow wax* [Middle English *wax*, *wex*, from Old English *weax*; akin to Old High German *wahs* wax, Old Norse *vax*, Lithuanian *vakas* wax, and probably to Old High German *wiohha* lint, wick]

### **Beeway super**

The shallowest or section super used with wooden section boxes to make comb honey; has a built-in beeway or bee space.

## **Benzaldehyde**

A colorless nontoxic liquid aldehyde  $C_6H_5CHO$  that has an odor like that of bitter almond oil, that occurs in many essential oils (as bitter almond oil and peach-kernel oil) and is usually made from toluene; used to drive bees out of honey supers, but is used chiefly in flavoring and perfumery, in pharmaceutical preparations, and in synthesis (as of dyes) -- called also *artificial bitter almond oil* [German *benzaldehyd*, from *benz-* + *aldehyd* aldehyde]

## **Black scale**

Refers to the appearance of a dried down larva or pupa which died of a foulbrood disease.

## **Boardman feeder**

A wooden or plastic device that fits into the entrance of a bee hive and holds a quart jar that can be filled with syrup or water.

## **Bottling tank**

A plastic or stainless steel tank holding 5 or more gallons of honey and equipped with a honey gate to fill honey jars.

## **Bottom board**

The floor of a bee hive.

## **Brace comb**

A bit of comb built between two combs to fasten them together, between a comb and adjacent wood, or between two wooden parts such as top bars.

## ***Braula coeca***

The scientific name of a wingless fly commonly known as the bee louse

## **Brood**

Immature stages of bees not yet emerged from their cells; the stages are egg, larvae, pupae.

## **Brood chamber**

The part of the hive in which the brood is reared; may include one or more hive bodies and the combs within.

## **Brood diseases**

Diseases that affect only the immature stages of bees, such as American or European foulbrood.

## **Brood nest**

The part of the hive interior in which brood is reared; usually the two bottom supers.

## **Buckfast hybrid**

A strain of bees developed by Brother Adam at Buckfast Abbey in England, bred for disease resistance, disinclination to swarm, hardiness, comb building and good temper.

## **Burr comb**

Small pieces of comb made as connecting links between combs or between a frame and the hive itself; also called brace comb.

# **C**

## **Cage shipping**

Also called a package, a screened box filled with 2 to 5 pounds of bees, with or without a queen, and supplied with a feeder can; used to start a new colony, or to boost a weak one.

## **Candy plug**

A fondant type candy placed in one end of a queen cage to delay her release.

## **Capped brood**

Immature bees whose cells have been sealed over with a brown wax cover by other worker bees; inside, the non-feeding larvae are isolated and can spin cocoons prior to pupating.

## **Capping melter**

Melter used to liquefy the wax from cappings as they are removed from honey combs

## **Cappings**

The thin wax covering over honey; once cut off of extracting frames they are referred to as cappings and are a source of premium beeswax.

## **Capping scratcher**

A fork-like device used to remove wax cappings covering honey, so it can be extracted.

## **Carbohydrate**

A food (organic compound) composed of carbon, hydrogen, and oxygen with the hydrogen:oxygen ratio frequently 2:1, as in water.

## **Carnolian bees**

A grayish race of honey bee *Apis mellifera carnica* named for Carniola, Austria but originating in the Balkan region; while they are gentle and do not propolize, they tend to swarm more than other races.

## **Castes**

The three types of bees that comprise the adult population of a honey bee colony: workers, drones, and queen

### **Caucasian bees**

A black race of honey bee *A. mellifera caucasica*, originating in the Caucasus mountains; gentle but tend to propolize excessively.

### **Cell**

The hexagonal compartment of a honey comb.

### **Cell bar**

A wooden strip on which queen cups are placed for rearing queen bees.

### **Cell cup**

Base of an artificial queen cell, made of beeswax or plastic and used for rearing queen bees

### **Chalkbrood**

A disease affecting bee larvae, caused by a fungus *Ascospaera apis*, larvae eventually turn into hard, chalky white “mummies”.

### **Chilled brood**

Immature bees that have died from exposure to cold; commonly caused by mismanagement.

### **Chimney effect**

The tendency for bees to fill only the center frames of honey supers; happens when bees are given too much room too fast.

### **Chromosome**

A group of nuclear bodies (from the nucleus) containing genes; responsible for the differentiation and activity of a cell, and undergoing characteristic division stages such as mitosis.

### **Chunk honey**

Honey in the comb, but not in sections, frequently cut and packed into jars then filled with liquid honey.

### **Clarifying**

Removing visible foreign material from honey or wax to increase its purity.

### **Cluster**

A large group of bees hanging together, one upon another

### **Cocoon**

A thin silk covering secreted by larval honey bees in their cells in preparation for pupation.

### **Colony**

The aggregate of worker bees, drones, queen, and developing brood living together as a family unit in a hive or other dwelling

### **Colony Collapse Disorder**

A recently named problem where most of the bees in most of the hives in an apiary disappear leaving a queen, healthy brood and only a few bees in the hive with plenty of stores.

### **Comb**

The wax portion of a colony in which eggs are laid, and honey and pollen are stored.

### **Comb, drawn**

Wax foundation with the cell walls drawn out by the bees, completing the comb.

### **Comb foundation**

A commercially made structure consisting of thin sheets of beeswax with the cell bases of worker cells embossed on both sides in the same manner as they are produced naturally by honey bees.

### **Comb honey**

Honey in the wax combs, usually produced and sold as a separate unit, such as a wooden section 4-1/2" square, or a plastic round ring.

### **Conical escape**

A cone-shaped bee escape, which permits bees, a one-way exit; used in a special escape board to free honey supers of bees.

### **Creamed honey**

Honey that has been pasteurized and undergone controlled granulation to produce a finely textured candied or crystallized honey which spreads easily at room temperature.

### **Crimp-wired foundation**

Comb foundation into which crimp wire is embedded vertically during foundation manufacture

### **Cross-pollination**

The transfer of pollen from the anther of one flower to the stigma of another flower of the same species.

### **Crystalize**

See Granulate.

### **Cut-comb honey**

Comb honey cut into various sizes, the edges drained, and the pieces wrapped or packed individually.

## **D**

### **Dearth**

A period of time when there is no available forage for bees, due to weather conditions (rain, drought) or time of year.

### **Decoy hive**

A hive placed to attract stray swarms.

### **Demaree**

The method of swarm control that separates the queen from most of the brood within the same hive.

### **Dequeen**

To remove a queen from a colony

### **Dextrose**

Also known as glucose (grape sugar), it is a simple sugar (or monosaccharide) and is one of the two main sugars found in honey; forms most of the solid phase in granulated honey.

### **Diatase**

A starch digesting enzyme in honey adversely affected by heat; used in some countries to test quality and heating history of stored honey.

### **Disease resistance**

The ability of an organism to avoid a particular disease; primarily due to genetic immunity or avoidance behavior.

### **Dividing**

Separating a colony to form two or more units.

### **Division**

See split.

### **Division board feeder**

A wooden or plastic compartment which is hung in a hive like a frame and contains sugar syrup to feed bees

**Double screen**

A wooden frame, 1/2 to 3/4 inch thick, with two layers of wire screen to separate two colonies within the same hive, one above the other. An entrance is cut on the upper side and placed to the rear of the hive for the upper colony

**Double story**

Referring to a beehive comprised of two deep supers, one for brood and one for honey.

**Drawn combs**

Combs with cells built out by honey bees from a sheet of foundation

**Drifting**

The movement of bees that have lost their location and enter other hives; common when hives are placed in long straight rows where returning foragers from the center hives tend to drift to the row ends.

**Drone**

The male honeybee which comes from an unfertilized egg (and is therefore haploid) laid by a queen or less commonly, a laying worker.

**Drone brood or drone comb**

Brood, which matures into drones, reared in cells larger than worker brood.

**Drone congregating area (DCA)**

A specific area to which drones fly waiting for virgin queens to pass by; it is not known how or when they are formed, but drones return to the same spots year after year.

**Drone layers**

A drone laying queen or laying workers.

**Drone laying queen**

A queen that can lay only unfertilized eggs, due to age, improper or no mating, disease or injury.

**Drumming**

Pounding on the sides of a hive to make the bees ascend into another hive placed over it.

**Dwindling**

The rapid dying off of old bees in the spring; sometimes called spring dwindling or disappearing disease.

**Dysentery**

An abnormal condition of adult bees characterized by severe diarrhea and usually caused by starvation, low-quality food, moist surroundings, or nosema infection

## **E**

### **Eggs**

The first phase in the bee life cycle, usually laid by the queen, is the cylindrical egg 1/16in (1.6 mm) long; it is enclosed with a flexible shell or chorion.

### **Electric embedder**

A device allowing rapid embedding of wires in foundation with electrically produced heat

### **Entrance reducer**

A notched wooden strip used to regulate the size of the bottom entrance.

### **Escape board**

A board having one or more bee escapes in it; used to remove bees from supers.

### **European foulbrood**

An infectious brood disease of honey bees caused by *Streptococcus pluton*.

### **Eyelets, metal**

A small metal piece fitting into the wire-holes of a frame's end bar; used to keep the reinforcing wires from cutting into the wood.

### **Extracted honey**

Honey removed from combs by means of a centrifugal force; the combs remain intact

## **F**

### **Feeders**

Various types of appliances for feeding bees artificially.

### **Fermenting honey**

Honey which contains too much water (greater than 20%) in which a chemical breakdown of the sugars takes place producing carbon dioxide and alcohol; caused by naturally-occurring osmophilic yeasts of the genus *Saccharomyces* (formerly *Zygosaccharomyces*).

### **Fertile queen**

A queen, inseminated instrumentally or mated with a drone, which can lay fertilized eggs

### **Fertilized**

Usually refers to eggs laid by a queen bee, they are fertilized with sperm stored in the queen's spermatheca, in the process of being laid.

### **Festooning**

The activity of young bees, engorged with honey, hanging on to each other and secreting beeswax.

### **Field bees**

Worker bees which are usually 21 or more days old and work outside to collect nectar, pollen, water and propolis; also called foragers.

### **Flash heater**

A device for heating honey very rapidly to prevent it from being damaged by sustained periods of high temperature

### **Flight path**

Usually refers to the direction bees fly leaving their colony; if obstructed, may cause bees to become aggravated.

### **Follower board**

A thin board used in place of a frame usually when there are fewer than the normal number of frames in a hive.

### **Food chamber**

A hive body filled with honey for winter stores.

### **Forage**

Natural food source of bees (nectar and pollen) from wild and cultivated flowers.

### **Foreign matter**

In honey, unusually high amounts of wax, bee bodies, pollen grains, or other objectionable debris.

### **Foundation, wax**

Thin sheets of beeswax embossed or stamped with the base of a worker (or rarely drone) cells on which bees will construct a complete comb (called drawn comb); also referred to as comb foundation, it comes wired or unwired.

### **Foundation, wired**

Comb foundation which includes evenly-spaced vertical wires for added support; used in brood or extracting frames.

### **Foundationless frame**

Frame used without wax foundation, but with a comb guide for the bees at the top.

### **Foulbrood, American**

A malignant, contagious bacterial disease affecting bee larvae caused by a spore-forming bacteria *Bacillus larvae*.

### **Foulbrood, European**

A serious, infectious larval disease of honeybees caused by *Melissococcus pluton* formerly *Streptococcus pluton*), a spore-forming bacteria.

### **Frame**

Four pieces of wood forming a rectangle, designed to hold honey comb, consisting of a top bar, two end bars, and a bottom bar (one or two pieces); usually spaced a bee-space apart in the super.

### **Fructose**

See Levulose.

### **Fumeboard**

A device used to hold a set amount of a volatile chemical (A bee repellent like Bee Go) to drive bees from supers.

### **Fumagillin**

Bicyclohexyl-ammonium fumagillin, whose trade name is Fumadil-B (Abbot Labs), is a whitish soluble antibiotic powder discovered in 1952; it is mixed with sugar syrup and fed to bees to control Nosema disease.

### **Fumidil-B**

The trade name for Fumagillin, an antibiotic used in the prevention and suppression of nosema disease.

### **Fume board**

A rectangular frame, the size of a super, covered with an absorbent material such as burlap, on which is placed a chemical repellent to drive the bees out of supers for honey removal

## **G**

### **Gloves**

Leather, cloth or rubber gloves worn while inspecting bees.

### **Glucose**

See Dextrose.

### **Gluconic acid**

See Acidity

## **Grafting**

Removing a worker larva from its cell and placing it in an artificial queen cup in order to have it reared into a queen.

## **Grafting tool**

A needle or probe used for transferring larvae in grafting of queen cells

## **Granulate**

The process by which honey, a super-saturated solution (more solids than liquid) will become solid or crystallize; speed of granulation depends of the kinds of sugars in the honey.

## **Guard bees**

Worker bees about three weeks old, which have their maximum amount of alarm pheromone and venom; they challenge all incoming bees and other intruders.

## **Gum**

A hollow log beehive, sometimes called a log-gum (Appalachia), made by cutting out that portion of a tree containing bees and moving it to the apiary; since it contains no moveable frames, it is therefore illegal.

# **H**

## **Hay fever**

An allergic condition that afflicts many people; caused by various plant particles, airborne fungal spores or pollen.

## **Hive**

A manmade home for bees including a bottom board, hive bodies, frames enclosing honey combs, and covers.

## **Hive body**

A wooden box containing frames. Usually “deep” or “medium”, 8 or 10 frame size.

## **Hive stand**

A structure serving as a base support for a beehive; it helps in extending the life of the bottom board by keeping it off damp ground.

## **Hive staples**

Large C-shaped metal nails, hammered into the wooden hive parts to secure bottom to supers, and supers to super before moving a colony.

**Hive tool**

A flat metal device with a curved scraping surface at one end and a flat blade at the other; used to open hives, pry apart and scrape frames.

**Hoffman self-spacing frame**

Frames that have the end bars wider at the top than the bottom to provide the proper spacing when frames are placed in the hive.

**Honey**

A sweet viscid material produced by bees from the nectar of flowers, composed largely of a mixture of dextrose and levulose dissolved in about 17 percent water; contains small amounts of sucrose, mineral matter, vitamins, proteins, and enzymes.

**Honeydew**

An excreted material from insects in the order Homoptera (aphids) which feed on plant sap; since it contains almost 90% sugar, it is collected by bees and stored as honeydew honey.

**Honeybee**

The common name for *Apis mellifera* (Honey bearer), a highly social insect, Order Hymenoptera (membranous wings); correctly printed as two words.

**Honey color**

Measured by a Pfund grader, honey colors are classified between water white to white, to amber to dark amber (7 gradations).

**Honey extractor**

A machine which removes honey from the cells of comb by centrifugal force.

**Honey flow**

A time when enough nectar-bearing plants are blooming such that bees can store a surplus of honey.

**Honey gate**

A faucet used for removing honey from tanks and other storage receptacles.

**Honey house**

A building used for activities such as honey extraction, packaging and storage.

**Honey plants**

Plants whose flower (or other parts) yields enough nectar to produce a surplus of honey; examples are asters, basswood, citrus, eucalyptus, goldenrod and tupelo.

**Honey pump**

A pump used to transfer honey from a sump or extractor to a holding tank or strainer

### **Honey sac**

Also called honey stomach, an enlargement at the posterior (back) end of a bees' esophagus but lying in the front part of the abdomen, capable of expanding when full of liquid such as nectar or water.

### **Honey stomach**

An organ in the abdomen of the honey bee used for carrying nectar, honey, or water.

### **Honey sump**

A clarifying tank between the extractor and honey pump for removing the coarser particles of comb introduced during extraction.

### **Honey supers**

Refers to hive bodies used for honey production.

### **Hornets and yellow jackets**

Social insects belonging to the family Vespidae. Nest in paper or foliage material, with only an overwintering queen. Fairly aggressive, and carnivorous, but generally beneficial, they can be a nuisance to man. Hornets and Yellow Jackets are often confused with Wasps and HoneyBees. Wasps are related to Hornets and Yellow Jackets, the most common of which are the paper wasps which nest in small exposed paper combs, suspended by a single support. Hornets, Yellow Jackets and Wasps are easy to distinguish by their larger size, shiny hairless body, and aggressiveness. HoneyBees are generally smaller, fuzzy brown or tan, and basically docile in nature.

### **Hypersensitive**

A condition in which reactions to any environmental stimulus are life-threatening; such as honey bee venom.

### **I**

### **Imperfect**

Not fully formed, such as a worker, considered an imperfect female.

### **Increase**

To add to the number of colonies, usually by dividing those on hand. See Split.

### **Infertile**

Incapable of producing a fertilized egg, as a laying worker.

### **Inhibine**

Antibacterial effect of honey caused by an accumulation of hydrogen peroxide, a result of the chemistry of honey.

### **Injections, desensitizing**

A series of injections given to persons with allergies (such as bee venom) so they might build up an immunity.

### **Inner cover**

An insulating cover fitting on top of the top super but underneath the outer cover, with an oblong hole in the center.

### **Insecticide**

Any chemical that kills insects.

### **Inspectors, state**

Persons usually employed by state agriculture departments to inspect colonies of bees for diseases and pests.

### **Instrumental insemination**

The introduction of drone spermatozoa into the genital organs of a virgin queen by means of special instruments

### **Invertase**

An enzyme in honey, which splits the sucrose molecule (a disaccharide) into its two components dextrose and levulose (monosaccharides).

### **Isomerase**

A bacterial enzyme used to convert glucose in corn syrup into fructose, which is a sweeter sugar; called isomerase, is now used as a bee feed.

### **Italian bees**

A common race of bees, *Apis mellifera ligustica*, with brown and yellow bands, from Italy; usually gentle and productive, but tend to rob.

## **L**

### **Langstroth, L. L.**

A Philadelphia native and minister (1810-95), he lived for a time in Ohio where he continued his studies and writing of bees; recognized the importance of the bee space, resulting in the development of the movable-frame hive.

### **Larva, capped (pl-ae)**

The second developmental stage of a bee, ready to pupate or spin its cocoon (about the 10th day from the egg).

### **Laying workers**

Worker bees which lay eggs in a colony hopelessly queenless; such eggs are infertile, since the workers cannot mate, and therefore become drones.

### **Leg baskets**

Also called pollen baskets, a flattened depression surrounded by curved spines located on the outside of the tibiae of the bees' hind legs and adapted for carrying flower pollen or other dusts.

### **Levulose**

Also called fructose (fruit sugar), a monosaccharide commonly found in honey that is slow to granulate (such as Robinia or locust honey); chemical formula is like glucose, but has its carbonyl group in a different place.

## **M**

### **Mandibles**

The jaws of an insect; used by bees to form the honey comb and scrape pollen, in fighting and picking up hive debris.

### **Maternal**

From the mother's side of the family.

### **Mating flight**

The flight taken by a virgin queen while she mates in the air with several drones.

### **Mead**

Honey wine

### **Midnight hybrid**

A combination of the Caucasian and Carniolan races.

### **Migratory beekeeping**

The moving of colonies of bees from one locality to another during a single season to take advantage of two or more honey flows.

### **Migratory cover**

An outer cover used without an inner cover that does not telescope over the sides of the hive; used by commercial beekeepers who frequently move hives.

### **Moisture content**

In honey, the percentage of water should be no more than 18.6; any percentage higher than that will allow honey to ferment.

### **Movable frames**

A frame constructed in such a way to preserve the bee space, so they can be easily removed; when in place, it remains unattached to its surroundings.

### **Moving board**

A framed screen that fits over the top as a hive cover; used to move bees in hot weather to provide sufficient ventilation to keep bees from suffocating.

## **N**

### **Natural honey**

Unfiltered and unheated honey.

### **Nectar**

A liquid rich in sugars, manufactured by plants and secreted by nectary glands in or near flowers; the raw material for honey.

### **Nectary glands**

Special nectar secreting glands usually found in flowers, whose function is to attract pollinating insects, such as honey bees for the purpose of cross pollination, by offering a carbohydrate-rich food.

### **Nectar guide**

Color marks on flowers believed to direct insects to nectar sources.

### **Nectaries**

The organs of plants which secrete nectar, located within the flower (floral nectaries) or on other portions of the plant (extrafloral nectaries).

### **Newspaper method**

A technique to join together two strange colonies by providing a temporary newspaper barrier.

### **Nosema disease**

A widespread adult bee disease caused by a one-celled spore-forming organism *Nosema apis*; it infects the gut lining.

### **Nuc, nuclei, nucleus**

A small colony of bees often used in to start a hive and in queen rearing.

### **Nurse bees**

Young bees, three to ten days old, which feed and take care of developing brood.

## **O**

### **Observation hive**

A hive made largely of glass or clear plastic to permit observation of bees at work

### **Osmotic pressure**

The minimum pressure that must be applied to a solution to prevent it from gaining water when it is separated from pure water by a permeable membrane; in honey, its ability to absorb water from the air or other microscopic organisms, about 2000 milliosmols/kg.

### **Outer cover**

The last cover that fits over a hive to protect it from rain; the two most common kinds are telescoping and migratory covers.

### **Outyard**

Also called out apiary, it is an apiary kept at some distance from the home or main apiary of a beekeeper; usually over a mile away from the home yard.

### **Ovary**

The egg producing part of a plant or animal.

### **Ovule**

An immature female germ cell, which develops into a seed.

### **Oxytetracycline**

An antibiotic sold under the trade name Terramycin; used to control American and European foulbrood diseases.

## **P**

### **Package**

See Shipping Cage.

### **Package bees**

A quantity of adult bees (2 to 5 pounds), with or without a queen, contained in a screened shipping cage.

### **Paralysis**

A virus disease of adult bees which affects their ability to use legs or wings normally

### **Parthenogenesis**

The development of young from unfertilized eggs laid by virgin females (queen or worker); in bees, such eggs develop into drones.

### **PDB (Paradichlorobenzene)**

A white crystalline substance whose vapors are heavier than air and are used to fumigate wax moths in stored hive bodies.

### **Piping**

A series of sounds made by a queen, frequently before she emerges from her cell.

### **Play flights**

Short flights taken in front and in the vicinity of the hive by young bees to acquaint them with hive location; sometimes mistaken for robbing or swarming preparations.

### **Poison sac**

Large oval sac containing venom and attached to the anterior (front) part of the sting; stores venom produced by the poison gland, and its primary ingredients are peptide and mellitin.

### **Pollen**

The dust-like male reproductive cells (gametophytes) of flowers, formed in the anthers, and important as a protein source for bees; pollen is essential for bees to rear brood.

### **Pollen basket**

See leg basket.

### **Pollen cakes or pollen pellets**

The cakes of pollen packed in the leg baskets of bees and transported back to the colony.

### **Pollen insert**

A device inserted in the entrance of a colony into which hand-collected pollen is placed. As the bees leave the hive and pass through the trap, some of the pollen adheres to their bodies and is carried to the blossom, resulting in cross-pollination.

### **Pollen substitute**

A food material which is used to substitute wholly for pollen in the bees' diet; usually contains all or part of soy flour, brewers' yeast, wheat, powdered sugar, or other ingredients.

### **Pollen supplement**

A mixture of pollen and pollen substitutes used to stimulate brood rearing in periods of pollen shortage

### **Pollen trap**

A device for collecting the pollen pellets from the hind legs of worker bees; usually forces the bees to squeeze through a screen mesh, which scrapes off the pellets.

### **Pollen tube**

A slender thread-like growth, containing sperm cells, which penetrates the female tissue (stigma) of a flower until it eventually reaches the ovary; there the sperm cells unite with the ovule.

### **Pollination**

The transfer of pollen from the anthers to the stigma of flowers.

### **Pollinator**

The agent that transfers pollen from an anther to a stigma: bees, flies, beetles, etc.

### **Pollinizer**

The plant source of pollen used for pollination.

### **Porter bee escape**

Introduced in 1891, the escape is a device that allows the bees a one-way exit between two thin and pliable metal bars that yield to the bees' push; used to free honey supers of bees but may clog since drone bees often get stuck.

### **Prime swarm**

The first swarm to leave the parent colony, usually with the old queen.

### **Proboscis**

The mouthparts of the bee that form the sucking tube or tongue

### **Propolis**

Plant resins collected and modified by bees; used to fill in small spaces inside the hive.

### **Propolize**

To fill with propolis, or bee glue; used to strengthen the comb and seal cracks, it also has antimicrobial properties.

### **Protein**

Naturally occurring complex organic substances, such as pollen; composed of amino acids, the building blocks of protein.

### **Pupa (pl-ae)**

The third stage in the development of the bee during which it is inactive and sealed in its cocoon; the organs of the sealed in its cocoon; the organs of the larva are replaced by those which will be used as an adult.

## **Q**

### **Queen**

A fully developed mated female bee responsible for all the egg laying of a colony; recognized by other bees by her special pheromones (odors).

### **Queen cage**

A special cage in which queens are shipped and/or introduced to a colony, usually with 5 or 6 young workers called attendants, and a candy plug.

### **Queen cage candy**

Candy made by kneading powdered sugar with invert sugar syrup until it forms a stiff dough; used as food in queen cages.

### **Queen cell**

A special elongated cell resembling a peanut shell in which the queen is reared; usually over an inch in length, it hangs vertically from the comb.

### **Queen clipping**

Removing a portion of one or both front wings of a queen to prevent her from flying

### **Queen cup**

A cup-shaped cell hanging vertically from the comb, but containing no egg; also made artificially of wax or plastic to raise queens

### **Queen excluder**

A device made of wire, wood or zinc (or any combination thereof) having openings of .163 to .164 inch, which permits workers to pass but excludes queens and drones; used to confine the queen to a specific part of the hive, usually the brood nest.

### **Queenright**

A colony that contains a laying queen.

**Queen substance** - pheromone material secreted from glands in the queen bee and transmitted throughout the colony by workers to alert other workers of the queen's presence.

## **R**

### **Rabbit**

A narrow piece of folded metal fastened to the inside upper end of the hive body from which the frames are suspended.

### **Races of bees**

The four most common races of *Apis* are *mellifera*, *cerana*, *dorsata* and *florea*; other newly discovered races are currently under investigation.

### **Radial extractor**

A centrifugal force machine to throw out honey but leave the combs intact; the frames are placed like spokes of a wheel, top bars towards the wall, to take advantage of the upward slope of the cells.

### **Raw honey**

See Natural honey.

### **Requeen**

To introduce a new queen to a queenless hive.

### **Rendering wax**

The process of melting combs and cappings and removing refuse from the wax.

### **Resmethrin (SBP-1382)**

A synthetic pyrethroid insecticide used to kill diseased honey bee colonies

### **Reversing**

The act of exchanging places of different hive bodies of the same colony; usually for the purpose of nest expansion, the super full of brood and the queen is placed below an empty super to allow the queen extra laying space.

### **Robbing**

The act of bees stealing honey/nectar from the other colonies; also applied to bees cleaning out wet supers or cappings left uncovered by beekeepers.

### **Ropy characteristic**

A diagnostic test for American foulbrood in which the decayed larvae form an elastic rope when drawn out with a toothpick.

### **Round sections**

Sections of comb honey in plastic round rings instead of square wooden boxes.

### **Royal jelly**

A highly nutritious, milky white glandular secretion of young (nurse) bees; used to feed the queen and young larvae.

## **S**

### **Sacbrood**

A brood disease of bees caused by a filterable virus which interferes with the molting process; the dead larva resembles a bag of fluid.

### **Scout bees**

Worker bees searching for a new source of pollen, nectar, propolis, water, or a new home for a swarm of bees.

### **Screened ventilated board**

A framed screen used to cover the top of a hive being moved in hot weather.

### **Sealed brood**

See "Capped brood."

### **Sections**

Small wooden (or plastic) boxes used to produce comb honey.

### **Self-pollination**

The act of a single flower, or flower from the same plant, pollinating itself.

### **Self-spacing frames**

Frames constructed so that they are a bee space apart when pushed together in a hive body.

### **Self-sterile**

The inability of a flower, such as a fruit tree, to be fertilized within its own variety; it is only fertilized by pollen from another variety.

### **Settling tank**

A large capacity container used to settle extracted honey; air bubbles and debris will float to the top, clarifying the honey.

### **Skep**

A beehive without moveable frames, usually made of twisted straw in the form of a basket; its use is illegal in the U.S.

### **Slatted rack**

A wooden rack that fits between the bottom board and hive body. Bees make better use of the lower brood chamber with increased brood rearing, less comb gnawing, and less congestion at the front entrance.

### **Slungum**

The refuse from melted combs and cappings after the wax has been rendered or removed; usually contains cocoons, pollen, bee bodies and dirt.

**Small Cell**

4.9mm cell size. Used by some beekeepers to control Varroa mites.

**Small Hive Beetle**

A recently imported pest whose larvae will destroy comb and ferment honey.

**Smoker**

A metal container with attached bellows which burns organic fuels to generate smoke; used to control aggressive behavior of bees during colony inspections.

**Solar wax melter or extractor**

A glass-covered insulated box used to melt wax from combs and cappings using the heat of the sun.

**Sperm cells**

The male reproductive cells (gametes) which fertilize eggs; also called spermatozoa.

**Spermatheca**

A small sac connected with the oviduct (vagina) of the queen bee in, which is stored, the spermatozoa received in mating with drones.

**Split**

To divide a colony for the purpose of increasing the number of hives.

**Spur embedder**

A device used for mechanically embedding wires into foundation by employing hand pressure

**Starline hybrid**

An Italian bee hybrid known for vigor and honey production.

**Stigma**

Receptive portion of the female part of a flower to which pollen adheres.

**Sting**

An organ belonging exclusively to female insects developed from egg laying mechanisms, used to defend the colony; modified into a piercing shaft through which venom is injected.

**Sting sac**

See Poison Sac.

**Straining screen**

A metal or plastic screen through which honey is filtered; also serves as a base for other, finer screening material.

### **Streptococcus pluton**

Bacterium that causes European foulbrood.

### **Sucrose**

Principal sugar found in nectar.

### **Sugar syrup**

Feed for bees, containing sucrose or table (cane) sugar and hot water in various ratios.

### **Super**

A receptacle in which bees store honey; usually placed over or above the brood nest; so called brood supers contain brood.

### **Supering**

The act of placing honey supers on a colony in expectation of a honey flow.

### **Supersedure**

Rearing a new queen to replace the mother queen in the same hive; shortly after the daughter queen begins to lay eggs, the mother queen disappears.

### **Surplus honey**

Any extra honey removed by the beekeeper, over and above what the bees require for their own use, such as winter food stores.

### **Swarm**

A collection of bees, containing at least one queen that split apart from the mother colony to establish a new one; a natural method of propagation of honey bees.

### **Swarm cell**

Queen cells usually found on the bottom of the combs before swarming.

### **Swarming**

The natural method of propagation of the honey bee colony.

### **Swarming season**

The time of year, usually mid-summer, when swarms usually issue.

## **T**

## **TBH**

See Top Bar Hive

## **Terramycin**

an antibiotic used to prevent American and European foulbrood. See Oxytetracycline.

## **Tested queen**

A queen whose progeny shows she has mated with a drone of her own race and has other qualities which would make her a good colony mother.

## **Thin super foundation**

A comb foundation used for comb honey or chunk honey production which is thinner than that used for brood rearing.

## **Thorax**

The central region of an insect to which the wings and legs are attached.

## **Top bar**

The top part of a frame.

## **Top Bar Hive**

So named because the bees draw their comb from a top bar, suspended across the top of a cavity, and not inside a full rectangular frame with sides and a bottom bar. The beekeeper does not provide foundation wax (or provides only a small starter piece of foundation) for the bees to build from.

## **Transferring**

The process of changing bees and combs from common boxes to movable frame hives.

## **Travel stains**

The darkened appearance on the surface of honeycomb caused by bees walking over its surface.

# **U**

## **Uncapping knife**

A knife used to shave off the cappings of sealed honey prior to extraction; hot water, steam or electricity can heat the knives.

## **Uncapping tank**

A container over which frames of honey are uncapped; usually strains out the honey which is then collected.

**Unfertilized**

An ovum or egg, which has not been united with the sperm.

**Uniting**

Combining two or more colonies to form a larger colony

**V****Varroa jacobsoni**

An external mite parasite on honeybees.

**Veil**

A protective netting that covers the face and neck; allows ventilation, easy movement and good vision.

**Venom allergy**

A condition in which a person, when stung, may experience a variety of symptoms ranging from a mild rash or itchiness to anaphylactic shock. A person who is stung and experiences abnormal symptoms should consult a physician before working bees again.

**Venom hypersensitivity**

A condition in which a person, if stung, is likely to experience an anaphylactic shock. A person with this condition should carry an emergency insect sting kit at all times during warm weather

**Virgin queen**

An unmated queen bee.

**W****Warming cabinet**

An insulated box or room heated to liquefy honey.

**Wasp**

A close relative of honey bees, usually in the family Vespidae; they are carnivorous, some species preying on bees (see also, Hornet).

**Wax**

See Beeswax.

**Wax glands**

The eight glands located on the last 4 visible, ventral abdominal segments of young worker bees; they secrete beeswax droplets.

**Wax moths**

Usually refers to the Greater wax moth, *Galleria mellonella*, whose larvae bore through and destroy honeycomb as they eat out its impurities.

**Wax scale**

A drop of liquid beeswax that hardens into a scale upon contact with air; in this form it is shaped into comb.

**Wax tube fastener**

A metal tube for applying a fine stream of melted wax to secure a sheet of foundation to an un-grooved frame.

**Wind pollinated**

Plants whose flowers manufacture light pollen (and usually no nectar) which is released into the air to fall by chance on a receptive stigma; examples include the grasses (corn, oats) and conifers (pines).

**Windbreaks**

Specially constructed, or naturally occurring barriers to reduce the force of the (winter) winds on a beehive.

**Winter cluster**

A tight ball of bees within the hive to generate heat; forms when outside temperature falls below 57 degrees F.

**Winter hardiness**

The ability of some strains of honeybees to survive long winters by frugal use of stored honey.

**Wire, frame**

Thin 28# wire used to reinforce foundation destined for the broodnest or honey extractor.

**Wire cone escape**

A one-way cone formed by window screen mesh used to direct bees from a house or tree into a temporary hive.

**Worker bees**

Infertile female bee whose reproductive organs are only partially developed, responsible for carrying out all the routine of the colony.

**Worker comb**

Comb measuring about five cells to the inch, in which workers are reared and honey and pollen are stored.

