

Cappings melter

A hot water, steam, or electrically heated container used to separate honey and wax by melting; wax floats on the honey.

Cappings spinner

A centrifuge with wire-screened baskets used to separate honey from wax.

Cell

One of the hexagonal compartments of a honeycomb in which brood is reared or food is stored.

Cismontane

Area west of Sierra Nevada Mountains in northern and central California, and area west of Mojave and Colorado deserts in southern California. (See also *Transmontane*.)

Clipping and marking

Terminology referring to the clipping of a portion of a queen's wings and the affixing of a dot of colored material on the top of her thorax.

Cluster

Loosely, any group of bees that forms a relatively compact aggregation. A winter cluster is composed of all the bees in the colony huddled as closely together as necessary to maintain the required temperature. As the ambient temperature increases, the cluster expands until it loses its identity but it will reappear if the temperature drops.

Colony

A community of bees living in close association and contributing to their mutual support by their labor. It is composed of a queen and worker bees, and during spring and summer drone bees are present. The terms colony and hive are often used interchangeably.

Comb

A mass of hexagonal cells made of beeswax and containing brood and food.

Cover (also referred to as a top or lid)

The flat, wooden piece placed on top of the hive to confine and protect the bees.

Crosspollination

Movement of pollen between blossoms of one variety of plant species and a second, compatible variety to produce hybrid seed. (See also *Pollination*.)

Dearth

Severe to total lack of availability, usually in reference to nectar and/or pollen.

Demaree method

A swarm prevention technique based on removal and isolation of a colony's brood at the top of a multiple-story hive.

Drift

Movement of bees from their original hive into a neighboring hive—frequent with drones and surprisingly common with workers.

Drone

A male bee that develops from an unfertilized egg.

Dysentery

Intestinal disorder causing frequent defecation (diarrhea) in affected individuals. Tan, brown, or black fecal smears on combs or outside of hive indicate such a problem.

Escape board (also, sometimes, inner cover)

A device with dimensions identical to the top of a super that contains one or more bee escapes. Used to empty one or more supers of bees.

Extractor

A mechanical device used to remove honey from uncapped honeycombs by centrifugal force.

Festoon

A unique cluster of bees that link themselves together by their tarsi (feet) in a loose network between combs in a hive. Normally, these are aggregates of wax-producing bees.

Flow

Refers to the availability of nectar and/or pollen. When food substances are available in abundance, it is a "good flow."

Foraging

Those activities of bees connected with finding and bringing back water, nectar, pollen, or propolis.

Foundation

A thin sheet of beeswax imprinted with the hexagonal cell bases of a honeycomb; used as a base for the comb when placed in frames.

Frame

A rectangle, usually of wood, that is hung inside the hive to support the foundation and comb. Sometimes frame and comb are used interchangeably; that is, a "comb of brood" is a "frame of brood."

Fume board

See *Acid board*.

Hive

A container housing a colony of bees. Usually consists of one or more hive bodies below and one or more supers above. (See *Beehive* and *Colony*.)

Hive body

The part of the hive containing combs in which the queen lays eggs. The hive body rests on the bottom board.

Hive stand

A device that elevates the bottom board up off the ground.

Hot room

An insulated portion of a warehouse with radiant or forced air heating that can produce temperatures up to 100°F.

Larva

The wormlike immature stage of a honey bee that increases in size dramatically as it feeds on royal jelly, pollen, and diluted honey.

Nectar

A dilute sugar solution secreted by glands in different parts of plants, chiefly in flowers.

Nuclei

A small functioning colony of bees (queen, bees, brood) on two to five combs.

Nurse bee

A worker bee of the correct age (6 to 12 days postemergence) to produce royal jelly and to feed larval bees, adult queens, and drones.

Oven

A small, highly insulated portion of a warehouse, often in the hot room, where temperatures can be elevated to 150°F to melt wax.

Package

A wire-screened wooden box of bulk bees, a queen, and a can of feed used to transport bees to an empty hive.

Pollen

Male sex cells produced in anthers of flowers. Powderlike and composed of many grains, they are gathered and used by honey bees for food as a source of protein. A good mix of many different pollens is essential for adequate nutrition.

Pollination

Transfer of viable pollen to a receptive stigma of a flower. In commercial beekeeping, the term refers to the service provided by honey bees in crop production. (See also *Crosspollination*.)

Pollen substitutes

Feed substances fed to bees to provide protein, fats, vitamins, and minerals when pollens are not available.

Pollen supplement

Pollen substitute mixed with pollen to increase attractiveness and nutritive value to bees.

Pollen trap

A device attached to a hive to remove pollen loads from incoming foraging bees. Pollen "pellets" usually are collected in a drawer that is inaccessible to the bees.

Prepupa

An immature stage between the last larval stage and the true pupal stage in the life cycle of a honey bee.

Propolis

Plant resins collected by bees and used as a cement to stick hive parts together and to seal openings. Also called bee glue.

Pupa

The preadult form of bees occurring after the larval stage and maintained without evident change in size and structure until the adult bee emerges from the cell.

Queen

Lone, fully developed female in colony. She lays all the eggs and stores sperm for up to 3 years.

Queen cage candy

A special fondant made from Nulomoline, drivert, and glycerine (see *Feeding Bees*); used to feed queen and attendant bees in queen cages.

Queen excluder

A wire or plastic grid, with slots just large enough for passage of worker bees, used to prohibit the movement of queens between supers.

Queenless

A hive of bees with no queen.

Queenright

A colony of bees with a functioning queen.

Rendered comb

Comb that has been melted down to beeswax. With American foulbrood, the wooden frames are soaked in a lye bath.

Requeen

To remove the present queen from the colony and replace her with another queen.

Ropiness

Having the characteristic of sticky elasticity and stringing out when stirred and stretched.

Royal jelly

A glandular secretion from the heads of worker bees used to feed young larvae and adult worker, drone, and queen bees.

Scale

A dehydrated, dead larva shrunken to an elongated thin, flat chip at the bottom of a cell.

Slumgum

A mixture of propolis, pollen, cocoons, and other debris that persists after beeswax and honey have been recovered from rendered combs.

Solar melter

A device designed to use the heat of the sun to melt beeswax, and, in some cases, to separate honey from beeswax.

Spermatheca

A small, round organ in the abdomen of a queen bee capable of storing viable sperm for 3 years.

Spring dwindling

A condition in which the colony population decreases in size during spring at which time exponential population growth is anticipated.

Super

A wooden box with frames containing foundation or drawn comb in which honey is to be produced. Named for its position above the brood nest. The same type of box is referred to as a hive body when it is situated below the honey supers and is intended to be used for brood rearing and pollen storage.

Supersedure

A natural process by which a colony of bees replaces its present queen with a new one.

Swarm

A cluster of worker bees, with or without drones and a queen, that has left the hive.

Trachea

A system of air-filled branching tubes that conduct oxygen from outside the body to inner tissues of the bees.

Transmontane

Area east of Sierra Nevada Mountains; includes Mojave and Colorado deserts.

Wintering

The process of preparing the hive and colony for survival over winter. Also, a colony in the process of attempting to survive over winter.

Worker

An infertile, female honey bee, anatomically adapted to perform the work for a colony of bees including: manipulating stored food, feeding brood, guarding hives, foraging for food, etc.

References

Many books have been written on beekeeping. Generally, the larger and more expensive the book, the more comprehensive the information. This list includes only a few representative books by category, but many others are available through bookstores and beekeeping supply dealers. Many good pamphlets are available, also, from the county offices of UC Cooperative Extension.

Title	Author	Publisher	Region of coverage	Approx. price
How To				
Begin to Keep Bees	Carrier	Carrier	Western U.S.	\$15
First Lessons in Beekeeping	Dadant	Dadant	Eastern U.S.	\$ 2
How to Keep Bees and Sell Honey	Kelley	Kelley	Eastern U.S.	\$ 2
Mastering the Art of Beekeeping	Aebi	Rodale	Western U.S.	\$ 8
Starting Right with Bees	Gleanings	Root	Eastern U.S.	\$ 2
The Art and Adventure of Beekeeping	Aebi	Rodale	Western U.S.	\$ 5
Comprehensive Texts				
Bees and Beekeeping	Morse	Comstock	Eastern U.S.	\$30
Bees, Beekeeping, Honey and Pollination	Gomjerac	AVI	Eastern U.S.	\$20
The Hive and the Honey Bee*	Grout	Dadant	Eastern U.S.	\$15
Reference Books				
ABC & XYZ of Bee Culture	Root	Root	Worldwide	\$14
A Scanning Electron Microscope Atlas of the Honey Bee	Erickson	Root	Worldwide	\$50
Honey—A Comprehensive Survey	Crane	IBRA	Worldwide	\$28
Honey Bee Pests, Predators and Diseases	Morse	Comstock	Worldwide	\$43
The Illustrated Encyclopedia of Beekeeping	Morse & Hooper	Root	Worldwide	\$35
Special Topics				
Contemporary Queen Rearing	Laidlaw	Dadant	U.S. practices	\$11
Honey in the Comb	Killion	Dadant	Eastern U.S.	\$10
Instrumental Insemination	Laidlaw	Dadant	U.S. practices	\$14
Making Mead	Morse	Scribner	Worldwide	\$10

*Best comprehensive text available.

Beekeeping periodicals

Beekeeping periodicals provide current information on many aspects of the industry. They also contain a wealth of advertising. The following list includes the major, English language periodicals with their areas of

emphasis. Check with the Extension apiculturist to determine whether the state is still publishing a beekeeping newsletter.

American Bee Journal, Hamilton, IL 62341. Emphasis on concerns of the commercial industry, research, and some how-to-do-it information.

Gleanings in Bee Culture, P.O. Box 706, Medina, OH 44258-0706. Emphasis on how to do it, with information on research and concerns of the commercial industry.

The Speedy Bee, P.O. Box 998, Jesup, GA 31545. Newspaper format with emphasis on federal and state governmental actions concerning beekeeping. Research results and specific management techniques sometimes included.

International Bee Research Association, 18 North Road, Cardiff CF1 3DY, United Kingdom (England). The world's only organization devoted to collecting and disseminating beekeeping information globally. Publishes three English language journals:

Apicultural Abstracts—English language synopsis of every available article containing information on bees around the world.

Bee World—Excellent review articles and news briefs.

Journal of Apicultural Research—Current research.

Cooperative Extension publications

The following priced publications about beekeeping may be obtained by writing ANR Publications, University of California, 6701 San Pablo Avenue, Oakland, CA 94608-1239. Ask for the Catalog that lists the prices of each publication listed.

American Foulbrood Disease (Afb) of Honey Bees (2757)

Identification, causes, control, and prevention.

Bee Problems in Outside Dining Areas (2852)

How to eliminate them.

Bee-ginner Beekeepers (2764)

Responsibilities and equipment involved in beekeeping, instructional resources available, and sources of beekeeping supplies.

Economic Trends in the U.S. Honey Industry (21219)

Published in 1980.

Honey Bees in

Alfalfa Pollination (2382)

Honey Bees in

Almond Pollination (2465)

Factors affecting pollination, ways to maximize bee pollination, sample contract for growers and beekeepers.

Honey Bee Pollination of Cantaloupe, Cucumber, and Watermelon (2253)

How to manage honey bees for effective pollination.

How to Construct and Maintain an Observation Beehive (2853)

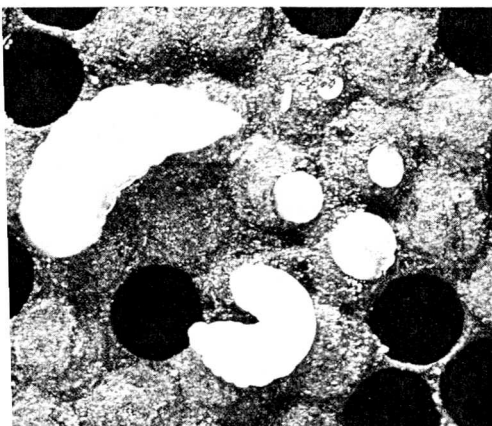
Plans for a glass-walled indoor observation hive, for teaching, recreational, or scientific use.

Making and Using a Solar Wax Melter (2788)

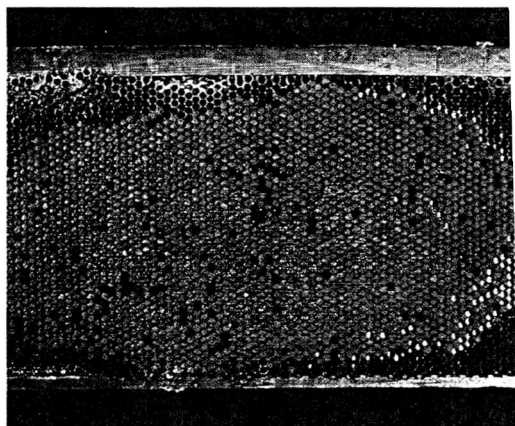
Reducing Pesticide Hazards to Honey Bees with Integrated Management Strategies (2883)

Applicable to forests, rangelands, recreational and residential settings, and agricultural crops.

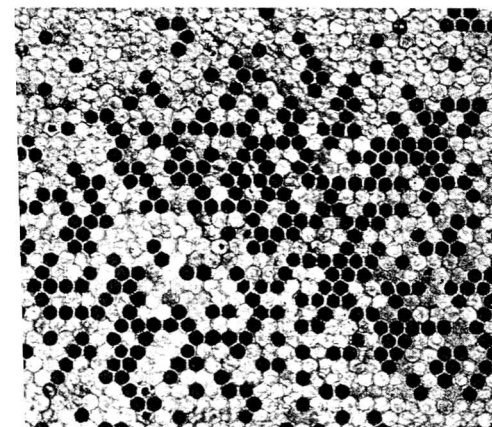
LATE II American Foulbrood Disease



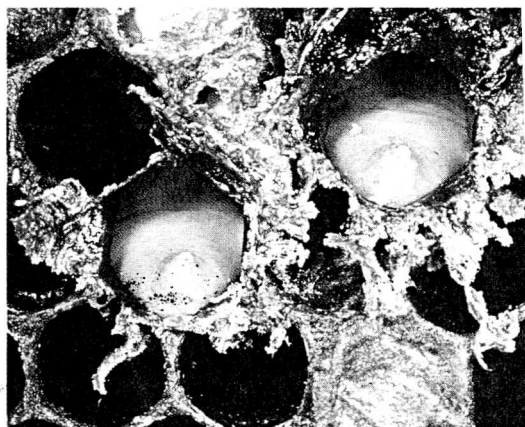
ious stages of healthy larval development.



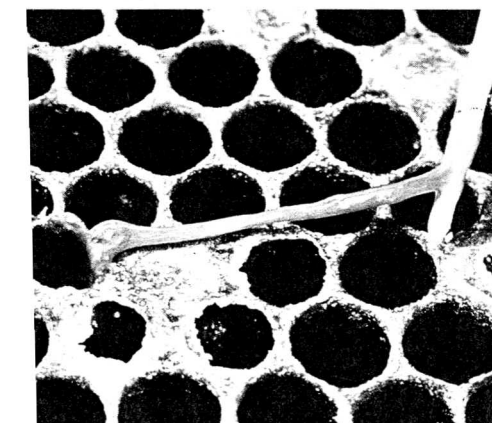
Healthy capped brood.



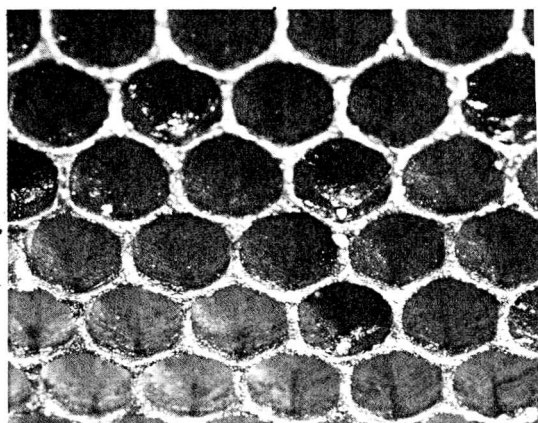
ashed, partially uncapped brood.



Early stage of American foulbrood.



less" of stirred larval remains characteristic
merican foulbrood.



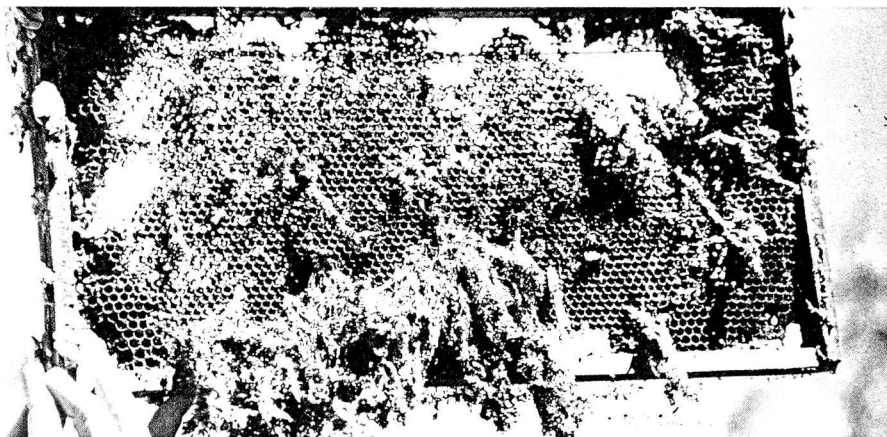
Tightly adhering scales of larvae killed by American
foulbrood.



Night-flying adult wax moth lays eggs inside beehives.



Larval wax moths eat through combs to obtain nutrients attached to the wax.



If not controlled, wax moths will ruin combs on which they feed.