

Making a Solar Wax Extractor

Seasonal Notes for the Domestic Beekeeper

AFTER honey extracting is completed the equipment used for extracting the crop must be cleaned. Cappings also have to be disposed of, and in this article T. P. J. Williams, Apiary Instructor, Department of Agriculture, Hamilton, discusses a method by which cappings, pieces of comb, and old combs which have been rejected are rendered into beeswax by use of the solar wax extractor.

BEESWAX was a far more important product a century ago than it is today. Very few waxes or waxlike substances were known and beeswax was used in candles, which supplied most of the artificial light, in modeling and sculpturing, in the preparation of cosmetics, and for numerous other purposes. Many other waxes and waxlike substances are now produced from palm trees, desert plants, berries from the myrtle bush, and other plants, from the wool of sheep, and a few from minerals and from petroleum. There has therefore been a decline in the importance of beeswax. However, it is extensively used in the cosmetic industry for face creams, lotions, lipsticks, and rouges, in ointments, by the dental profession, and in furniture, floor, shoe, and leather polishes. Quantities are also used in electrical insulation.

The beekeeping industry itself requires a certain amount of beeswax for the production of comb foundation wax. When old and broken combs become unfit for use in the beehive they are melted and the wooden frames are filled with new sheets of foundation wax, which the bees draw out into new combs.

Sources of Beeswax

Before the introduction of modern beekeeping methods more beeswax was produced than is the case today, as at the close of the season the bees of the colony were killed and all the honey and wax removed. With modern methods the bee combs are not destroyed and therefore less wax is secured.

The beekeeper has numerous sources of beeswax, but because of the work involved many beekeepers do not bother to produce it. It is a product of the apiary which should not be neglected. Beeswax is available from the cappings which are removed from combs in the course of honey extracting, pieces of broken comb, burr combs quite often built between supers, brace combs joining one comb to the next, natural comb built by the bees where the beekeeper has left the hive short of a frame, combs which contain too much drone comb, old combs which have become unfit for use in the hive, and various frame and hive scrapings.

Beekeepers should not throw pieces of wax or old combs into heaps or leave combs in hives which have died out, as in addition to the value of the wax itself such places can be excellent breeding grounds for wax moth. Such practices are breaches of the Apiaries

Act and Regulations, as under the Act wax moth, which can be very destructive, is proclaimed a disease.

Rendering Comb into Beeswax

Beeswax is removed from combs, cappings, and the like by means of heat. Various methods are used, such as boiling the comb in water and skimming the wax off or breaking the comb up, heating it in a sack, and then pressing it with a wax press while it is hot. There are also water-jacketed containers which melt the wax, and in the March 1953 issue of the "Journal" the method of using the Dunstan wax melter was described.

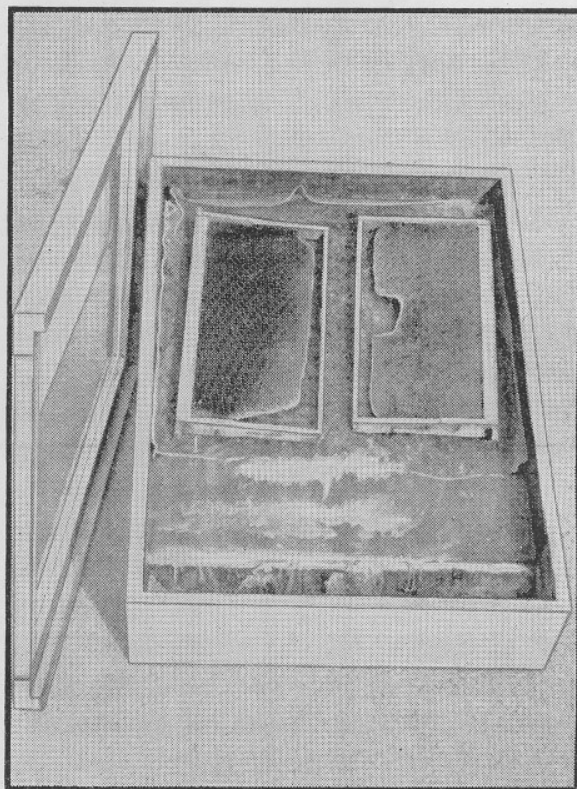
A useful and inexpensive device for extracting wax on a comparatively small scale is the solar wax extractor, which utilises the sun's heat to melt the wax. It consists of a box covered on top by glass. The woodwork should be substantial so that it will stand the sun's heat and the box should be well constructed so that it will hold the heat. The box should be about 5ft. 3in. long and 2ft. 8in. wide. It is important that the depth does not exceed 4½in. A sheet of black iron is placed on the floor and is turned up at the sides. A sash is made and fitted with two sheets of glass with 1in. of air space between them. A single sheet of glass will work satisfactorily in very warm districts. At one end of the box there should be a trough about 8in. wide and 3in. deeper than the bottom of the box to catch the melted wax.

A piece of clean sacking is placed on the iron and the comb is laid out on the sacking. The extractor should be tilted at an angle of about 30 degrees by resting one end on a box or bricks and should be placed in a well sheltered but sunny position facing north so that it will receive maximum sunshine.

The wax melts and runs down into the trough at the bottom, and the propolis and other rubbish, commonly called "slumgum", will be left behind on the sacking.

Refining Beeswax

Pure beeswax should be yellowish brown. If it is dark brown it may be contaminated with propolis and/or



A home-made solar wax extractor. The glass top has been removed and can be seen on the left. [Morgan's]

iron stains or it may contain impurities and will have to be refined. The wax should be placed in a 4-gallon tin containing about 2 pints of water. The tin is stood in a copper of water until all the wax has melted and is nearly boiling. The lighter impurities will float to the top and are skimmed off. The fire under the copper should be put out and the wax allowed to cool very slowly. If a few damp sacks are thrown over the top of the copper, this will help to keep the warmth a little longer.

About 24 hours later it will probably be found that the wax has set, and it should then be tipped out of the tin. The impurities should then be trimmed off the bottom of the cake of wax and thrown back into the solar wax extractor.

Difficulty may be experienced in removing the cake of wax from the tin, but this can be overcome if before the wax is melted a piece of rope is tied around the middle of the tin and a wedge of wood is pushed between the rope and tin on each side so that the sides belly inwards. After the wax has melted and set and the cake is to be removed from the tin the wood wedges should be removed, allowing the tin to regain its original shape. The cake of wax will then come out easily.