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Honey that has Granulated in the Comb.

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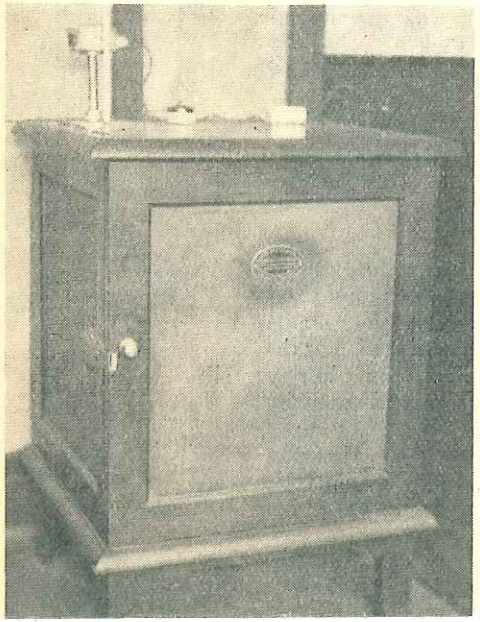
A SERIOUS problem with which the beekeeper may have to contend is that of honey granulating in the comb, both in frames and in sections. It may be responsible for considerable financial loss annually, since honey that has granulated in frames can neither be extracted nor utilized by the bees.



that a large percentage of the honey has granulated in the comb. The obvious remedy in this case is to extract such honeys as soon as possible after it has been sealed.

How to Remove Granulated Honey.

During the winter months, honey left in the hive for stores invariably shows a tendency to granuate, and in some cases all the honey may even granulate solidly in some of the combs. The problem is what to do with these combs.

It usually does not pay to try and save the honey by melting up the combs, because the honey obtained will not compensate for the new foundation that has to be put in the frame and the energy wasted by the bees in building up the comb again. Moreover, the honey so obtained will be of a very inferior quality.

The best procedure is to rid the combs of all the granulated honey in order that they may again be available for brood-rearing or honey.

One method of accomplishing this, is by uncapping the combs and soaking eventually be suitable for feeding to the bees.

If the beekeeper does not wish to save the honey, the combs may simply be uncapped and put back in the hives so that the bees can clean ont the granulated honey.

Tests Conducted.

It is obvious, however, that these methods are very wasteful, and for this reason the writer conducted a number of experiments with the object of finding a method of reliquifying honey granulated in the comb, so that it could be extracted or utilized by the bees.

Granulated honey in shallow frames was subjected to dry heat in an incubator in which the temperature was controlled by an automatic thermo-regulator. A more or less constant temperature of 101 degrees F. (the maximum safe temperature) was maintained, and the results noted periodically through the inner glass door.

Comb No. 1 was uncapped and it was found that about 90 per cent. of the honey had granulated. After 6 hours in the

Fig. 1.—Incubator with thermostatic heat control, used for liquifying granulated honey.

How to Store Comb Honey.

In the case of comb honey, however, it is usually the shopkeeper who suffers most, since most comb-honey producers are wise enough to dispose of their crop before there is any danger of granulation, and even if the crop is not rapidly disposed of, they know under what conditions comb honey should be kept in order to prevent it from granulating. A shopkeeper who has been caught once, is bound to be reluctant to buy sections again, so that the beekeeper also suffers indirectly. This could be largely circumvented if all dealers in comb honey knew the proper way of storing this article of food. It should be stored in a warm, dry room, having a more or less constant temperature of 85 degrees F.

When to Extract Honey.

When producing extracted honey, one has to be particularly careful not to allow part of the crop to granulate in the combs. The general practice is usually to leave all the honey in the hives until the end of the season before extracting, but this is sometimes very risky. Some honeys are inclined to granulate comparatively quickly, and the beekeeper who leaves his whole crop in the hives until after the main honey flow may find

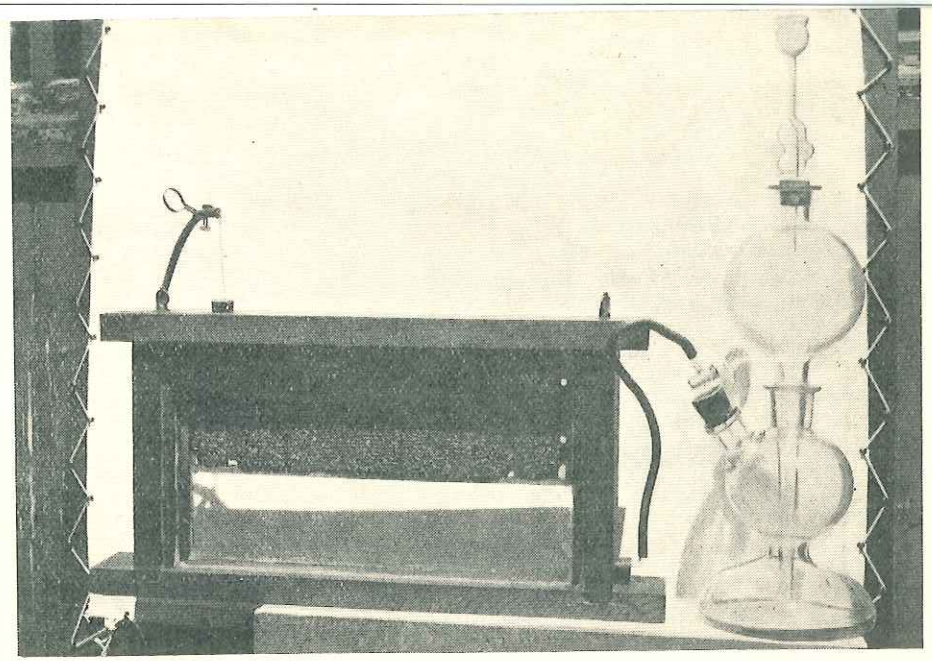


Fig. 2.—Apparatus used in the moist-air method.

them in water. Most of the honey will dissolve in the water in a short time, and the cells will then contain a solution of honey in water. The combs may then be put in an extractor and the contents extracted, or, the contents may be removed by simply shaking the combs. The liquid extracted from the combs can be saved and used for soaking other granulated combs. In this way, the solution becomes progressively more concentrated and will

incubator, there were definite signs that some of the honey had been reliquified. After 24 hours about 25 per cent. of the honey was in liquid form, and after 48 hours, about 50 per cent. of the honey had been reliquified, and was actually beginning to drip out of the cells, while the comb was apparently still standing up well to the heat. After 72 hours, there were only slight traces of granulation, but the comb was getting very soft and

beginning to bulge out in the centre. The comb was then removed from the incubator and left to cool, after which the honey was extracted. This comb was weighed before being put into the extractor and again after the honey had been extracted. It was found to be 1½ lb. lighter, which gives the weight of the honey extracted. The comb came out of the extractor in fairly good condition, but still contained a little granulated honey in some of the cells.

Comb No. 2 was not uncapped. It was estimated that in this comb also about 90 per cent. of the honey had granulated. In this case, it was difficult to see what was actually taking place, but by noting the colour of the capping one could tell to a certain extent how much of the honey had been reliquified. After 72 hours apparently all the honey had been reliquified. The comb was then removed, uncapped and the honey extracted. Approximately 1¾ lb. of honey came from this comb.

The honey extracted from both combs still showed a small amount of granulation. The flavour and colour did not appear to have been impaired by the treatment given.

The results seem to indicate that this method of reliquifying honey is practicable. The difficulty, however, is the regulation of the temperature, which requires special equipment. Moreover, all honeys may not react in the same way. The honey used in this case was gathered mainly from eucalyptus.

In order to test whether the hygroscopic properties of honey could be utilized in order to reliquify this product, an experiment was conducted along the following lines:—

A granulated comb was uncapped and placed in a one-frame observation hive with glass sides. This hive was provided with two openings in the sides. These openings were plugged with rubber stoppers containing glass tubes. Otherwise it was made absolutely air-tight with paraffin wax. Moist air was circulated through this hive, by sucking the air through a flask containing water and thence through the hive. This was continued for seven days, but without any apparent effect on the honey.

Conclusions.

For beekeepers who are not in a position to employ the dry-heat method described above, the following is recommended: (*a*) Partly granulated combs should be uncapped and the honey extracted, after which the combs must be put back in the hive, so that they may be cleaned by the bees. (*b*) Heavily granulated combs should be uncapped, soaked in water, and the contents extracted.