

timber has been taken away. We think the forest usually contributes more to wards the honey crop, or successful bee-keeping than it usually gets credit for. In a few years the large number of basswoods that have been planted about the roads and streets of our village will replace much of our valuable basswood timber that is being continually removed.

\* \*

A full report of the bee and honey show at Detroit, will appear in next issue.

FOR THE CANADIAN BEE JOURNAL.

### Granulation—Its Prevention.

**T**O the question in the Canadian Bee Journal of August 14 about preventing honey granulating, only the few answers which recommended sealing the honey while hot came any way near what I consider the secret of success: and even their method I have found by repeated disappointments to be unreliable.

Now it may be presumption for me to write, uninvited, upon this subject; but since the C. B. J.'s motto is "The greatest possible good to the greatest possible number" I risk criticism for breach of etiquette that I may add a little to our scanty store of apicultural knowledge.

It is all very well to liquify honey, as some answers suggested, and do it up nicely just before delivering it to the customer; but it is very annoying to find that the dealer, who admired it and gave it a prominent place when he first received it, has become disgusted with it and placed it out of sight, just because it granulated, and was, in public opinion, unfit for use; or to find that some dealer, more enterprising than his fellows, has taken the trouble to liquify his lot; but in doing so has either scorched it or so dirtied the labels and packages that they are not fit to look at. Suppose, though, that the plan of sealing while hot were reliable (it may never fail with some—it won't work with me) it is not always desirable to use packages which seal hermetically; we often want small cheap ones, and sometimes wish to keep our honey in large tins with or without glass, and which we cannot conveniently make air-tight. Honey which is sealed hot and allowed to cool slowly loses much of its flavor and much of that feeling of fullness so enjoyable in good ripe honey. For a long time I disbelieved this last statement; and when I accepted it, I supposed the injury was

caused by the heating; but now I know that the loss takes place when the honey is cooling, and in cooling contracting, for while contracting its globules, which have become somewhat flattened and thinned by the heating, do not return to their original form, and are incapable of absorbing the flavor which they had lost in the heating, and which is free among them. This flavor escapes, and the fullness of the globules which causes (or results in) an abnormal massiness of the honey spoils (or rather will not admit of) that delightful full feeling possessed by honey which has not granulated.

Very well then! Can granulation be prevented, and can granulated honey be liquified without injury, and kept so? I think it can. I prefer to allow it to granulate and then, as I require it for my customers, to liquify and prepare it to remain so. I proceed as follows:—Heat honey in water bath to 200° F., fill packages and chill honey as rapidly as possible. In winter this chilling is easily done by placing the filled packages on ice, and piling snow around and over them. In spring or fall place them in running cold water, but in summer, when the water is not cold enough, (in spring and fall, too, with large packages) place the packages in a freezing box, and pack with ice and salt as for ice cream. As soon as the honey receives the chill, a thin artificial skin forms all around it in each package, and in a short time the honey is cold throughout. This honey will not regranulate unless air be incorporated with it; so that all that is necessary to preserve this liquid state is care that the honey is not subjected to much agitation or change of temperature.

The theory or explanation of this process is simple enough when we reason from the following already well known principles:—

1. Honey, like all liquids is made up of minute globules.
2. These globules contain the flavor;
- and (3) the presence of air in honey causes granulation. Together with a few discoveries which I have made on my own account viz:—(1.) That honey when heated gives off what air it contains; (2) That the flavor is lost in cooling; and (3.) that air is again absorbed after the honey is cooled enough for the globules to regain their normal vigor and form. (We all know what wonderful absorbent power cold ripe honey possesses, and how it will absorb damp air and ferment—hence the necessity to keep it in dry places.)

Now, when honey which has had the air driven off by heating is suddenly chilled, so that an air-tight coating is formed around it, the loss of flavor is impossible, and impossible too the absorption of air. Although with the escape of air in the heating the globules have lost some of their flavor, this flavor is still present in the honey among its globules, and the sudden chill causes the globules to contract vigorously to their spherical form, and to either absorb or imprison among them what flavor is free. When the honey is cold again it cannot absorb air because of the skin which envelopes it