always present naturally a portion of gelatine in honey.

QUALITIES OF HONEY.

The qualities of even the best depends upon its careful refinement or clarifying. If honey be rightly heated the chief impurities rise to the surface, and can easily be removed by skimming; this is usually done in case of virgin honey, which is generally sufficiently pure for most purposes.

TO PROVE HONEY.

Genuine honey can be readily distinguished from manufactured honey by a microscope. The former has few or no sugar crystals and abounds with pollen grains, while the imitations have little else than these crystals, with rarely a trace of pollen grains. The honeyed taste of the manufactured article may come from honeycomb or beeswax being mashed up with the article used in the manufacture. Each class of plants has its own specific form of pollen grain, and any one conversant with this branch of botany could tell from what part of the world the honey came by by studying the pollen grains that it might contain.

From the Bee-Keepers' Guide.

LARVAL FOOD.

WHAT IS USED TO FEED THE BROOD OF THE BEES?

N page 582 of the American Bee Journal for 1888, Query 572 asks for the amount of honey used for brood-rearing. The most

of those who reply say, "I do not know," Some guessed, and guessed very high. So this seems a question, which even veterans cannot answer, but we are not quite as helpless.

Von Planta analyzed the larval food. The composition of it for worker larvæ, including the water it contains, is as follows :--

Water	<i>,</i> 71,630
Nitrogeneous matter	. 14,528
Fat	1,941
Glucose	. 7,844
Other parts	. 4,057

We see that nitrogenous matter is the most important part of this food; and this comes, without doubt, from the pollen.

Von Planta found in dried pollen of the hazel the following:

Water 4.98	
Nitrogenous matter	
Ash 4.01	
Cane sugar 14.70	
Starch 5,26	
Other matter40.42	1

We can easily calculate that to 100 parts of larval food for workers' •

which equals 45.9 parts of dry pollen, is used by the bees to get plenty of the nitrogenous matter. These 45.9 parts of pollen contain

45.9 x 14.7

which equals 6.75 parts of cane sugar, and the^y are changed to F. I glucose in the stomach of the nurse-bee. The starch of the pollen is likewise changed to sugar. So we see that the pollen contains more sugar than is necessary to prepare the larval food.

These analyses make it quite certain that the larval food for workers is prepared from pollen and water only, and no honey at all is used for this purpose.

It may be possible, that after the fourth day the worker larvæ receive a food which contains more sugar, but Von Plata says this is not probable.

We have observed that in early spring, if no honey can be gathered by the bees, and breeding is going on rapidly, a great amount of honey is consumed by the bees. This seems quite contrary to the above facts. But we know that the bees consume some honey to secure the necessary high temperature. If bees do not breed, the cluster is contracted, and it will take less fuel to warm this small cluster; but if in the spring the cluster is expanded as much as possible, to get room for the brood, the amount of fuel needed is very great, and we can observe this by the rapid decrease of honey in the hive.

Again in summer, when the outside temperature is nearly as high as necessary for the brood, the bees need no fuel. This explains why a strong colony needs less honey, comparatively, than a weaker one. Surely the bees will consume some honey in summer, too, but now they need it to change it to power, which moves their wings, etc. It seems very probable that pollen is the food for the bees, which builds up the body, while honey is the fuel which warms and moves it.

If we find that pollen only is used to feed the larvæ, we may ask what amount of pollen is necessary for this purpose? I do not know this but I have some reasons to believe that surely not more than one pound of pollen is used to feed 3,000 larvæ—very probably less.

This matter is of great practical importance. At first we see that a very warm quarter in the spring will save some honey, and even more than in the winter. Second, that by caging the queen in summer, to avoid breeding, the surplus honey cannot be increased, and this idea has to be abandoned—the sooner the better.

It is said, that it is no difference, if pollen is used for the brood or honey-both have to be

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