

## WHAT IS GOOD WINTERING?

Mr. G. B. Jones, page 311, would like to know, what is the condition that bees should be in, that have wintered in "the best possible condition." Well, perhaps, every one has his own ideas of what this is, more or less; but my standard is this,—The bees should be quite as numerous on the first of April, as they were on the first of November previous; they should have a nice little brood nest—not very large—not have consumed more than 6 lbs. of honey, this depending entirely on the amount of brood, as before breeding takes place, they eat none at all, or so little, it cannot be detected. This is my idea of what constitutes "good wintering," and is what I get every winter, simply by rearing the queens as they should be reared. My bees winter in their summer hives, on their summer stands, as you describe it, and from harvest to harvest they consume about 12 lbs. of honey or sugar, though I leave them 18 or 20 pounds to save risk of feeding.

## BEES LIVING ON NOTHING.

I once put a lot of driven bees into the cellar in the fall, to starve, as the hive they came from showed signs of foul brood; the cellar was lighted by means of an iron grate, so they were not in the dark. I let these bees quite alone, and with a lamp examined them every night, to see if they showed signs of starving; they remained thus for 21 days, at the end of which I got tired and set about a different plan. The bees were asleep, and might, for anything that I could see, have passed the winter.

JOHN HEWITT.

Sheffield, England, March, 1891.

## Wax Secretion.

DO CIRCUMSTANCES OR THE BEE GOVERN THE SECRETIONS OF WAX SCALES?—ARE THEY EVER WASTED?

**M**ANY writers for our bee journals, and some of them our most cautious and able bee-keepers, take the position that bees have to secrete wax, and that if comb or foundation is used the wax is lost. But is it true that bees have to secrete wax? I greatly doubt it. Nature has not arranged things that way. The cow secretes milk when there is a calf that must have milk. When the bees need wax to form comb, then we find wax scales in the wax pockets, otherwise we do not find them. I feel quite certain of this. I have hived swarms on combs, on foundation, and on frames with neither comb nor foundation. In the first two

cases the bees would be very active, and it would be very difficult to find any wax scales. In the other case most of the bees were very quiet, and almost every one would have wax scales in the wax pockets. Even those flying out would show the scales. Now, if, as some contend, the bees in the first cases had to and did secrete the wax, where were the scales? I could find no signs of them, and do not believe they had any existence. In case of using foundation in brood chamber and supers, I have often had great difficulty in finding a bee with the wax scales to show my class; but once have a swarm in an entirely empty hive, and how soon we could find the scales. Indeed, it was hard to find a bee without them. It is hard to explain just how the bees regulate this matter. I have thought it was through activity. If very active, no scales are secreted; if quiet, or active to only a limited extent, then wax secretion was active. When we work mares hard, the young foals get too little milk. The mares cannot secrete a full supply of milk, and work hard at the same time. Is it not quite possible that the same is true of bees? When they want comb, they hang quiet in graceful festoons from the top of the hive, and wax secretion goes on rapidly; and the material for the beautiful combs is abundant. When no comb is needed, true to their instinct, they hie forth to gather sweet, and wax secretion is nearly or quite suspended. This hypothesis is not without support from analogy. The wax is much like our fat or adipose tissue. We know that it is the sedentary men that become rotund, while our Cassiuses—the lean and hungry men—are generally active. This fact does not necessarily prove that it is wise and profitable to buy and use foundation. Whether foundation is profitable or not, must be determined by actual trial; but that we should desist from its use to save wax scales that else will be secreted and lost, I think is not proved. I think a little close observation will convince any one that bees secrete wax only when, in the economy of the hive, they need it.

A. J. COOK.

Agricultural College, Mich.

[Friend C., I am glad you have brought up just this point. I once thought just as you state it; but other things have tended to change my opinion somewhat. For instance, where we feed a colony of bees tremendously with sugar syrup, if feeding is kept up for a sufficient number of days wax scales will form in great numbers; and if they are not permitted to build comb, these beautiful pearly scales of wax will fall on the bottom board in great quantities. You know I once fed a colony all the syrup a barrel of