

them for winter quarters, and unthinking people are apt to imagine that they are made the victims by having to purchase all that happens to be left in the hive in the spring. They do not know that every bit of the honey left in the hive is consumed by the bees in brood rearing, &c., as well as what they gather along in the spring from fruit blossom &c., long before there is sufficient honey flow to allow of the apiarist taking any surplus honey from his hives. At exhibitions and fairs the question is being continually asked by the purchasing public, "What becomes of the "sugar syrup" which is left in the hives in the spring?" and when it is explained to them properly they go away well satisfied with the explanation. They *know* that it is not *all* consumed in winter, and it is but reasonable that they should want to know what becomes of the balance. If beekeepers will impart this knowledge to their purchasers, the cry of "adulteration" will possibly soon sink into oblivion.

BEES BY WEIGHT, &C.

SOME NEW FEATURES ABOUT HOW TO DO IT.

SINCE comb foundation has made it possible to build up small nuclei into full colonies, at any season of the year when the weather is warm enough for the bees to keep up the necessary heat in the hive, the utilizing of bees in any numbers sufficient for work, has become a matter of much importance.

As a dealer in bees, I confess that buying and selling bees has not been altogether satisfactory to me.

Fat stock are properly sold by weight because the value of such a product depends on bulk and condition. But not necessarily so with breeding stock, they are sold by the "head," because high "condition" is not essential to the purposes for which they are employed.

Bees are properly classified with breeding stock, and are in fact "beasts of burden," so far as their usefulness to man is concerned. They are heavy, or light, in proportion to the burden they bear in their honey sacs. For this reason no uniform results can be obtained by the use of

the scales.

A "sweet" advertiser has told us that there are 4000 bees to the pound, live weight. But he does not tell us how much the result can be changed by weighing the bees "loaded" or "unloaded." (?) From some experiments I have tried, a bee can carry a load in its honey sac equal to its own weight. In theory then, a half pound of empty or unloaded bees can be loaded with honey till they will weigh a full pound, Of course such a result could not be made altogether practicable, because all the bees cannot be induced to fill their sacs with all they will hold. Enough variation, however, can be shown to make the plan of weighing bees impracticable. It is most fitting that bees should be sold or bought by the "quantity," because their value depends on the greater or less surface they can cover on the combs, and as their number cannot be ascertained by weighing them, for the reasons given above, some other method must be resorted to. A more accurate way is to measure the bees in a glass measure—graduated like a druggist's measuring glass.

By practical test I have found that a square inch of space will contain 38 bees when closely "clustered." To find the number I measured and counted the bees several times, and then took the average of the several results. Of course such a method, will not give uniform results, but it answers for practical purposes. Applying this rule and speaking in round numbers, in a pint of bees we have 1,300. A quart gives 2,600. A gallon will count out 10,400, and a half bushel measure of bees would count 41,800. And now, if you had a "bushel of bees in that swarm" or in "that hive," as we sometimes hear an extravagant enthusiast exclaim, there would be a little over 83,600 in the lot. Of course I do not pretend to give accurate figures.

From the above I think it will be seen that too high an estimate has been made of the number of bees in the ordinary colony.

It is not likely that 40,000 bees occupy the same hive in a normal condition, any great length of time.

A half bushel measure of bees, nearly 42,000, would more than fill the space between 20 L. frames. It is not difficult for one to deceive himself as to the great number of bees in a hive, when judging from the "piles" of bees which are sometimes seen "laying out" in hot sultry weather.

I have often opened hives under such circumstances to look for the cause of such behavior of the bees, and have generally found the combs but thinly covered by mostly young bees. This indicates that the trouble is caused by bad ventilation, rather than from crowded conditions.