

internal organs. When a hen's comb is large, bright-colored and full of blood, elastically shaking with every movement of her head, she is in a healthy laying condition; a flabby comb, with edges purplish red, is a danger flag. Remove the causes of disease—injurious draughts, impure water, improper food and imperfect conditions, and many fowls will cure themselves. Those sick birds having thin sulphur-colored voidings show extensive and alarming internal inflammation. Ever since reading of Dr. Keely's asafetida cure for gripe, and being told by a physician that asafetida's work was soothing and allaying catarrhal tendencies anywhere in the system, I have given, with wonderful success, a two-grain pill for fowls' summer complaint. Occasionally this dose needs repeating, and proves almost a panacea for every poultry misfortune and ill. Although it cannot exactly work miracles, I did thereby restore one biddy found apparently unconscious. Perhaps it answered as 'smelling salts.' A bread and milk diet will attract and strengthen, when any other food would be refused. Lime two or three days in the drinking water will purify it. The following simple 'condition powder,' equal parts red pepper, alum, sulphur, and rosin, may frequently be given in pudding to the whole flock, a tablespoonful for four quarts of meal. Plato incautiously defined man as a "featherless biped," whereupon a wag sent him a plucked fowl. Hens approaching that definition and condition are sometimes seen in winter where there has been lack of meat and well-seasoned food. A tiny drop of blood obtained from the base of each feather pulled, is perhaps, what is sought. Vermin-infested fowls ease themselves by plucking feathers, and for even idle ones Satan finds that mischief still, or some other to do. Leg weakness and immature eggs, occasionally accidental, oftener come from insufficient or improper food. The quantity of food an animal daily requires merely to support life has been estimated by French scientists at about three per cent. of its live weight. All increase of weight or any product whatever, must be provided for by an extra allowance. A hen weighing five pounds requires, therefore, three-twentieths of a pound, equal to about three-twentieths of a pint, just to live and do no more. For egg production, one-fourth pint of solid food daily is, from long experience, the established rule. A few gluttonous, domineering fowls can starve and worry many more deserving ones. Scattered food is better distributed and gives employment in the hunt. Our active, leanest birds get the most. Whichever gets too much, will cease to be active; another will take her chance, to be likewise duly retired. Sometimes there is food enough, but with no variety, no bone nor shell-forming material. Or the hens, by daily foraging over the same run, have exhausted its grit, very necessary to grind their food.

I never should have believed untimely crowing a blemish, had not the newspapers said so, very aptly expressed as follows by F. Pierce, in "Farm Journal":

"Hear the red rooster crow
At two o'clock or so,
Oh, he will never know
How he has blundered!"

"Look at the sun," he said,
"See the sky growing red,
Time to be out of bed."
Oh, how he crew, sir!

"Silence," his comrades cry,
"'Tis but the moon you spy!"
He only made reply
That he must crow or die—
That old red rooster.

Hush, friends, draw softly nigh,
Heave a pathetic sigh,
This is chicken pie,
Object of wonder!

No more we'll hear him crow,
Red rooster lieth low,
With gravy above, below,
And dumpling to thicken.

Yes, we're bereft of him,
That's all that's left of him,
Left of that chicken."

Hives and Wintering.

BY D. CHALMERS.

[Read before the Ontario Bee-keepers' Association.]

In presenting a paper on this subject it is not my intention to try to determine any particular style of hive, but will dwell more particularly on the requisites in and around a properly constructed bee domicile. The first thing, then, to be considered is the capacity of the hive; it is very generally conceded that that has been carefully tested and properly demonstrated years ago by such men as Father Langstrath, the lamented Moses Quinby, and others, when they placed the area of the brood chamber at about 2,000 cubic inches. That estimate, however, allowed the bees passage ways between the ends of frames and the interior of the hive, a feature which weighs heavily against open end frames. Take, for instance, a hive of closed end frames which will give you as much comb space as an open end frame would do, and what do we find? We find that a hive twelve inches wide and twelve inches deep made for the former would not require to be so large by fully 100 cubic inches as a hive made for the latter. Although I do not use closed end frames myself, yet I have a strong inclination to believe that better results could be obtained from them than from open end frames. Those blank 100 cubic inches afore specified may well be classed among the leakages of the hive, and who can dispute the fact that the greater the leakage the more will brooding be retarded. In the use of open end frames the loss in this way will be less in a long frame than in a short one, but another evil here crops up, that is the sagging of such when filled, if not made of heavier material; and if sagging takes place you all know that passage ways under the frames will be contracted, while those above will be widened, the latter evil inducing the bees to build comb where not wanted, while in the former the comb frames will be glued down solid.

To my mind, a hive of proportionate dimensions would be 13½ inches long by 12 inches deep and 12½ inches wide. This gives you a hive containing 2,000 cubic inches, but shorten this hive ½ of an inch to suit closed end frames with equal comb space, and we get a hive which we might term Anno Domini 1892, as that is the number of cubic feet it would contain. But while many besides myself favor a hive of this description, others again advocate a much longer and considerably shallower hive; however, we should all aim at getting a hive of just the right capacity, and taking it for granted that the previous figures are correct, or nearly so, for a hive for brooding and wintering purposes, yet we have to admit that there is not room enough in it for a strong colony of bees during the honey harvest; we then have to resort to tiering up, as we bee-men term it, or in other words, place another hive above or a case of section boxes. This is where we get our supplies; the former is used if we purpose extracting, but if honey is wanted in the comb then the latter is more convenient. In either case the top of the lower frames must be at some distance from the bottom of the upper frames or sections, otherwise the bees would glue the one to the other. We should aim, too, at bringing such parts of the interior as closely together as circumstances will admit. Whenever passage ways must of necessity be left between any two parts of a hive, they should not be less than a ½ of an inch, nor exceed 5-16 in depth, or we would have to contend with evils hereinafter pictured; such passage ways we term bee spaces.

Between the lower and upper frames we find a double and sometimes a triple bee space. The apiarist has had to do battle in trying to confine the queen or mother bee to the brood chamber, and yet allow the honey-gatherers to pass to the combs above. This fight, however, has been reduced to a mere minimum since Mr. D. A. Jones, of Beeton, applied zinc so accurately punched with oblong holes that the queen is put at defiance, her shoulders being somewhat larger proportions than that of the workers. The use of this zinc over the brood chamber is wherein it becomes necessary to leave a double

bee space, and any contrivance there which causes the queen to halt is termed queen excluders. During the past summer I devised a means of using this zinc, which I consider the most practical form yet introduced, which is to cut it into narrow strips not exceeding 4 inches and long enough to cover the hive crossways of frames, 5-16 of an inch on one edge of those is bent to a right angle to rest on the comb frames, the top of which should be just bee space below the level of the top of the hive; the flat edge, if first placed of said pieces, rests on edge of hive and each succeeding piece rests on the one previously placed, until the last is reached, when it is reversed and is supported same as the first one. By using this zinc in some such manner, the upper frames are within two bee spaces of the lower ones, while in using it by the Hedden Tinker plan they are three bee spaces apart, and a bee space in the hive which contains fully 50 cubic inches, while in the Langstrath it is about 70, which means that amount of space to be filled with bees for nothing, as there is not, or at least should not be, any comb there.

As it is very desirable for comb honey producers to have well devised sapers, and as I am not in the supply business, it will not be amiss, I hope, to show and explain to you here and now a saper which I brought to light on June 11th last, (will do so verbally.) A matter of not a little importance in a bee hive is to have the comb frames spaced to a proper distance apart; they can, we confess, be spaced considerably wider in the surplus hives than in the brood chamber, in the latter 5-16 of an inch from centre to centre is sufficient, while in the former 1-12 inch is not too much. Care wants to be used in suspending the frames to have as small a portion of them touch the hives as possible. All hives, of course, require a bee entrance at the bottom and a board or other covering. This brings us to the exterior of the hive, where there is nothing very material to notice other than if the hive has to stand the weather it is better to be well painted, but if protected by an outer case it is better without paint and costs much less. I feel convinced that a colony of bees will winter better in an unpainted than in a painted hive.

This brings me to the second part of my paper on wintering. On this subject I will be brief, and as I have discarded cellar or indoor wintering, I have concluded to merely describe the clamp I use. It is built to accommodate two hives deep in summer, while in winter it affords three inches of packing under the hive, four inches round and as much as you wish above. The bottom fits inside to allow the sides to run the wet over, the siding lies horizontally, the joints are bevelled or ship-lapped, it is shanty roofed and the roof is shingled. The siding for front and back is nailed to two narrow strips; said strips do not quite extend to the bottom nor top. When the clamp is constructed they stand on the bottom, while they require to be short of reaching the top to allow the rafters a rest inside; by using strips in the corners the clamp is much stronger, and should you wish to knock them down for summer there would not be many pieces, but it is quite unnecessary to do so as no better sun shade could be provided.

There are three boards in each bottom, the two outer ones are nailed to two strips for the hive to rest on while the centre board is left loose, to be removed in summer to allow a current of air to pass through the clamp; the front of roof requires to be raised a little to give sufficient ventilation. There are just two rafters which are fitted inside of ends to hold the roof in place. A board of proper width is placed between the interior of clamp and front of hive to allow the bees an opening through the packing; this board is nailed to two bevelled pieces, which form the end of entrance. There are two tin slides with a hole punched in each to afford a catch in opening or contracting the entrance. Before placing the hive the clamp is filled to level of bottom pieces with ashes, cork dust, chaff or other packing, and when the hive and entrance fixtures are in position fill in all round with packing, but not over the top till you see that provision is made for the moisture to escape through the covering of the hive.