

inches wide. One colony has perished out of 18, caused by an undeveloped queen. There were drones late in the fall.

J. Elmonson put four colonies away in the fall, in sawdust-packed hives; one colony has starved.

W. B. Brown put away 12 colonies; one perished and the balance are dry and nice.

W. Morris wintered his bees outside, in clamps. He put in twelve colonies and all are doing nicely.

SPRING MANAGEMENT.

To get the bees through the spring is about as difficult a matter here as to get them through the winter. The British bee-keeper, too, doubtless experiences some difficulty in this line. Our technical term for the trouble is "spring dwindling." In these two unpleasant words is summed up much of the tribulation and loss of the Canadian apiarist.

What is spring dwindling? It is the more or less rapid "shuffling off" of the worker-bees in the spring till the number left is too small to keep the house and keep life in it. Then all is up.

What are the causes of spring dwindling? and what are the remedies? It is not so easy to answer these questions as to put them. On both there are differences of opinion, but more agreement as to remedies than causes. I cannot agree to the proposition that spring dwindling is a disease, or even an abnormal condition. It is occasionally disease, or the result of disease—winter diarrhoea: but usually it is a purely natural and normal exit of the aged and worn-out bee from the stage of life and action. Whether the exit of the old bees in the spring before the young ones appear in sufficient force to keep house and preserve the existence of the colony in a normal condition or not is another question. We know that Nature does some very foolish things, and we are constantly improving upon her methods and arrangements. The dying off before the young can take charge, whether wise or otherwise from our standpoint, is natural enough. Most experienced bee-keepers have noticed with what startling rapidity the old bees will sometimes die off from a populous colony in the spring, apparently in perfect health and under favorable weather conditions. In such cases it would appear that the bees are all probably about the same age, having been hatched about the same time in the fall, and they all go off at "their appointed time" together. I have occasionally had colonies depart this life in that summary fashion, leaving a lot of

young brood utterly unprotected. Of course this is not a frequent occurrence, for the reason that brooding usually begins in February or March, and the young bees are thus present to take the place of the old ones. I have noticed that some strains of the Italians are slow in breeding in the spring, and defer the business till they begin to dwindle and it is too late.

What are the remedies? First amongst them is a good young queen, so that the young bees may come forward in the spring fast enough to take the place of the dying old ones. This is only one of the advantages of young, prolific queens. In a conversation with Mr. Cowan on queens in the fall of 1887 in Toronto he said, if I remember aright, that he only kept his queens two years before superseding them—in fact, less than two years, as they were reared late in the honey season, and simply kept through the balance of that season and the next. I was much surprised at this information, as, if I mistake not, Canadian and American bee-keepers were in the habit of thinking a queen's prime usefulness not gone till she had put in about three years of service on an average. Some, of course failed at two. Possibly the Canadian queen wears longer than the English, but, taking climate into consideration, I should think the reverse ought to be true. I am, however, in favor of young queens, and am inclined to think that the extra trouble and expense of early superseding will be more than counterbalanced by the accruing advantages.

One thing is certain, however, if this is a good thing, with profit in it, the advocates of natural superseding are sure to be 'left,' for a majority of colonies left to themselves in this manner will usually keep their queens three years before superseding them, and sometimes four or five years. The apiarist must therefore take the matter in hand himself, or take the unprofitable consequences.

Next to a prolific young queen, in avoiding the effects of spring dwindling, is abundance of wholesome stores; and next come the proper temperature, and other conditions for early moderate spring brooding. With these three prime requisites present, the bee-keeper has little to fear from the dreadful 'spring dwindling.'

Two other important factors in successful spring management are cleansing the hive and keeping the brood-nest warm and comfortable. Whether the bees are wintered in a repository or in the open air, every colony ought to be cleansed or 'cleared out' in the spring the first suitable weather. The best way to accomplish this is to start with a clean empty hive to hold the first colony, when its hive can be thoroughly