

possession, found to be in good condition, into service, amongst them a "Wells" hive containing two queens of my own raising in 1893. This hive has already been mentioned in a previous letter as having stored 10 lbs. of honey at a time when some of my singled-queened stocks had to be fed. Well in the shallow-frame super of this hive—over two queens in their prime—some of my best cells were raised—in fact, the very cells that secured me the medal at the Royal Show this year for my queen-raising exhibit.

Having been so successful in getting queens reared in surplus chambers, and bearing in mind some experiments I had carried out with good results in 1893, it occurred to me to try what could be done under a stock having a laying queen above. I therefore prepared a hive in which was placed two standard frames of brood, with adhering bees from a strong stock, and at the same time I placed a frame of cells for acceptance, put on the excluder zinc, and over this set the hive—with its queen—from which I had taken the brood and bees filling the vacancies with frames of foundation. On examination a few days afterwards, I found the cells accepted. I then transferred food and larvae to the same, and had three parts of them converted into excellent queen-cells. This method entails a lot of heavy work and extra trouble, but very good and steady results can be obtained thereby.

Another method of raising queens in queened stocks came under my notice by accident or an oversight, but which I consider, when the *raison d'être* is fully understood, will give excellent results. Perhaps I had better relate what actually happened, even at the risk of being considered long-winded. I had a stock which it was desirable to re-queen; the old queen was, therefore, destroyed, and one of my special cells given, which latter hatched out in due course a very nice queen, so peculiarly marked that I could recognise her. Then the weather went wrong, in fact, was very adverse, and I got anxious about fertilization; so on June 13 I examined the hive, and behold my beautiful queen was nowhere to be seen. She was thoroughly searched for inside and outside of the hive and I reluctantly concluded that she had ventured out and was lost.

The stock was full of young bees and strong, so I determined to see what sort of queens they would raise, in order to compare them externally and internally with those being raised contemporaneously in queened stocks. Accordingly I gave them a prepared frame of nine cups. On examination after forty-eight hours five cups

were found on the road for queens. It must be understood that this frame of queen-cells was not in a super, but in the middle of the brood nest in the body of the hive. Three days before the cells were due to hatch out two of the new sealed cells were removed for use under the microscope, and on examining the grubs I was rather taken aback because of finding them in such excellent condition, and felt sure they would have been good queens. This being so, I determined to let the others mature. And therefore on the day prior to their being due the cells were intended to be cut out to give them to nuclei, but on removing the prepared frame I saw that all three cells left had great holes eaten in their sides and were empty!

The only way in which this could be accounted for was the assumption that there must be a queen somewhere here in the hive, and sure enough on the very next frame was my supposed lost queen, surrounded by as fine a batch of brood as need be seen, some of it capped over, too! And so the least expected had happened indeed. But, on consideration, the explanation was well enough, and has been fully verified by me several times since. The virgin queen through adverse weather, had been long in mating. Meanwhile, the bees in the hive becoming anxious, had, by the way of precaution, started queen-cells (I have since found they always do this when the same state of things exists), and, on my giving them the prepared frame, had at once set to work to provide for the exigency of their young queen being lost on her mating trip. Why the cells were not ripped open before the last day I am not prepared to say, seeing that the queen must have commenced to lay about the same time that these cells were sealed. Perhaps she was too busy over her own affairs to trouble about her immature rivals until there was a danger of their coming forth to assert their authority. It would not do to run the risk of raising all queens under these conditions; but it is worth noting as a subject of further experiment.

I have already raised the question whether queens ever deposit eggs in embryo queen-cells, and, if so, whether the bees would turn them into queens. Now, in order to test the latter part of the question, I several times transferred eggs to these embryo cells, but they were always removed. I went so far as to place the eggs in the cells on the day on which they were to hatch. I also added royal food, but always with the same result. Moreover, I had taken the young larvae when only a few hours old, and placed them in prepared cups in royal food, with curious result that some were removed, food and all, but where