

The Wells Letters

Correspondence between George Wells and the *British Bee Journal*
readers and editors

British Bee Journal, Bee-Keepers' Record and Adviser volumes **18-37**
(1890-1909)

The contents comprise chronologically organised letters relating to the doubled hive invented by George Wells, omitting casual references to the Wells System and amended only to reflect modern punctuation.

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(June 5, 1890). *British Bee Journal, Bee-Keepers' Record and Adviser* **18(3):27**. Cooperation among bees. [Letter 208]. Will any reader give me advice, if it is possible, to work two stocks of bees in one hive (with division-board between), for them to work in one super? — as I should like to try it. I took the first crate of sections off one of my stocks on the 24th of May, well filled, thanks to the valuable information from Useful Hints in BJ I have recommended the *Journal* to three or four people, and they are greatly pleased with the information you give in it.—TR Yorkshire, May 26th, 1890.

(May 21, 1891). *British Bee Journal, Bee-Keepers' Record and Adviser* **19:239-240**. When doctors and professors differ. A young queen hatching in a hive above queen-excluder, placed on the old brood chamber. [Letter 646].

[Note: The only inkling of the oncoming Wells' storm in 1891, comes from this letter from a Dr GL Tinker, and early interlocutor in the Wells correspondence, a person who gave great insight into the discovery by Wells, but whose attention appears to have been diverted by his commercial interests in the likes of a queen excluder which he advertises in 1891 in the *British Bee Journal*].

Dr Tinker's book, p.29, Preventing Increase, the bottom lines reads : 'If the bees have a good queen below the excluder, the young queen will be balled and killed.' Doolittle's book, 23rd chapter, referred to by the *German Illustrated Bee Journal*, p.375, 1889, which I translate: To raise two beautiful queens in a hive which has a laying queen without the least loss seems marvellous—was thought an impossibility. If you wish to raise two queens, do so &c.

Exactly on the same plan and on the same lines as stated by Dr Tinker, when the young queen is balled and killed.

Other large American bee-masters have tried and approved Doolittle's practice. I shall try it this summer.

Dr Tinker's book reads much like Mr Simmins' Non-Swarming System, or Mr Munz's German books, which I followed years ago. — JGK, *Grove House, Southborough, Tunbridge Wells*

[In making comparisons we think it more satisfactory to go straight to the authorities themselves, and not to the translations, for passages often suffer from

translation and retranslation. It is so in this case, for we have carefully compared the passages our correspondent quotes in the *Bienenzeitung* and Doolittle's book, and find that in the former a free translation, or rather a summary, of Doolittle's plan is given. Now, comparing the plan advocated by Doolittle for rearing two queens above excluder zinc, and Dr Tinker's plan for preventing increase, we find that these two plans differ in one very important point, but we are not prepared to say without further observation whether this makes all the difference in the results attained, or any difference at all. Doolittle raises his queens above the excluder zinc and bores a hole at the back of the upper chamber, to enable the queen to fly out for fecundation, so that she is not obliged to go through the main body of the hive at all. Dr Tinker does not make a hole so we must suppose that the young queen, when she makes the attempt to get through the main hive for the purpose of mating, is balled and killed. In the one case the young queen does not intrude or trespass on the domain of the old queen, whereas in the other she does. Possibly our correspondent has overlooked the following passage which we translate from the *Illustrierte Bienenzeitung*: 'If the two queens of the honey chamber are to be fecundated, two flight-holes must also be provided for them'. This certainly implies the necessity for these holes, and that the absence of them would lead to non-success. Now, in Doolittle's book, on p.96, he makes a great point of having these holes at the back, and not on the same side as the entrance, because in the latter case 'now and then a queen will go to the entrance upon returning from her wedding tour, and as the bees are all of the same family, this young queen will be allowed to go in and kill the one reigning below. Here we would point out that Mr Doolittle and Dr Tinker are both agreed that one of the queens will be killed, but they do not agree as to which of the two succumbs. Dr Tinker says the young queen is killed, and Mr Doolittle asserts that the old queen is always killed. There is a discrepancy here which is of importance to the bee-keeper, and which should be settled by experiment. We should be glad to hear what these gentlemen, or any others who have had experience, have to say on the matter. — Eds.]

(December 31, 1891). *British Bee Journal, Bee-Keepers' Record and Adviser* **19**:596. Queens fertilised in full colonies with a laying queen [Letter 894]. It was of special interest to read the article in BJ for December 17th, p.579, reprinted from *Gleanings*, under the above title. It throws a little more light on my letter (Letter 646, p.239), *When Doctors and Professors Differ*, referring to the very same subject —Doolittle v Dr Tinker. From subsequent letters in *Gleanings* it would appear that Dr Miller championed Dr Tinker's theory, and Mr CW Dayton upheld that of Mr Doolittle. Dr T asserts that the young queens will be balled, and under exactly similar conditions—Mr Doolittle has two fertilised queens laying in the same hive by giving an additional entrance-hole. Dr Tinker says nothing about this latter, according to the editorial footnote which also explains that under Tinker's plan the young queen would have to pass through the body-box, thus entering her rival's dominion,, so that in all the cases it turns upon the question of a second entrance cut in the upper chamber, which contains the young queen. No doubt Mr Dayton has practised what he preaches if the facts are as represented by him, and the same may be said of Doolittle also. The raising of second queens in the same colony is rendered comparatively easy, and is a great step forward, and may turn out a key to success. In fact it will prevent swarming

better and easier than any other method, avoiding splitting up the strength of stocks by division, but concentrating the whole population and doubling the brood production for a time. By exchanging the old queen for a young one just when the honey glut comes, the bees do not swarm out, and if the young queen is safely mated and begins laying in the same hive, the parent queen is then confined between two walls of queen excluder zinc, and does not leave the hive until the following season with a swarm. If bees are found to tolerate and acknowledge two queens in one hive in this way, it is only necessary, in order to secure a successful result, to make a swarm artificially, by brushing the old queen and part of the bees into a new hive upon the old stand in the usual way, then placing the original, with all the brood and the remaining part of the bees on the top of it, dividing the two chambers by a queen-excluder. As soon as the loss of the old queen is noticed, all the older bees will join her in the lower chamber, and thus increase the swarm. Directly after the uproar I would divide or disconnect the two hives for two days, leaving the top story, or old hive, in perfect darkness, but with ventilation and a water supply. The bees should settle down at once to raising queen-cells. In from three to six days the bees in lower hive will have drawn the combs out; then reunite the two hives. The parent one above will have queen-cells, but if an already advanced queen-cell is available, I would insert it into one of the combs with brood. If all goes right, the bees will be joined together into one colony again with the old laying queen below upon the new combs, and the top hive with an advanced queen-cell ready to hatch out, say, in about four days. Bearing in mind that young queens are said not to mate until six days old, we have at least a week in hand, and if we remove the frames with the queen-cell and all adhering bees into the lower hive, and lift the combs with the old laying queen into the upper one, and confine the queen in part of the latter, as Mr Dayton recommends, by a wall of queen-excluder zinc, if this be properly done the bees will not notice the removal of the old queen into the upper story, and, as she is unable to deposit eggs on any combs but those on which she is confined, by this means the queen-cell now in the new swarm in lower story will be allowed to hatch [sic emerge], and the young queen returns mated, emerges into an eggless portion of the hive, and begins laying there. By this means a second separate entrance is not required at all. When both queens are laying, a large colony will be the result in time for the honey glut; then the old queen can be destroyed, and the combs in upper hive become honey receptacles for the extractor. Additional supers may be added as required. Not only does charging of the old queen for a young one induce more lively activity in the colony, but we also get a new set of combs built in addition, all with worker cells, without increasing the number of stocks and without swarming. —JGK, Grove House, Southborough, Tunbridge Wells.

(January 28, 1892). *British Bee Journal, Bee-Keepers' Record and Adviser* **20**:36. Exchanging old for young queens. Two queens fertilised in a colony with a laying queen, with the same entrance to the old hive. [Letter 915]. These are three subjects arising from crowds of thoughts on the question of the size of queen-excluder zinc, to which I am honoured with replies by No.898 (p.6 of BJ for January 7), and No.907 (p.26) by Mr Woodley in last week's. I have a 12 x 12 inch fast board on the top of frames, over the middle portion of the body of the hive, to keep all the warmth of the brood nest in. My zinc queen-excluders are two inches

wide upon one end, and in some cases on both of the frame-ends not covered by the middle board. I have not yet proved the second queen fertilised in the same hive myself. We must accept it, as our American friends have found it to be so. I supplement my letter (Letter 894, of p.595, BJ for December 31), viz exchange frames of top and bottom hive, one with the old queen, the other with an advanced queen-cell, by adding or exchange the position of the two hives. There is another way which will suggest itself to a careful bee-keeper as follows: — Make an artificial swarm with a brood comb with advanced queen-cell fixed into it. Place this on the old stand. All the other full brood frames, which must contain plenty of hatching bees, just emerging from the cells, with the old queen, may be placed in the upper hive, or for a day or two in a dark cellar or away upon a new stand. The young bees do not fly during that time; the older ones will join the swarm. On the third day, place this (now the upper hive) on the top, upon the swarm on the old stand in position again. Open—through wire gauge — a measure of communication between the (now) two colonies, as, being estranged by having been parted, one lot owns fealty to the old queen, while the other has accommodated itself to its new situation, and chugs to the queen-cell. When both lots have acquired the same odour, the next morning withdraw the wire gauze, and substitute the queen-excluder zinc. The young bees of the top hive will have to pass through the lower hive, and before the queen-cell hatches [sic emerges] in lower hive, doubly separate the two hives by placing a double wall of queen excluder between them, as advised by Mr Dayton in Gleanings. The young hatching queen will have the only entrance all to herself. My objection to queen-excluder over the whole is here: two queen-excluders half an inch apart, forming the double wall, are very simply arranged on my plan of two-inch-wide excluders only at the ends of the frames. The two queens breeding, doubling the numbers of the one colony, will turn it out very strong; swarming is prevented, and when the honey glut arrives, the old queen may be removed, either destroyed or kept in reserve in a nucleus. —JGK, Grove House, Southborough, Tunbridge Wells. ps— Very sorry to hear Mr Cowan is laid up.

(March 10, 1892). *British Bee Journal, Bee-Keepers' Record and Adviser* **20**:95-96. Queens fertilised in full colonies with a laying queen. [Letter 958]. The letter of JGK (Letter 646, p.239) should have had a reply from me from long since, but it has been delayed. Now, a very interesting article (Letter 894) on the same subject, by the same writer, appears on p.596, vol.19, and I will endeavour to fully explain the apparent differences in the experience of Mr Doolittle, myself, and others concerning the above topic to our friends over the water. I will premise by saying that I consider this subject one of the most 'interesting that can engage the attention of bee-keepers at this time, since it is intimately connected with many of the most recent and valuable of our new methods of handling bees for profit. About seven years since I first observed that bees would start queen-cells in the supers of hives if the combs contained unsealed brood that was separated from the mother queen by a queen-excluder. It became at once interesting to know if such queen-cells would be allowed to hatch [sic emerge], and, if so, whether the young queens would become fertile if a fly-hole from the super was provided. My first experiments all proved that the young queens would be 'balled ' and killed about the time they were ready to seek a mate. Entrances were made in the rear of some of the upper stories, and in the front of others; but the results were all

the same. I then put the virgin queen in the lower story, and the mother queen in the upper, and found that the former was then never interfered with, but was fed and nursed up for the wedding trip in the usual manner. The next season, by a series of experiments on an extensive scale in the use of a new queen-rearing chamber, which was divided into compartments by the use of perforated zinc, I discovered that there were times when the workers would tolerate any number of virgin queens in a hive so divided, and a good part of them would become fertile. These times were during a good honey-flow. At other times the queen-cells would all hatch [sic emerge]—I had thirty in one hive—and there was peace and quiet until the queens got ready to mate. Four of the queens became fertile, and then there was general war among the workers, apparently over the remaining unfertilised queens. Many workers were killed, and some of the queens, but many of the latter were not fed for a bridal trip, and so never attempted to fly out, and were left undisturbed until too old to mate. During a good honey-flow it was easy to get three or four fertile queens in each colony, but I soon saw that in every case the bees divided up, and formed independent colonies, and when the adherents of any queen became few, she would be balled, and so, one by one, the queens would disappear. After a little it became clear that, no matter how or where the perforated zinc was used in a colony containing a laying queen, if the virgin was so placed that an independent colony could be established, she would become fertile. In such case the workers adhering to the virgin queen would all fly out at and return to the entrance provided for her, while the workers that adhered to the mother queen would all fly out at the main entrance. It appeared that at length but few workers would pass the perforated zinc intervening between the queens. Now, if JGK will bear these facts in mind, he can always determine just what the workers will do with a virgin in a hive with a laying queen. If he can arrange a super or any other part of a hive with a virgin separated from her mother by the zinc, so as to establish an independent colony, then she will become fertile. But if it is arranged so the queens can come in contact with each other, as through one sheet of the zinc, they will quarrel, or attempt to, when the workers will interfere and attack (ball) the virgin, with the usual result. Friend Doolittle rears his queens in, and secures their fertilisation from, apartments not directly connected with the brood department and the laying queen, and so he readily secures the necessary independent colony for each queen, and the farther away this colony is removed from the mother queen, the more certain is the virgin to become fertile. In my storifying hive, which is nearly identical with the Cowan hive (only the brood frames are but seven inches deep), if a story containing a virgin is provided above a laying queen in a lower story, and separated by queen-excluder zinc, the two stories make so compact a colony that it does not seem to be possible for a lot of bees in the upper story to establish an independent colony above the excluder, although a good entrance is made in the back end of it; and so it happens in every such case the virgin queen will be killed, as heretofore stated in the bee-papers, and also in my book. There is an exception however, and that is, the bees may swarm if the conditions favour it. But they will only swarm when there are other queen-cells about ready to hatch [sic emerge]. Then both the queens will go out with the swarm, and after hiving, the virgin will be killed, if the laying queen is not removed. Again, if the parent queen is caught in a trap at the entrance of the hive, and the young queen only goes out with the swarm, the bees will attach themselves to her, and sacrifice the old queen if she is hived with them. These

results have been proved over and over again, and there are no exceptions to the rules as stated. It will be understood, of course, that the laying queen has not become superannuated. Hence it will be seen that I am right, and Mr Doolittle is right, and the difference in the results has proceeded from the causes stated. — Dr G L Tinker, New Philadelphia, Ohio. (To be continued.)

[Note this letter was never followed up, despite both efforts of a reader and editors to solicit further response. Tinker appears to have been preoccupied with other matters including marketing of his slotted zinc excluders in subsequent editions of the BBK. He appeared also keen to market his book on beekeeping for profit, copies of which are not free on the web despite an extensive search but can be purchased.]

(March 17, 1892). *British Bee Journal, Bee-Keepers' Record and Adviser* **20**:106-107. Notes by the Way. [Letter 971]. We have now had a fortnight of very severe weather, and our bees have been confined to the hives all the time; winds veering east and north-east constantly, cold and penetrating to the very marrow of one's bones, with occasional snowstorms and blizzards, our weather-wise acres say they never remembered it so cold in March before...

...Dr Tinker's capital article (Letter 958) on queen-fertilisation in full colonies clears up apparent discrepancies and erroneous ideas regarding his (Dr Tinker's) and Mr Doolittle's systems. It appears necessary to use two excluders, with a space between them, to ensure success with two entrances opening in opposite or different directions, so that, to all intents, the colony is divided into two colonies, though the workers may find their way into the upper compartment through two pieces of excluder zinc; yet I fear this method will curtail the ingathering of the honey harvest considerably, and as soon as the young queen begins to lay the hive must be opened up, and the old queen removed or confined in a 'Dayton' cage on two or three frames. This system is advocated to prevent swarming and rear queens in full colonies, so that there is no break in the egg-laying; and in countries where they have a long-continued honey-flow, or perhaps two or three good honey-flows in succession, with short intervals between, it may succeed; but in this country, where our harvest only lasts about a month, or at the longest, in good seasons, only six weeks, our aim should be to 'be ready' by the time our harvest opens, and keep just ahead of our colonies with room, and if colonies swarm then open up the hive, and cut out all queen-cells except one, and return the greater part of the swarm, leaving the queen, if a good one, and a small lot of bees to form a nucleus on two or three frames in a small swarm-box...

—W Woodley, World's End, Newbury.

(April, 7, 1892). *British Bee Journal, Bee-Keepers' Record and Adviser* **20**:132-133. British Bee-Keepers' Association. Quarterly Conversation. (Continued from p.126.) (referring to p.126 [March 31, 1892 footnote: Mr Wells, of Aylesford, Kent, then explained his New method of working bees, a report of which will appear next week.])

Mr Wells explained his system of working bees, which was to make a division in each hive by means of a perforated dummy, and place a colony with its queen on each side thereof. He commenced that method as an experiment in the spring of 1890, when he tried it with only one hive, holding sixteen frames. Dividing this hive by setting the perforated dummy in the centre of the hive, he placed the

queen, combs, and brood of two colonies in it, one lot on each side of the dummy; and, when he saw how well the bees worked together divided in this way, the idea occurred to him to try what would be the effect of putting an excluder zinc on the top, and letting the bees all run together in the surplus chamber overhead. The result was that that hive gave by far the largest produce for the year 1890.

Consequently, he made up his mind to winter two queens in every hive in 1891, and in preparing to carry out this idea he divided the combs, brood, and young bees of three stocks, which had swarmed, into nucleus colonies of three or four combs, one good queen-cell being given to each lot. After the close of the honey season one of these small colonies was—when the bees were prepared for winter—united to each of nine stocks, divided as already described. In the spring of 1891 he found they were all strong, with the exception of one hive, where one queen had died, and the other side was exceedingly weak, and therefore he had only eleven hives to work with. The kind of hive he used was very large; but, notwithstanding the size, they had to be tiered up more when the system in question was practised. He had been unable to prevent swarming in any hive excepting one; that one hive held twenty standard frames, and had, of course, two queens, and he had to keep on supering at the top of it. A crate of standard-size combs was put on top of the excluder zinc, and very soon a second was required, the latter having shallow frames, five inches deep, and in a short time a third was necessary. The estimated quantity of honey produced by that particular hive was between 180 and 200 pounds. The other hives, where swarming took place, did not do so well, but the yield of some of them exceeded 100 pounds.

With regard to the total quantity of honey obtained from his eleven hives—leaving out the queenless hive, which yielded nothing—the figures were as follows:—312 one pound sections, and 1069 pounds of extracted honey, making 1881 pounds. He had worked principally for extracted honey. That, at 9d. per pound (although some of it sold at 10d. and 1s.), including 40½ pounds of wax at 2s. or 2s. 6d., realised 55*l.* 16s. 9d. As against that, the year's expenditure amounted to 8*l.* 9s. 8d., leaving a balance of 47*l.* 7s. 1d. If the total quantity of honey be divided by twelve, the average produce per hive would be found to be 115 pounds; if by eleven, as would be more correct, the average reached 125½ pounds per hive. In addition to that, he had had ten swarms. At the present time he had two hives with three queens in each, and one hive with four queens, and that day (March 16th) the bees were out very strong from every entrance. He disclaimed any intention of teaching the members present on a subject which they were far better acquainted with than he, but thought his results, obtained by simple means, were worthy of notice. At first he used a metal dummy, which, being a great conductor of heat, took away the warmth required by the bees, and he afterwards substituted a perforated wooden one, such as he now produced for inspection. Mr Wells explained that he made all his own appliances, several of which had some point of originality about them, as would be seen by the samples handed round for inspection. He also exhibited some wax which had been turned out by his own extractor. Mr Wells next proceeded to quote one or two facts, which appeared to tell strongly in favour of his system of working bees. A neighbour, whose bees were situate only about forty yards away from his own, gathered food enough for wintering on, but did not get an ounce of surplus honey. Another neighbour, about a quarter of a mile off, had three frame hives and six skeps; but he obtained no honey at all from them, and had to feed considerably. In both the

above cases one queen only was kept in each hive. One remarkable circumstance was, that the crop of sainfoin from which his (Mr Wells') bees gathered the greater portion of the honey was situated on the other side of his neighbour's grounds, and furthest away from his apiary, so that the bees had to fly over the ground where the hives that yielded nothing were placed, in order to get at the forage. And while the bees of the latter were doing almost nothing, there was a continuous stream of his (Mr Wells') bees going to the honey and back again. He (the speaker) did not weigh his swarms; but he had no skep large enough to hold them. The present year he intended to work a crate of shallow frames on top of the other frames for brood, and allow the queen to go up, so that by giving additional breeding-space he might prevent swarming as much as possible. Mr Garratt said that Mr Wells' success had been so great that, instead of destroying any of his surplus queens, he (Mr Garratt) hoped that Mr Wells would rather distribute them about among the other bee-keepers, in order that they might experience some of the advantages described.

Mr Carr considered Mr Wells' narration of the utmost value to bee-keepers, and though that gentleman had modestly disclaimed any intention of coming before them in the character of a teacher, he thought the teaching which resulted in so large a return of surplus honey was just the kind of instruction all of them needed. It occurred to him, however, to ask how the single entrance to each hive was divided, as the bees were, by the perforated dummy; there might be danger from the queens, from balling, if some precautions were not taken at the time of uniting the two lots.

Mr Wells explained that the colony which happened to be in the hive was pushed aside when the dummy was fixed, and a nucleus put in on the other side. Most of the hives had sliding floor-boards, so that the floor-board could be dropped two inches, and a wedge-shaped piece was inserted below the dummy, which divided the hive down to the floorboard when the latter was lowered, so that the bees could go to their own side of the dummy or not as they pleased. One source of trouble he had not overcome was, that when one lot of bees started swarming, those on the other side of the dummy always followed suit, and so both queens came out with the swarms.

Mr Carr and Mr Blow agreed that the meeting was deeply indebted to Mr Wells for being present and favouring it with his experience, which practically amounted to a revolution in the present system of bee-keeping. Just upon 130 pounds of honey per hive was a marvellous result, which was occasionally spoken of but seldom realised. Mr Blow thought that if entrances were placed at the ends of the hive instead of being together, there would be less excitement when swarming took place.

Mr Wells, in answer to a querist, said there was no need for any trouble with regard to spring feeding. He always packed up the bees with plenty of good food in the winter. Mr Soar and others continued the discussion.

The Chairman said they were always pleased to have a record of practical experience, and Mr Wells' experiments showed what the most advanced apiculturists had always maintained, namely, that strong colonies produced the largest supplies. That was the secret of Mr Wells' large honey production. While his neighbours bees were not in a fit condition for work, Mr Wells were just in the proper state to gather the honey early in the season. Some years ago a good deal was said about the doubling hive, in which the division was made by perforated

zinc. A hive of the kind was brought out by Lee, of Bagshot. He (the Chairman) had one in which the bees were working in the supers above, while the queens, separated by the zinc, were breeding below. He thought it would be interesting to have experiments made on the lines laid down by Mr Wells, and he hoped bee keepers would try the simple methods described and report results. If double populations could be obtained in spring it was an easy way of increasing the amount of surplus honey. He thought from the fact of having a perforated divider between the two colonies, that when one was likely to swarm the other from sympathy and excitement would have the same tendency.

Mr Carr said that, as most of them knew, the plan of working double colonies is one super or set of supers was not new, but it was certainly novel to follow it out as Mr Wells had done by preparing a nucleus colony to add to each stock in autumn. By doing so and removing the oldest queen each year, a constant succession of young queens would be secured. There would, he thought, always be great difficulty in preventing—and with Carniolan or Ligurian queens it would be impossible to prevent—swarming, while each queen had only seven frames for a brood nest.

A general conversation followed, in the course of which Mr Wells explained further details in regard to bee-management in his apiary.

Mr Blow thought that in hives holding a large number of frames there would be little difficulty in trying these experiments. The division could be made in the middle as Mr Wells suggested, although the sliding floorboard would have to be dispensed with, and supers could be provided above; so that by the end of next season bee-keepers would know for certain whether the system should be generally adopted.

The Chairman said any number of frames might be added to the hives, and that sometimes it might be necessary to put on as many as thirty or forty. He found he could keep the queen very well on twenty frames, and in that way prevent swarming. That was quite sufficient breeding-space for any queen. At the end of the season the bees hatched [sic emerged] out, and went down by degrees.

Mr Garratt said that the warmest thanks of the meeting were due and should be tendered to Mr Wells for coming there as a stranger and giving the benefit of his investigations and experience. His descriptions were very plain, and he hoped would be a boon to bee-keepers. The sentiments conveyed by Mr Garratt were heartily approved by all present.

Mr Wells had no idea his remarks would be of so much interest; but thinking his management by simple means had been pretty successful, he determined, if possible, to explain it. He was very thankful for the kind way in which he had been received, and abundantly repaid for any trouble he had taken. The meeting then closed.

(April 14, 1892). *British Bee Journal, Bee-Keepers' Record and Adviser* **20**:144-145. Notes by the Way. [Letter 995]. The weather since I last wrote has been fine, and some days we have reached a high temperature, and my bees have been very busy culling the sweets from the few flowers April that are in bloom...

The only objection I find to cutting holes in the comb as winter passages is, that a large number of queen-cells, another season, will be started in these holes, and with full colonies there is a difficulty in finding the queen, as she has a knack of getting into these holes, also of seeing the queen cells when the bee-keeper

wishes to cut them out; and oft-times I have found the bees fill the holes during the honey harvest. For permanent passages through the combs, a ferrule of tin cut from any old empty tin box, and placed in the hole of the comb, will prevent bees filling it in, or using it as a queen-cell foundation. With regard to Mr Wells' plan of two colonies in one hive, the hive may as well be divided altogether, and have separate entrances from the brood nests though each working into one set of supers. This would reduce cost of setting up a new apiary, as only half the number of hives would be required, though those used must be longer, to give room for the colonies. Mr Wells' total was good for last season; but the reason he had his hundredweights of honey, and his neighbour not even ounces, was because he had his bees ready to take advantage of the honey flow and his neighbour's bees were not ready, as after sainfoin is cut the year's work is done so far as that source is concerned. I have had extended experience of the same results. I too have had hundredweights, and neighbours only pounds from same source.—W Woodley, World's End, Newbury.

(April 14, 1892). *British Bee Journal, Bee-Keepers' Record and Adviser* **20**:145-146. Doubling colonies. [Letter 996]. I am struck with Mr Wells' plan of having two colonies of bees in the brood chamber of his hives, separated by a perforated dummy, and allowing the bees to work together in the super chamber. I think the plan might be especially good in the north, where the season is short. Although my experience in bee-keeping is short, I have observed how very much better a strong colony works. Ever since I commenced, my practice has been to purchase skep hives that were going to be smothered, drive the bees from them, and join them (using four) to my frame hives, which fills them to their utmost. I have never observed any fighting, but still I am surprised how comparatively few survive the winter, generally not covering more than parts of three, four, or five frames, although the whole ten have frequently been crammed in September and October, and with plenty of food and to spare. Two colonies died with me this year, though they were quite filled with bees in autumn; but one would not feed, from which I conclude it must have been queenless—perhaps the queens may have injured each other when I joined the other bees to them. The other, when I examined it this spring, only covered about three inches of three frames, and although there was any amount of food in the hive, and that I gave a feeder of syrup to stimulate them, they visibly dwindled, from the time the hive was opened, until they died. I took out the full frames, and divided them over the other hives, but I observe they are taking the honey but sparingly yet. The bees are flying freely since the fine weather commenced. Would you recommend me to adopt Mr Wells' plan with a couple of the hives, viz to put a perforated dummy in the centre, keeping all the bees of that hive on one side of it, and taking the frames, with bees and brood, from another hive for the other side? By the time they would require supering they would no doubt be friends. I should think well of putting another alighting-board to the back of hive, and making an entrance there, and then turn the hive a quarter round, so that both entrances would be, as it were, at the sides. Would there be danger, doing this now, of old bees not finding their way back? I could turn both hives, one a quarter-turn to the right and the other a quarter-turn to the left, and bring the two backs close together for a few days before shifting the bees. A sheet of finely perforated zinc as a dummy would take up less space in the hive than a wooden one, and as all the heat is kept inside, I cannot see how it

can take away the warmth required by the bees. I should say that my hives are Abbott's Gayton hives, with ten standard frames in brood chamber. I observe X-Tractor does not approve of this plan of working. I should add that I cover the tops of frames with a couple of pieces of felt the exact size of the hive, with four or five newspapers folded the exact size of the hive also, and most carefully put in so as to fill the corners, for wintering. Then, when I open the hives in spring, I take out the felt cover, which is generally quite damp from condensation of the breath, dry it thoroughly, and replace; thus I can go over all the hives by having a spare quilt. I did not like the idea of American cloth, fearing the condensed steam would fall on the bees. Do you see any objection in this, or how do you account for the decrease in the numbers? Perhaps I have been too late in joining the bees in autumn, and no eggs were laid afterwards?—JMK, Castleblaney, April 8th, 1892.

[Your experience forms a curious commentary on that of our correspondent (Letter 987, p.128), to to which please refer as an instance of successful wintering of driven bees. We should not recommend you to adopt any modification of Mr Wells' plan; either follow it out in its entirety or not at all. If you can rear a couple of nucleus colonies during the present year from a swarmed hive, add them to two of your stocks in autumn, and let the trial of the plan of working two queens in a hive come on next year. Porous quilts will always be damp if covered by non-porous material. With American cloth next the frames, we have no trouble in keeping quilts placed over this dry so long as roofs are watertight. — Eds.]

(April 14, 1892). *British Bee Journal, Bee-Keepers' Record and Adviser* **20**:146. Working with two queens in each hive. [Letter 997]. Mr Wells' method of bee-keeping will surely take bee-keepers by storm. It is clearly correct in principle, and the result, in his hands, proves it to be anything but bad in practice. I fail to comprehend his reply to Mr Carr's query concerning the division of the entrance by the perforated dummy; perhaps you will help me with a few words of explanation. If Mr Blow's suggestion, that two entrances be used, be advisable, matters are very much simplified; it becomes, in fact, a case of Twin hives to the fore! and the sooner hives take the form of keel-less Noah's Arks the better. As in twin hives the dummy would stand wholly within the hive, and, therefore, beyond the influence of external temperature, Mr Wells' objection to metal dummies would fall to the ground. There may, however, be other drawbacks to the use of perforated zinc. May I, therefore, ask for a description of dummy used by Mr Wells? A further thought occurs to me that, if the entrances to a twin hive were made near the corners, a slight modification of Mr Simmins' method might possibly prove effective in keeping the swarming impulse in abeyance.—EB [Mr Carr's query simply had reference to the complete division of the two parts of the hive down to the floor-board when the latter 'dropped two inches' and it was explained by Mr Wells that a wedge-shaped piece of wood was inserted below the dummy, which filled up the gap between it and the floor-board, so that the bees had no passage underneath. The dummy shown by Mr Wells was of thin wood, the perforations being burnt through with a hot wire. The holes were of good size, but not large enough for a bee to pass through. —Eds.]

(April 21, 1892). *British Bee Journal, Bee-Keepers' Record and Adviser* **20**:155-156. Queens fertilised in full colonies with a laying queen. [Letter 1001]. On p.95

of the B for March 10th, we are promised a continuation of Dr Tinker's most interesting answer to my letters (Letter 646, p.239 above, and p.894, pp.596-597 BBJ 1891 above), for which we are anxiously waiting. They approach, in a way, the just now all-engrossing method of Mr Wells' system, as reported on p.132 1892? of your issue for April 7th, but on different lines. I want a young queen, fertilised in a hive with a laying queen, not interrupting the breeding of the old queen (which always happens when a swarm issues), keeping her busy adding to the colony's population by preventing swarming, and substituting the young one later, to be reared in the same hive, for the old one to be removed when honey comes in freely, thus preventing over-production of brood, which would hatch out too late for the honey-glut, and which have to be taken into winter quarters as consumers only. Mr Wells' plan differ; he has two colonies at work for honey production, and, of course, expects the produce of honey from two colonies in each so-called one lot! Dr Tinker writes: I consider this subject one of the most interesting that can engage the attention of bee-keepers at this time, since it is intimately connected with many of the most recent and valuable of our methods for handling bees for profit; and answers my letters, two queens, separated by double-wall queen-excluder zinc, to exchange the old queen for a young one; in this way getting double population, by keeping the old one busy laying until the young queen is fertilised, and also busy at work doing her share of depositing eggs. He says: I put the virgin queen (or an advanced queen-cell) in the lower story, and the mother queen in the upper, and found that the former was then never interfered with, but was fed and nursed up for the wedding trip in the usual manner. I advocate one colony, with one entrance, dividing the former, and re-joining these two again into one, as such, with a double population. Mr Wells' method is a puzzle to many beekeepers, as is shown by the necessity for the Editors' foot-note to Letter 996, on p.146:—"There is time to make arrangement for rearing nucleus. colonies during the present year from a swarmed hive, and let the trial of the plan of working two queens in a hive come on next year. Dr Tinker's and my own humble idea can be experimented upon this season (1892) now before us. We will give it a trial, remembering his remark, No matter how and where the perforated zinc was used in a colony containing a laying queen, if the virgin (advanced queen-cell) was so placed that an independent colony could be established, she would become fertile. —JGK, Grove House, Southborough, Tunbridge Wells, April 16th, 1892.

[The footnote referred to was written with the object of inducing our querist to adhere to Mr Wells' method pure and simple, without variation or adaptation of any kind, and we still advise those who may decide on making trial of it to do the same. There is surely no puzzle about the simple details printed on p.132, and those who heard the facts narrated were the more favourably impressed because of Mr Wells having wisely deferred making his plan public till it had had a second season's trial. He then lost no time in giving to bee-keepers the benefit of the experience gained in actual practice. That there is some analogy between the method above referred to and the plan advocated by JGK must be at once admitted; but, however much the ideas of our esteemed correspondent may agree with those of Dr Tinker with regard to securing the fertilisation of queens in colonies with a laying queen, it is well not to have any mixing up of plans or methods when considering the working out of the one followed so successfully by Mr Wells, and in such footnotes as the one referred to our only desire is to keep

correspondents in the straight track when consulting us regarding the latter plan.
— Eds.]

(April 28, 1892). *British Bee Journal, Bee-Keepers' Record and Adviser* **20**:167-168. Late mating of queens. [Letter 1005]. In *Journal* for October 29th last year, I mentioned a supposed late mating of a queen on October 8th, when I saw a queen enter one of my hives after taking a flight and several drones about the entrance, even at that late date. It had been my intention to unite this stock, but, at the request of our Editors, I did not do so, but left the hive so as to be able to make observations this spring. The bees were carrying in pollen on several occasions, but on opening the hive I found two and three eggs in a cell and a small quantity of drone brood, some of it sealed; and so it seems from this that the queen was not fecundated on the date mentioned. Is it an indisputable fact that an unmated queen is unable to lay an egg capable of producing a worker-bee, or is it that instinct teaches the worker-bees to feed up the grubs so as to produce nothing but drones when their queen is unmated, in the same way as they feed up grubs to produce queens when they require one of the latter? I know I am out of court, but at the same time I have not before heard the suggestion made. I have been much interested in Mr Wells' method of keeping two queens in one hive, but I do not think the plan will ever be of any practical use. In the first place, Mr Wells' harvest was by no means large, as his average of 120 pounds per hive was really from two hives, which reduces his average by one half. It was also all extracted honey, so that I consider my results in 1889 of 1485 pounds—689 of which were perfectly finished sections—from sixteen hives very superior. Mr Wells might just as well have kept double the number of hives, and united them, if he thought fit, at the right time, or worked them separately, and the result in extracted honey would probably have been just the same. — AJH Wood, Bellwood, Rippen, April 23rd.

[It is a well-authenticated fact, about which there can be no dispute, that the eggs of unmated queens never produce anything but drones; the same being true of fertile workers. With regard to Mr Wells' plan of working two queens in each hive, of course it is open to every one to approve or disapprove of it; but as to its practical usefulness or otherwise, there can be no two opinions in view of the facts presented to the meeting of bee-keepers to whom Mr Wells' observations were addressed. In plain terms he showed how, by dividing the brood of three colonies which had swarmed, he established nine small nuclei, none of which would probably have been of any value for wintering alone; but by adding one to each of nine stocks, and thus wintering them, he had eleven hives to start the following season with; from these came the results given.— Eds.]

(April 28, 1892). *British Bee Journal, Bee-Keepers' Record and Adviser* **20**:168. Two queens in each hive. [Letter 1007]. I should like to give Mr Wells' experiment with two queens a trial, but have a difficulty in understanding his system, simple though it appears. Does the division board he introduces prevent the bees in the latter part of the hive from passing into the front portion—if so, how do these bees get out of their partitioned-off part? Perhaps Mr Wells has an entrance back and front of his hive? My hives, I should mention, have only a front entrance, the frames being parallel thereto. Could you, then, kindly inform me how I am to proceed in order to try working with two queens? I could not very well make

another entrance now, but if the bees do not fight when allowed to run together in the section chamber, I should think one might let them use the one entrance, taking care, of course, to make the entrance to the partitioned off portion, small enough to prevent the queen from passing through. —H Gilbert, Gloucester, April 23rd, 1892.

[In Mr Wells' hives the frames hang at right angles to entrance, not parallel to it as yours do. In the latter case it would be absolutely necessary to provide a second entrance, either in rear or at side of the hive, because the danger is not so much of bees fighting, as of queens being killed by alien bees when the two lots are joined. The perforated dummy is used to keep the bees and queens apart until they have, in a measure, acquired the same odour, and thus lose their natural antagonism. —Eds.]

(May 5, 1892). *British Bee Journal, Bee-Keepers' Record and Adviser* **20**:176. Two queens in one hive. [Letter 1009]. I have been much interested in the correspondence on the above subject, which seems to add another illustration of the old proverb that 'There is nothing new under the sun.' I made and worked a hive on the same principle as that advocated by Mr Wells in the spring of 1886, and stocked it with a swarm the same year. In those days I had only five stocks, and it was my only swarm, so I had not the opportunity of trying my idea until the following year (1887), which was a very good bee-season with me. Happening to have a swarm and cast come off together, I united them, and hived them in my new hive in accordance with my ideas, with grand results. I will endeavour to give a description of the hive. First, the frames run at right angles to the entrance; the inside measure of the body is two feet, holding sixteen frames, or fifteen with the dummy, which is one and a half inches thick, made with a wooden frame and covered each side with perforated zinc, leaving, of course, a space between, in which I put a little camphor to scent the hive. The hive is deep enough to hold another tier of frames, standard size, or two tiers of shallow frames for supering. Entrance the whole width of hive, with movable blocks, to either make one or two entrances, as desired. To return to the bees. Before hiving the united swarms, I removed the usual dummy and placed the perforated one in its place, filling up the hive with seven frames, the old stock having eight. I then readjusted the blocks, making two entrances, and hived my swarm, and left them so for about a fortnight, until they got well established and a good honey flow commenced. I then supered the whole with sixteen standard frames, with full sheets of foundation, and left them to their own devices. I did not observe any difference in their behaviour afterwards; they seemed to come in and out in their usual manner, and soon tackled the upper story in good earnest, and I took an immense amount of honey from them as well as some combs of brood to assist other swarms. I have never had either before or since such slabs of comb perfectly filled and sealed. I let them remain so the next year, 1888 (the well-known year of failure), and got about fourteen pounds of honey from it—the only honey I did get that year. I have since worked it as a single stock, having made other hives and wishing to increase my stocks, but I intend trying it again this summer, all being well. I may add that it has never swarmed. The only objection I have to such hives is their size and weight, especially when filled with thirty-one frames.— The Village Blacksmith.

(May 5, 1892). *British Bee Journal, Bee-Keepers' Record and Adviser* **20**:176. Working with two queens in one hive. [Letter 1010]. I wrote you on Monday last, too late evidently for insertion in the *Journal*, saying that since sending off my first letter I noticed that Mr Wells did produce some sections when working with two stocks in the same hive. With reference to your footnote to my letter, and my remark that Mr Wells' method would prove to be of no practical benefit, I was alluding to the production of honey only, as I considered that any two hives could be brought together and made to work in the same supers, when, of course, much larger results might be expected than from one lot of bees with one queen. I quite admit that for queen-raising, where non-swarmering is practised, Mr Wells' experiments may be of use. — Arthur JH Wood, Bellwood, Ripon, April 29th. [Our correspondent must pardon us if we confess our entire inability to see 'eye to eye' with him in regard to his estimate of the utility or otherwise of Mr Wells' method, either as expressed by him in Letter 1005, p.167, or in the above communication. That two colonies of bees can be got to work amicably together in one super was stated at the meeting of the BBKA as a fact well known to bee-keepers of experience, and one which had been tried years ago. But the difference between that plan and the one under discussion was at once seen and admitted by those present, as was also the fact that Mr Wells obtained his total harvest of honey from eleven hives, and not from twenty two, as suggested by our correspondent. He had simply preserved surplus queens, which would otherwise have been destroyed, and, after keeping these queens in makeshift nucleus hives till the autumn, added them to nine stocks of bees. That was the whole secret of the affair, and on it Mr Wells' new method of working bees, as he termed it, was based. On the other hand, Dr Tinker and Mr Doolittle have, as we have already pointed out, successfully experimented in the line of securing the mating of young queens in full colonies with laying queens. Mr Wells had no such object in view, nor is his plan adapted for it so far as we can see. — Eds.]

(May 12, 1892). *British Bee Journal, Bee-Keepers' Record and Adviser* **20**:187. A caution. [Letter 1018]. I have just read an account by an expert in which the latter, in holding up Mr Wells' system of working two queens in one hive, distinctly says and place perforated zinc between. Now, Mr Wells tells us he has found a perforated wood dummy best, as being a less conductor of heat it did not take away the warmth. I think there is another reason. Is it not likely that if thin zinc is used the queens might catch sight of each other, and endeavour to fight through the holes, whereas, with a dummy three-eighths of an inch or half an inch thick, the chances of a combat would be well-nigh impossible?—EHM, Hereford.

[If Mr Wells will kindly describe his wooden perforated dummy, stating the particular wood of which it is made, and how so thin a board—as it certainly is—does not warp when in use, he would confer a benefit on bee-keepers desirous of trying his method. It may, however, be said that the risk of the queens fighting through the holes — referred to by our correspondent—is so slight as to hardly need taking into account. — Eds.]

(May 12, 1892). *British Bee Journal, Bee-Keepers' Record and Adviser* **20**:190. A new queen excluder. Tinker's new queen excluder.

A NEW QUEEN EXCLUDER.

No Drones consuming Honey in the Supers.



No more Brood in the Supers.

The 'British' Queen Excluder.

This Excluder is entirely different from any hitherto made, all sharp edges being enclosed within the thin binder of zinc which covers both sides. Patent binding stiffens the zinc, and also makes a flat and smooth edge. Can be made to suit any size Hive.

The 'British' Excluder Zinc also supplied in 3 ft. by 3 ft. Sheets at Low Prices.
ONCE SEEN WILL BE ALWAYS USED.

The perforations are accurately made in accordance with the size adopted by Dr. Tinker and approved by the Editors of the *Bee Journal*.

(May 19, 1892). *British Bee Journal, Bee-Keepers' Record and Adviser* **20**:193-194. Working two queens in each hive. [Letter 1019]. In reply to the request in your footnote to Letter 1018, p.187, that I should describe the wood perforated dummy for dividing bees when working two queens in one hive, I beg to say the kind of wood. I use is the best yellow pine, about 1/8 in. thick, shoulders projecting the same depth as the thickness of top bar of frames used (mine are 3/8 in. thick), so as to be level with top of frames when in position.

Warping is prevented by folding a strip of light tin round the ends, leaving a small piece long enough to turn over top and bottom. I make the holes first with a bradawl, then run a hot iron through about 1/8 in. thick, each hole being about 1/2 in. apart. I think we shall not get anything better by way of a dummy than this; the thinner it is the better, as in winter we want the one lot of bees to help to keep the other lot warm, and a thin wood perforated divider not being a conductor of heat, encourages the bees to cluster as close on both sides of it as possible, which is very beneficial at all times. I do not think the queens try to fight through these small holes, but they might do if the holes were much larger. Perforated zinc might do in the summer-time, but would be distasteful to the bees in winter; so much so, that it would cause them to cluster quite clear from it, whereas we want them to cluster as close to it as possible, and the thin, soft wood divider appears to retain the heat of the bees, and encourages them to do so.

I have received a good many letters upon the subject, and cannot spare time to write to all, so will ask my correspondents to accept this as a reply, and will try to answer all questions in future in some way or else through your columns. At the last meeting of the BBKA one gentleman said he would send me a queen excluder dummy of the correct pattern if I would use it instead of the thin wood dummy (above mentioned), but I do not think it would answer, as the two queens might come too closely in contact, and perhaps fight through the opening; again, it would not answer in the autumn when we want to add a nucleus to the same

hive. In doing this, my plan is as follows: Suppose I have a hive in autumn with two queens in it — one is old, the other a young one, and the frames run at right angles to the entrance. In the evening I lower the floor-board and slip in the wedge, which has a groove along the top side for the dividing dummy to drop into about one-eighth of an inch deep; this done, the hive is prepared for winter quarters, and nothing more is required to be done but to slip in the block in the front, which has now an entrance two inches deep the whole length of the hive. I then catch the old queen, withdraw the dummy, and push all the frames and bees up to one side, removing such frames as are not covered with bees. If there are more bees than can crowd on this reduced number of combs, they will cluster in the space between the slanting floorboard and the frames. The dummy is now replaced in the middle of the hive, and a warm, thick one also is placed close up to it on the empty side. The empty half is then left vacant for a day or two, but carefully closed so that no bees can enter; in the meantime the nucleus which is intended to fill the empty half is brought about three feet nearer to the place each day until it is close up to the shut-up portion of the hive. After the bees have been flying in and out in this position for one day, in the evening the thick dummy is removed, and the frames and bees are lifted in a body from the nucleus hive and placed in the empty half of the hive. The entrance is then opened about three inches by three-eighths of an inch, and the nucleus hive removed right away. Next morning the bees work as if unaware that they had been shifted, and if they have plenty of stores and are covered up warm they need no disturbing before the end of March or the beginning of April in the following year, and they will then most likely soon want more room.

No doubt many bee-keepers have already got some long hives by them holding twenty or more frames, with the entrance at one end; but these do not work so handy with me as those with the entrance along the front and frames at right angles to it, and with two queens in them. You have not the advantage of lowering the floor-board in front, thus giving a slanting floor and room below the combs at the same time, both of which are very desirable in winter. However, I have converted mine by making another entrance at one side close to the back. When I want to work the bees on the method described above, I first turn this hive about a quarter way round, and leave it so for one day. Next day turn it further and leave it for another day, at the same time working the bees in nuclei, as described above, up to the spot where the permanent entrance is to stand. If I want the new lot of bees to use the side entrance, I withdraw the dummy after removing the old queen, and push all the bees with the one queen to the front, and proceed as before described.

If my correspondents will follow the general outline of the plan as described, they will find very much less work and very much better returns from their bees. Those who object to the plan and say that you cannot keep the stocks even in strength, should look out and always keep good young queens that would be no trouble to them. Whether it be a new or an old plan of working bees, matters but little; but it has been a source of very much less trouble, and very much more profit to me, and one queen only in one hive is a thing of the past in our apiary. If there is any detail not made sufficiently clear, I will answer further questions to the best of my ability.—G Wells, Aylesford, May 16th.

(May 19, 1892). *British Bee Journal, Bee-Keepers' Record and Adviser* **20**:194-195.

Notes by the Way. [Letter 1020]. We have had a few days of fine weather, and the hives are filling up rapidly with bees and some honey...

...Mr Wells' system of working two queens in one hive still receives attention. I have had some private correspondence on the subject with bee-keepers. The system, to be given its full scope, will require some long hives—that is, if two prolific queens are to have sufficient room, and in good districts, I do not see why a double colony should not secure a double quantity of honey, or, say, 200 pounds. The greatest objection is, that both colonies will swarm together if only perforated zinc divides them; but I have not found this objection with twin hives. With half-inch board division between the two distinct colonies, these long hives can be worked with a long super to match, fitted on the top, and a grand sight it would be to have a super of combs ready for the extractor that required help to lift it from the hive. This would gladden the heart of the poor bee-keeper, and he would be able to see a competence for old age in the bee line, even if visions of wealth did not disturb his rest. These ideas are drifting to larger supers—divisional, certainly—but in direct contrast to our American cousins, who are moving towards smaller hives, lighter supers, and even divisible supers, similar to those we are leaving, if not already left, behind; in fact, they are taking on handling hives instead of frames. Mr Wells' plan will develop unwieldy hives if it is taken up. There are points in its favour that must commend themselves to any thinking apiarian—but space forbids further digression today. —W Woodley, World's End, Newbury.

(June 9, 1892). *British Bee Journal, Bee-Keepers' Record and Adviser* **20**:221-222.

Notes by the Way. [Letter 1045]. As we are just at the beginning of our honey harvest, I thought I must pen a few notes in addition to those of last week, trusting I am not filling place of more important matter. Well, as usual, it's the weather, and that is nondescript; first it rains, and then it blows, and then both come together with fitful gleams of sunshine occasionally; no opportunity of storing honey for the busy bees, and but little to cheer the heart of the bee-keeper, yet we hope on, and trust, after Whit—or shall I say Wet-Suntide—is passed that we may get a spell of fine warm weather. Last year we had unsettled weather at Whitsuntide; and now, though it is some weeks later, we are experiencing similar weather. The dull days and frosty nights have retarded swarming. I have only had four swarms, where I expected forty, but all we want is warm weather, and then all would go merry as wedding bells. As new hands are always taking up with bee-keeping who probably do not read up past bee-history, permit me to remind readers of the wants of our bees. The first and most important is water; it must make a great difference to a colony of bees if water is supplied near the hive than if they have to forage the neighbourhood in quest of it. In country places where ponds or brooks are near, the bees will have a constant supply; but in suburban districts, where water-butts are the only places they can get a supply from, it is imperative that a supply be given near the hives; a very good fountain is a small barrel with a leaking tap; also the drops of water to fall on a slanting board, or on a house flannel, or a shallow pan, with moss or spent tea-leaves, to prevent bees drowning while drinking. I should add the barrel will require a lid, or piece of sacking over the top, or bees will get drowned. Weeds near hives should be kept cleared off, and as a preventive of another crop, sprinkle salt on the ground around the hives; this answers a double purpose, as

bees require a portion of saline extract during brood-rearing, and this extract prevents the nameless disease in bees. Extended alighting-boards are also a great help to bees returning heavy laden, even in the best of bee-weather. How much more so when the poor bees have battled with the rough, chilling winds? With slanting boards reaching from the ground and top end with two nails partly driven in, making a fair joint with edge of alighting board, many bees returning will fall on the boards and run up into the hive, which otherwise would have fallen on the ground.

Self-hivers.—Mr Rowell has very kindly sent me one of his self-hivers, which I intend trying next week, and will report result. I notice the holes in his excluder are very narrow, but I suppose it is the new pattern. It seems slightly narrower than Dr Tinker's, and considerably narrower than some I had from Abbott's some years back, and I have never had queens pass through the latter into supers. Self-hivers are still the topic in America. *Gleanings*, May 15, has illustrations of two—Mr Alley's enlarged drone-trap, affixed, *a la* Hooker and Rowell, above the entrance of hive; and Dibble's is an elongated drone-trap which traps the queen, but, from drawing and description provides no accommodation for the swarm, which, I suppose, has to return to the parent hive or cluster around the queen in the trap.

I tried Mr Wells' plan of two colonies in one hive with simply excluder zinc between the colonies and have lost one of the queens. Evidently to make the thing a success one of Mr Wells special dummies is required. I notice Mr Blow advertises Wells hives — have they the correct excluder? If so, kindly tell us in your advertisement the price of excluder or dummy. In my case the dummy is removed, and the surviving queen left monarch of all she surveys,' even if it is not a case of 'the survival of the fittest.

Metal ends have at last found a lodgement in my apiary, but only till the busy time is over. I bought a few colonies of bees from a neighbouring farmer, and his frames were mixed — some Abbott's pattern, some with ends level with top of bar, some to fit on, and, of course, standing above the bar, and some with the WBC ends. Then he tells me how savage his bees always were when taking honey off. How could it be otherwise with the bottom of crate some half to an inch above the bars, with nearly solid brace combs between? Before I put on crates I scrape off any little pieces of propolis or wax, and the crate fits flat on the top bars, leaving no room for brace combs where the crates are made properly. This,, coupled with well-made super-clearers, are some of the pleasures of modern bee-keeping.—W Woodley, World's End, Newbury.

(June 16, 1892). *British Bee Journal, Bee-Keepers' Record and Adviser* **20**:227.

Raising queens in colonies having a fertilised queen. [Letter 1047]. Early in May, as I required a queen to replace one producing very spiteful progeny, and having read Dr Tinker's letter (Letter 958, p.95), I divided up a ten-frame hive into two of five frames each by placing the dummy in between them, giving the bulk of the brood to the queenless portion. Now, I am not writing this to throw any doubt upon Dr Tinker's statements, but as a warning to my fellow bee-keepers; still, when I came to look for queen-cells about ten days later, I found no sign of any queen-cells, the reason for which being, as I suppose, that the hive was not sufficiently strong, and honey was not coming in fast enough...—AT Wilmot, St. Albans.

(August 4, 1892). *British Bee Journal, Bee-Keepers' Record and Adviser* **20**:291-292. Editorial, Notices, &c. Useful Hints. ... Finally, none but strong and populous colonies should ever be divided for increase, and only those having sufficient knowledge of bee-keeping to put these guiding principles into successful practice should at-tempt the task of dividing after the natural date of swarming has passed. In a word, they must remember that bee operations, which are simple enough in June, are apt to cause unforeseen trouble when performed in August. Herein lies the difference between what is conveyed in the above sentence and the easy way of dividing stocks immediately after swarming, mentioned some time ago by Mr Wells, and which some of our correspondents seem very desirous of trying. Therefore, if they desire to make quite sure of succeeding, such queens as are intended for placing at the head of colonies divided after the honey harvest is over, should be raised and fertilised beforehand.

(August 18, 1892). *British Bee Journal, Bee-Keepers' Record and Adviser* **20**:318. Working two queens in one hive. [Letter 1119]. Can you induce Mr Wells to tell us how he has succeeded this season with his system of working two queens in one hive, as no doubt there are many of us ready to adopt it if reports are still favourable? It will soon be time now for planning next year's work and I have already laid in a stock of wood for hive-making. I like the idea of Mr Wells' system very much, and, to my mind, the only drawback is the swarming difficulty, which, I should think, might be overcome by the use of self-hivers.

I am of opinion that Mr Wells does not give room enough in his brood chambers, as, if I remember rightly, he has only seven frames in each. I propose to have ten in mine, and to have the entrances at either end, which will ensure more ventilation than if side by side. Several bee-keepers have expressed the opinion to me that they fail to see any advantage over the old system, as results equally as good could be reckoned on from two stocks worked in the ordinary way. I fail to see this, however, as I firmly believe, from what I have seen of two nuclei being wintered together in one hive divided by an ordinary division-board, in which case the bees seemed to increase much faster the following spring, that stronger stocks similarly placed would not fail to be in readiness for the earliest flow of honey likely to arrive. It seems to me, too, that there would be a great saving of labour in working one hive instead of two, and obviously one of Mr Wells' hives could be made at less cost than two ordinary ones, and would take up less room in the apiary. — WJS, Chingford, August 9th.

(September 1, 1892). *British Bee Journal, Bee-Keepers' Record and Adviser* **20**:339. One versus two queens in a hive. [Letter 1132]. In BBJ for August 18th (Letter 1119, p.318) WJS is desirous that I should give the results of my bee-doings this year in working two queens in one hive. As soon as I get time to clear up and cast up accounts for the season I intend to publish results, not only of working two queens, but also of working with one queen in a hive. The latter may seem strange to some after what I stated some time back, when I gave my decision that one queen only in a hive was a thing of the past with me; but, in arriving at this decision, I may be allowed to explain that, having had many bee-keeping friends visit my apiary, some of these experienced friends thought that

the same results might be obtained if each queen had a hive to itself. This, however, was far from my experience, but to make the subject as clear as possible to others I decided early in June to sacrifice one queen from each of five hives, and work through the honey season with one half of my stocks one queen only, and the other five with two queens in each, carefully noting the results. Some of my visitors suggested that one hive on the single queen plan would be a sufficiently good test, but I thought otherwise; and, as the subject was an important one for bee-keepers, I determined to settle the matter beyond dispute in the way proposed, and give each plan an exactly equal chance, by working one half one way and the other half the other way. This I thought would make it as plain as it is possible for me to do. I have already got strong nuclei with young queens to add to those which have but the one queen, and also to replace the old queens which have worked two full seasons. In due time you shall have full details.—G Wells, Aylesford, Kent.

(September 22, 1892). *British Bee Journal, Bee-Keepers' Record and Adviser* **20**:371-372. Bee-keeping in New South Wales. [The following interesting letter was received by our correspondent, Mr G Wells—well known to readers through his system of working two queens in one hive—from a gentleman quite unknown to him in New South Wales, and, deeming it to be of general interest, he has kindly forwarded it to us for publication. We may also say Mr Wells has replied privately to the questions put to him, besides forwarding copies of BJ containing references to his system of working bees. — Eds.] [Letter 1158]. Having seen a notice in *Gleanings in Bee Culture* for May 15th ultimo, declaring your reported splendid successes by your plan of having two colonies in the same hive, there being a central division impassable to either queen or bees in brood chamber, but free access to workers of both colonies to the supers, and, having been very much struck with this admirable idea of having two queens to each colony, I now write to ask you as a very special favour and kindness to answer me one or two questions which I will arrange *seriatim*.

1. Is there not a great objection to your plan in the risk of one or both queens being killed or maimed sooner or later? If there was this loss constantly threatening and often happening, surely your system could not pay, as the resulting frequent attention to brood nests, supplying missing queens, and introducing them, would handicap the apiarist too heavily (at least if he were a bee-keeper on at all a large scale).
2. Will it answer as well to place ordinary swarms in the swarming season side by side in the same hive *a la* your plan as to winter nuclei in them, as you seem to have done? I mean, would the former be riskier to the queens, and should you take any precautions to ensure their safety for the first few days, till bees of both colonies became reconciled?
3. The tendency towards swarming seems to be greatly increased by your method. Is it your opinion that this could be checked by extracting from the same combs every week? This is the plan I adopt with my colonies, and but four or five per cent, of them swarm. All my honey is artificially ripened, of course. It takes about ten days here to ripen thoroughly in large shallow tanks (sixteen inches high).
4. How do you manage about the entrances? I am a bee-keeper of some seven years' experience (though only twenty-two last birthday), and possess at present seventy-nine colonies, mostly hybrid Italian, all on the Langstroth simplicity

frame. The standard English frame is too small for New South Wales. All my queens are reared *a la* Doolittle.

Last season I started with eighteen hives and obtained from these over 7000 pounds of extracted honey. I think no land in the world can compare with some localities in New South Wales for bee-pasturage, but though the harvest is abundant, the labourers are few. Our honey harvest is just commencing, as the Red Gums are starting into bloom. We have no clover honey here to speak of, but our great resource in this district is the scrub flowers (from trees whose names would doubtless sound barbarous to you in England). — Lismore, New South Wales, June 30th, 1892.

(15 May and 15 August, 1892). *Gleanings in Bee Culture* **20(10)**:359; 607.

A NEW SYSTEM of working bees, by Mr. Wells, is making some stir in England. He puts two colonies side by side, with a perforated dummy between, and queen-excluder over, having both colonies work in the same supers, and reports great success. But it seems to increase the tendency to swarm.

THE PLAN of working two queens in a hive, as given by Mr. Wells, of England, according to "A Lanarkshire Bee-keeper" in the *Journal of Horticulture*, is practically the Baird system, nearly forty years old. The principal difference seems to be the intermingling of the bees of both queens in the super in the Wells system.

(October 13, 1892). *British Bee Journal, Bee-Keepers' Record and Adviser* **20**:400-401. Queries and Replies. [Query 661]. Two queens in one hive.— I have kept bees in frame hives for about four years, during which time I have tried most improvements with encouraging success. I have six stocks, one of which, on thirteen frames, I wished to divide into two lots, introducing a second queen to the queenless one; but having, I am afraid, failed in my attempt, I wish to state my case, and ask your valuable advice through the *Bee Journal*. I proceeded thus: I took some condemned bees from a neighbour to supply a queenless stock. There were two lots, so I had a queen to spare. I divided the large hive by a perforated zinc division, and cut a second flight-hole in the hive. I gave each half about the same quantity of bees, and placed the new queen (caged) with the half where I cut new flight-hole. I noticed fighting; at the entrances. I released queen on the third day, but found that a good many bees had gone back to the old queen. On looking next day I found the new queen outside on the flight-board. I caged her again, and replaced her in another frame with bees and brood from the other half. I released her again in two days, and did not notice anything unusual, or even fighting, so left all alone for a week. I had a sheet of queen-excluder zinc on the top of frames, with a passage above the depth of a bee-space, so that the bees could get at each other, but not the queens. Anxious to know if the new queen was all right, I looked on Friday last, but failed to find her on the combs. The bees cover about three frames, but in the other half five or six. I looked again on Saturday. I even took out the frames and shook them, letting the bees run in

through entrance, but still failed to see the queen. Now, being anxious to try the two queens as above stated, and being in doubt as to the whether the queen is still there, would you kindly advise me what is my best course to adopt under the circumstances? The season here has been pretty good. I had 140 pounds of honey, including sections and extracted honey from five stock, although the district is not one of the best, being situated amongst collieries and ironworks. — William Greener, Gowerton, October 3rd.

Reply.—So long as the bees of the stock were not effectually divided, but allowed to mix by passing through the excluder zinc, neither portion could be considered queenless, hence the refusal of an alien queen by one portion of the bees. By what is known as the Wells system, the bees as well as queen of the divided hive are kept apart by perforated division-boards, through which the bees cannot pass, until supering-time of the following year, by which time both lots of bees have acquired the same odour, and will consequently work amicably together in the same super. Departure from this principle no doubt caused failure in your case.

(November 3, 1892). *British Bee Journal, Bee-Keepers' Record and Adviser* **20**:430-431. The past season in the north. [Letter 1207]. We have reached the close of another year, with honey as scarce as in 1891 and the year before. We are getting used to bad seasons here in the north, especially when the bees are at the heather, for we have not had a good heather season since the Jubilee year. I am glad to hear that our friends in the south have fared better. It sets one longing to live in the south when we read of one of our editors taking his friend Mr Grimshaw to see the bees, in the first week of July, with their surplus chambers full of honey and a glorious sun pouring down upon them, while up in the north sections had to be taken off empty as put on; instead of a hot sun, nothing but a cloudy sky, with rain nearly every day. I have been very much interested lately in Mr Wells' system of securing a good average per colony, and think it a decided advance in bee-keeping. After making a hive according to the instructions, I intend trying it next season. If our seasons do not improve, however, no system will be of any use here. A good many people were disappointed at our Yorkshire Association's Show at Middlesbro' in August, through the absence of the bee-tent and lecturer, caused, as I was told, by the usual lecturer having unfortunately died. Surely this attraction ought not to have been absent seeing that our Hon Secretary is himself an excellent lecturer and takes so great an interest in the subject. — John Bainbridge.

(November 10, 1892). *British Bee Journal, Bee-Keepers' Record and Adviser* **20**:436-437. Useful Hints. More criticism.— A correspondent, signing himself Man of Kent, writes us on what he calls Things in general, a subject one would expect to be interesting to every one...

...Two queens in one hive—The Wells System.—Very different indeed in tone and spirit is the communication which appears on p.438 from Mr Wells—though he also is located in Kent—and we commend to the careful consideration of our readers the results obtained from five hives worked on the double-queen system as described therein. An average of 158 pounds per hive should satisfy most folks, and the yield of an equal number of hives worked on the ordinary or single-queen plan alongside the others are most valuable for the purpose of comparing

the two systems. A good deal has been said in our pages and elsewhere as to the Wells plan being nothing new, tried and found wanting years ago, &c; but we would ask such critics of the double-queen plan — as worked by Mr Wells himself — if they have any fault to find with the results obtained in so moderate a season as that of 1892. That is the crux of the whole question, and what we have consistently done throughout the discussion on the merits or demerits of the Wells system has been to try and prevent correspondents from working in ideas or schemes of their own along with those of Mr Wells, thus confusing the issue altogether. There is no ambiguity about the language used by the gentleman whose name has become connected with the two queens in one hive plan during the last year or so. Mr Wells is evidently a careful and accurate bee-keeper, and his results are not given in a haphazard way, as some are, but are calculated on business lines. Nor can any reasonable man complain of the language in which the details are given of the way in which the work has been carried out. Therefore, if any reader, sufficiently impressed with the method of working bees referred to, desires to try the plan, we do hope he will either follow it out strictly on the lines laid down by Mr Wells himself, or, should disappointment or failure follow through deviation therefrom, it may not be set down as a failure of the Wells system.

(November 3, 1892). *British Bee Journal, Bee-Keepers' Record and Adviser* **20**:438-439. Two queens in a hive. The Wells System. [Letter 1214]. It will perhaps be remembered that I some time ago promised to give an account of my bee-doings for the season of 1892, and in this connexion it may also be recollected that I have stated in your columns that one queen only in each hive was a thing of the past with me in my apiary. Since then, however, many valuable suggestions have been given to me from bee-keepers, experienced and otherwise, which caused me to deviate somewhat from that decision, not for my own information—because that was a thing quite settled in my mind—but for the information of others. In the commencement of the season I was prepared and intended to work my ten double-queened stocks through the honey season of 1892, but in order to compare results and make the matter as plain as possible I decided to change my plan, and work five double and five single-queened stocks through the season, and very carefully note results. It perhaps will not be out of place just to say once more that the double stocks have two queens in each, divided in centre of hive with the thin wood perforated dummy, so that neither queen nor bees can pass beyond their own part of the hive; but at supering-time a sheet of queen-excluder zinc is placed on top of frames, and on this the super, into which both lots of bees are allowed to run and mix together as they please. In working them I may say that I have done my very best with both double and single-queened stocks. Most of my hives hold fourteen standard frames, though I consider a hive of this size ii not large enough for the two queens, and so, when more room is wanted for brood, I put a box of shallow frames, with a thin, solid dummy in centre, exactly over the perforated one below. This I thought would give plenty of breeding-room, and I wished to prevent swarming as much as possible. I have not, however, made a success of that part of the business yet, as three of my double stocks cast off very large swarms. I weighed one of these swarms, and there was in it a good bit over fourteen pounds of bees. This swarming was not all loss, as the combs and brood of the standard frames in each hive were divided and made up into

nine nuclei, with three frames each. These built up to nine very strong colonies, which have enabled me to make up my five single stocks into double ones, besides replacing four queens which have already gone through two full seasons' work. The hives from which the swarms came off were — after removal of the brood combs — prepared for the swarms to be returned by filling the standard bodies with frames, some of empty combs and others with full sheets of foundation; Above these were set the boxes of shallow brood combs, and all supers just as they stood before swarming. This done, the swarms were in each case returned, and in less than an hour from the time it came off the swarm was back in the hive and apparently working-away in the super harder than ever. I had intended to weigh the honey taken from each hive separately, but could not spare time for that, so had to content myself by carefully counting the combs taken from the single hives and extracting the lot. I also counted the sections taken from the latter, and of course whatever remained over came from the double-queened stocks. I estimated the weight of honey taken from each single hive by averaging the weight of all the combs containing honey, so that I might give to each stock the amount of credit it deserved. Any way, though I may be a little out in the amount yielded by single hives, the total's are correct. I propose distinguishing the five single hives thus:— No.1 gave 29 lbs. surplus extracted honey; No.2 gave 37 lbs. surplus extracted; No.3 gave 14 lbs. surplus extracted,, besides yielding 27 lbs. in sections; No.4 gave 46 lbs. surplus extracted; No.5 gave 52 lbs. surplus extracted; being an average of 41 lbs. each. The five double hives gave 762 lbs. surplus extracted and 27 lbs. surplus sections, total, 789 lbs. or a grand total from all the hives of 994 lbs. Had there been one more pound it would' have given an average of 158 pounds from each double -queened hive, as against forty one pounds from each of the single ones. This, I think, ought to make very clear a comparison, between the two systems. I have not yet extracted the wax, but I should think there will be about thirty pounds. My financial position' with the bees this year stands thus: I have —

	£	s.	d.
940 lbs. extracted honey, say at 8d. lb.	31	6	8
54 „ comb „ „ 1s. „	2	14	0
30 „ wax „ 2s. „	3	0	0
	<u>37</u>	<u>0</u>	<u>8</u>
Total expenditure	5	1	10
Balance for labour, &c.	<u>31</u>	<u>18</u>	<u>10</u>

In addition I have forty standard brood combs with more or less honey in them. These I keep for extending nucleus hives when they require more room, or for extra food for stocks if required in the spring I have also 150 empty standard brood combs, and 150 shallow-brood combs for enlarging brood nests when required, besides about 400 shallow stock, combs for extracting purposes; all these have been piled up in surplus boxes, one upon the other, to a height of about fourteen feet, and the fumes of burning sulphur passing up through and round about them for over an hour. This fumigating is, of course, done out in the open air. The combs were then taken into the store-room and piled up one upon the other from floor to ceiling, this time with a sheet of newspaper and a lump of naphthaline placed between each crate. They will remain so until they are wanted next spring. The take of honey this year is much below the average in this district, one reason for this being the preponderance of wet weather and so little

sun; another reason is that we have had no white clover to speak of, and the sainfoin this year was grown about one mile from my apiary, instead of having about thirty acres of it close to, as in previous years. I drove five skeps for a neighbour whose apiary is about a quarter of a mile away and nearer to the crop of sainfoin, and he told me he had taken but eight or nine pounds of honey from the lot, an average of less than two pounds per skep. For another neighbour whose apiary is close to the sainfoin, I drove ten skeps, and from these I calculate that he got from sixty to seventy pounds of honey, or an average of about seven pounds per skep. Now, from the above, I think we must conclude that it pays very much better to work with two queens in one hive than to work with but a single queen in one hive, and enormously better than keeping bees in skeps. No doubt there is yet very much to be learned before reliable results can be stated. The above is my contribution to the general stock of knowledge, and I hope we shall hear of many of our bee-keeping friends trying the system and giving reports, so that we may live and learn from each other. I hope to be able to attend the Annual General Meeting of the BBKA, and to hear something said upon the subject. I shall be very pleased myself to answer any questions put at the meeting or previously through your columns. It must, however, be understood that when I built my hives, I had no thought of working two queens in each, or I should have made them to hold twenty standard frames instead of fourteen; those who have hives that hold but ten frames or more, can use them for two queens by giving two stories for brood nest with the dummy in centre of each, and if one dummy is well perforated, the other one might be a solid board. If the combs run parallel with the entrance, of course there must be another entrance cut at the back, and if the frames run at right angles to entrance, it is best to put a division on the flight-board, and to extend up under porch, otherwise the two lots of strange bees might fight; but after both lots have been in the hive for three or four days the division-board under porch might be done away with. When I am raising two or more queens in one hive with entrance at right angles to the frames, I usually put a good-size division on flight board and paint of different colour; but I have had them mate and return safely without any division whatever outside.—G Wells, Aylesford, Kent, October 31st, 1892.

(November 10, 1892). *British Bee Journal, Bee-Keepers' Record and Adviser* **20**:442. Kent beekeepers Association Notes. A letter from Mr G Wells was read, in which he gave an account of his apiary doings for the past season; showing the results under two systems of management, viz the ordinary, plan of working with one queen, and that under what is known now as the Wells system. The general result is a grand take of honey, and the establishment of the immense superiority of the latter over the former method; but as Mr Wells intends shortly to publish a full statement of the working, the details are now reserved.

(November 17, 1892). *British Bee Journal, Bee-Keepers' Record and Adviser* **20**:447. Notes by the Way. [Letter 1219]. Since my last we have had weather characteristic of the season — heavy fogs day after day, with only one or two days on which we have had a few hours' sunshine; yet, with a mild temperature, the bees have been on the wing a little every day—at least, some of the more reckless ones. When about the apiary, I am often tempted to moralise on similitudes between the genus *apis* and the genus *homo*. I find so many points in common

between the two. Some stocks of bees are quietly resting from their labours, while the next, perhaps better supplied with stores, are continually on the alert, and will take any mean advantage over weaker or less-guarded hives, and this restless activity is not confined to the usual hours in which the bulk of the stocks are on the wing, but early and late they are on the *qui vive*. This is one point I have noticed many times, but space forbids to mention others that crop up too fast for utterance. I thank Man of Kent for turning the bullseye of his criticism on our sayings and doings; so that it reveals our weak points it answers a good purpose, and will help to keep us to the subject upon which we can speak with practical knowledge. I apologise for touching the foul-brood question, but its magnitude and the difficulty of dealing with so insidious a foe called forth my clarion cry, or (shall I say?) I hope my note has been as a beacon fire to call the clans together to fight our common enemy. I have tried to impress the necessity of thoroughness in all preventive measures, and, as this part of the field is where my duty lies (though, perhaps, our Man of Kent may say it is a self-imposed one), yet I feel it a duty incumbent on myself to carry the torch. Depend upon it, friend, that prevention is better than cure; and since I have appended my own name to my notes, instead of Woodleigh, as formerly, I get a wide correspondence on all subjects connected with bee-culture, foul brood amongst the rest, so that, theoretically, I am fairly well posted. What I have written has been *pro bono publico*, without reservation; my only regret has been that I have not had better advice to tender or a more facile or graphic style in which to convey my attempts to educate our less fortunate members and novices in the craft. Meanwhile I content myself with urging upon all who have the welfare of bee-keeping at heart to endeavour to secure unanimity in the application of preventive and sanitary means for the eradication of the foul-brood pest from our apiaries—nay, our islands, and may our efforts be crowned with success. The thanks of bee-keepers are due to Mr W tells for his lucid letter (Letter 1214, p.438). One or two little points, however, I would thank him to clear up. He says he had ten double-queened hives in spring of 1892, that he ran five through the season with single queens, and five as double-queened hives; that his hives hold fourteen frames. Now, may I ask him if at the beginning of the season he removed one queen from each of the five hives and the separating dummy, and allowed the remaining' queens the whole of the frames, or if he removed the queen and colony from one side of dummy of each of the five hives that he intended to run as single-queen colonies, and that the colonies had to build up from seven frames to ten frames? If so, this may account for the wide difference in output of single and double colonies; but if all the frames were left in, or the number reduced to ten frames, leaving the brood and bees only, and taking the four empty combs out, if this premise is right, it speaks forcibly in favour of Mr Wells' system. The period he got his hives into shape for the season and the time of opening of honey season will all help one to judge of the merits of the system, because, if the single-queen colonies were disturbed only a short time before the honey-flow, that would militate against the single-queen colonies, as the two-queen colonies, not getting this disturbance, would keep breeding straight away, whereas the hives that had been disturbed to reduce them to the required single-queen condition must be retarded in breeding, and 10,000 bees, when honey is everywhere, will make a considerable addition to the income of a hive. I have a few twin hives holding some twenty four frames that I intend running on Mr Wells' system another

season. All I shall have to do will be to take out the division-board and perforate the same, and lay on my sheet of zinc over the top of frames. This will enable me to verify the fact as to the absence of brace combs when zinc is used under the crates of sections. —W Woodley, World's End, Newbury.

(November 17, 1892). *British Bee Journal, Bee-Keepers' Record and Adviser* **20**:449. Price of honey and wax. [Letter 1222]. Mr Wells has interested many readers of the *Journal* by showing how to obtain a large average of honey per hive, and I am sure he would also greatly interest the same readers if he would tell them how he manages to get such a high price for his honey and wax. Most bee-keepers can only get 8*d.* for sections, 7*d.* for extracted honey, and 1*s.* 4*d.* for wax. My grocer sells honey in glass jars at 7*d.* per pound. —Honey, Essex.

(November 17, 1892). *British Bee Journal, Bee-Keepers' Record and Adviser* **20**:451. [Letter 1891]. Having read of the Wells system, I made a hive capable of holding eighteen frames, and during Whitsun holidays, I put Nos.6 and 7 into it, following up the instructions as near as I could under the circumstances. No.7 was a very small lot, but had a good queen. My returns are as follows: No.1, 75 pounds. No.2, 22 pounds and a cast (swarm decamped). No.3, 60 pounds. No.4, 42 pounds. No.5, 73 pounds. No.6 (Wells), 85 pounds. Making a total of 357 pounds. I have also about 4 pounds of beeswax, besides a good number of shallow frames of comb. I sell my honey at an average of about 9*d.* per pound. My outlay was about three sovereigns for this season. I should have had more honey if I could have given more supers, but was obliged to neglect the bees just in the midst of the honey-flow. About 18 pounds of sugar will winter them. I am but a novice, and owe my success largely to the BBJ, and I therefore take this opportunity of expressing my gratitude, both to those who conduct and those who contribute the articles that go to make the BBJ both interesting and useful. I may just add that I am a working man, and go in for home-made appliances. I have a growing conviction that the let-alone system is far the safest for novices, and that it would be far better if young beginners were to content themselves with only those manipulations that are absolutely necessary, until they have learned from practical experience what a bee really is. I might ask a lot of questions, but I prefer to wait and think first, and also watch the columns of the BBJ, and consider over what I have read.— South Bucks.

(November 17, 1892). *British Bee Journal, Bee-Keepers' Record and Adviser* **20**:451-452. An amateur's success. [Letter 1228]. For the encouragement of brother amateur bee-keepers I send you a few notes of my success hitherto. In June, 1890, I purchased two new bar-frame hives, knowing nothing whatever of bees. I got the hives populated by a small swarm and a driven stock from a skep which had swarmed. Seeing the process of driving, I learned to do that at once, and soon obtained a number of driven lots from cottager skeppists in the neighbouring villages. But whilst I gained largely in experience of handling bees, my results were poor indeed. I attempted to unite driven lots with those in the bar-frame hives, and I groaned in spirit at the awful slaughter which ensued, and learned, with amazement, that insignificant insects, whose moral character I had deemed irreproachable, knew how to fight. The method of uniting with flour had not then been made known in your valuable paper. How many times I have

proved its efficacy since! My frame hives were weakened rather than strengthened, so I set up other driven lots in new skeps — a single driven lot in each new, unpropolised skep, and no comb provided! What availed it that I gave nearly thirty pounds of good syrup to each stock, and wrapped them ever so warmly? I just worked all the energy out of those poor bees, and early in the spring of 1891 they departed this life leaving me two poor, weak lots in the frame hives. I got no honey from these, but I set to work and built a good hut, and made a number of bar-frame hives, with their supers, and deep and shallow frames too. I got more bees, united weak stocks with flour in the autumn, put eight stocks into wintering form, and had the pleasure this year of finding they had all wintered well. From these eight stocks I have taken 260 pounds of honey — an average of thirty-two and a half pounds per hive, which, on this side of Staffordshire, in the past poor summer, I deem no mean success. I prevented four of the seven frame hives from swarming. Three and a skep swarmed. I have now fourteen good stocks in frame hives and one skep. Eight of the queens are of 1891, and seven were hatched this year. With good wintering, these should do very well next year. Immediately upon your publication of Mr Wells' success with two queens in a hive, I made a Wells, to hold twelve frames, on each side the perforated divider, accurately following his directions. In this hive I have two fertile sister-queens of this year, and a goodly number of bees on twelve frames, six each side. From this I hope for a good result next year, and shall be glad to report it to you. Mr Wells' last letter (Letter 1214, p.438) is, however, so cheering that I shall not wait to test one only, but am commencing to make another. I enclose you a photograph of my apiary and hut. Four of my stocks work through entrances into frame hives on benches inside. Hives like these need no paint, no roofs, and they winter very well. Two face east, and two south; and, with care, I find I do not disturb them with hive and frame-making inside. Of the honey taken this year I have already sold, without advertisement, 5 l. 9s. 3d. worth, at 1s. per pound. Despite my first failures, this one season has convinced me that bee-keeping can furnish, not only entrancing study and recreation, but that it may be made a financial success. It will be understood that all my hives and frames are of standard size. — Horninglow Cross, Burton-on-Trent.

(November 24, 1892). *British Bee Journal, Bee-Keepers' Record and Adviser* **20**:459-460. The Wells System. [Letter 1233]. I see in BBJ for November 17th, 1892 (Letter 1219, p.447), our esteemed friend Mr Woodley would like me to give a little further explanation regarding the five hives which were run through the season with but one queen in each. I will do my best to clear up the matter, but must go a little further back than last spring in order to make it as plain as possible. In the autumn of 1891 I had several surplus queens, and, instead of destroying them, I resolved to try and keep them through the winter in order to be able to choose the best when breeding commenced in earnest in the spring of 1892. The plan I adopted to preserve them was as follows: —I put in one hive three perforated dummies, and inserted one queen between each, with three frames of food and a little brood. Three other hives were divided into three lots in the same manner, but each had four combs. If I remember rightly, all these lots survived the winter; but, strange to say, most of them were short of bees in the spring, and before I had time to select the best queens, a severe case of robbing occurred. The strong lots attacked the weaker ones, and in one or two instances

the bees and queen were all killed and the stores carried off. The brood in those hives where the bees were killed, of course, became chilled, and perished. This mishap occurred while I was away from home, and it took several days before I could finally stop the fighting and robbing. I still, however, intended to work them all with two queens in each, and I divided bees and brood to make them somewhat even in strength. I do not say these five hives were equal in strength to the other double lot; but by the latter end of May the bees in them well covered the fourteen frames, so that they were equal to very strong single stocks. A few days from this time, and as already stated, I decided to run five double and five single-queened stocks for the season, and therefore removed the five most backward queens, and allowed the bees of both lots to join forces under those left at the head of the colony. So each queen had the whole of the fourteen frames of brood and food to itself. These stocks were supered when required in the usual way. The five double-queened stocks had been storing surplus quite two weeks before, but the greatest glut of honey commences to flow here generally about the middle of June. I think, if I say that we had five good, strong single stocks in the spring, and five double-queened ones at the same time, I shall not be far wrong—at any rate, that is my opinion. I will just say that my son keeps the bee-account, and he has no notes regarding the robbing incident and the removal of queens, otherwise I might have given the particulars accurately. However, having talked the matter over, we believe the account as it appears in your pages is as nearly right as can be. Another one of your correspondents (Letter 1222, p.449), asks me to tell him how to get such good prices for his honey and wax. In reply, I can only say that all my sections this year have been sold retail 1s. each, while from dealers I have never had less than 10s. 3d. per dozen. For extracted honey put up in bottles, I get 1s. each retail for full pounds and lid. for nominal pounds, and dealers give me 10s. 3d. per dozen for the one and 9s. 3d. for the other. Persons who bring their own vessels for honey get one pound for 10d., two pounds for 1s. 6d., and for larger quantities I take a little less; but I have never had less than 7½d. per pound in bulk. So I think I am safe in saying that what I have stated is on the right side. For wax I have no trouble in getting 2s. per pound (for some I get 2s. 6d?). I should be very glad to inform others how to get these prices, but cannot go beyond accurately stating what I do myself, and this has been done.—G Wells, Aylesford, Kent.

(November 24, 1892). *British Bee Journal, Bee-Keepers' Record and Adviser* **20**:461. The Wells System. [Letter 1237]. As I am favourably impressed with Mr Wells' account of his season's trial with his double and single stocks of bees, I intend, all being well, trying his system with two or three twin hives I have, holding twenty-four frames each, another season, and as he has kindly offered to answer any questions on the subject through the *Journal*, would he please explain how his double stocks are both provided with queens when he returns his swarms, as I understand the bees to swarm out simultaneously from each part of the double hive, and, of course, unite into one huge swarm? And, under such circumstances, I always find the swarms are almost inseparably joined, and generally one queen is quickly killed by the other; but if not killed, it is a very difficult matter to find each queen and separate the swarms. How docs Mr Wells manage this? The brood combs are, I note, all taken away before returning the swarms, so that in the event of one lot being queenless when returned, they could

not raise a queen.—H Neve, Warbleton, Sussex; November 17th, 1892.

(November 24, 1892). *British Bee Journal, Bee-Keepers' Record and Adviser* **20**:461. Two queens in a hive. [Letter 1240]. I have been greatly interested in Mr Wells' description of two queens in one hive, which I think a decided improvement for many reasons. I should be much obliged if Mr Wells would kindly answer, through the columns of your valuable *Journal*, the following questions: —

1. What thickness is his perforated dummy (mine is one inch, but this I could reduce)?

2. How many perforations to the square inch in the dummy, and do they continue from top to bottom of the dummy? I have made my hive of two three-quarter-inch deal boards screwed together, with one-eighth-inch thickness of warm felt between, so that I have no fear of my bees suffering from any amount of cold.—

HS Chapman, Sandon, Frodsham.

[Note not replied to but widely canvassed in BBJ]

(December 1, 1892). *British Bee Journal, Bee-Keepers' Record and Adviser* **20**:470. The two queens in one hive system. [Letter 1244].

Referring to Mr Wells' letter re the two-queen system, may I say that the principle of two queens in one hive has been adopted by me for the last five years, and that I exhibited a ten-framed hive at the Windsor Show, in which five spare queens could be kept through the winter for use in the following spring. The hive was passed over by the judges as useless, as no mention was made of it in any report of the show that I saw, therefore I did not again exhibit it, though not without hoping that some one would eventually find out the advantage of the principle, and that I might then have my buzz. Now, however, that Mr Wells' letters have been made public, I think I may be allowed to give my opinion, seeing that I have kept the hives in use ever since, and have one at the time of writing with two queens in. I became convinced that two queens would live in one hive during my experience in driving bees from straw skeps in the course of my work, for I found two queens in one skep living apparently in health and good temper, with no disposition towards fighting. This set me thinking that if two queens would agree in a straw skep why should they not do so in a frame hive? This happened in the autumn of 1885. In the following year I had an exactly similar experience, and at once decided to put two stocks of driven bees into one hive, dividing them with fine perforated zinc. To my surprise this double stock got on well —so well that I decided to again divide the hive, so that I could put in five queens in the several compartments. Within two weeks of the time of introduction all five of the queens were breeding, and when the bees were allowed to run together there was no fighting. Not being content to keep this discovery to myself, I determined to call in the late Mr S Stuterd and Mr JW Symington, who both saw all five queens with their brood, and the bees mixing together without quarrelling or upset. Both gentlemen expressed their surprise and pleasure at my success. All the queens lived through the winter, and four of them I sold at 5s. each in the following March and April, so that my first venture with multiple queens was a paying one. And I believe that the two-queen system will be eventually adopted by every bee-keeper who wishes to be successful. If there should be anything not understandable in the above I will try to make it plain to any one interested. Wishing success to the two-queen principle and to Mr Wells. —John Perky, Banbury.

(December 1, 1892). *British Bee Journal, Bee-Keepers' Record and Adviser* **20**:471. One more from Bucks. A good harvest in 1892. [Letter 1247]. Not having contributed anything to the BJ for some time, and having received much valuable information in the six years of my bee-keeping from its pages, I feel it my duty to say a word to encourage younger bee-keepers. I began the year 1892 with four frame hives. They came through the winter very strong, and they got well to work on the fruit blossom, and that gave them a good start. My results from the four lots are as follows: —No.1, 96 pounds of extracted honey; No.2, 110 pounds of extracted and a swarm (the only one I had); No.3, 84 pounds in surplus boxes; No.4, 105 pounds in ditto. I have packed them all up snug for winter with plenty of bees and food, so that I can rest content till the spring of 1893. I have read with very great interest Mr Wells' experiences with his new system, and I think no one can say but that it is a perfect success. May he have as good a harvest next year. I mean to try the plan, although I consider I have done well with one queen in each hive. I have found there is nothing like young queens to head stocks. Mr Woodley, in his Notes by the Way, has given us young bee-keepers much valuable advice. I should feel pleasure to have a long talk with a man of so much experience. On the question of fourteen ounce bottles, my experience has been quite different from that of your correspondent, Mr Brown (Letter 1225, p.450). My customers ask for a one pound bottle of honey, and when I cannot make bees pay by serving them with one pound bottles I will turn bee-keeping up, as I consider it will not do bee-keeping any good to act otherwise than as I do.—A Nicholls, Bucks.

(December 1, 1892). *British Bee Journal, Bee-Keepers' Record and Adviser* **20**:472. Two queens in each hive. [Letter 1249]. I am very pleased to see that Mr Woodley means to try the Wells system by the aid of twin-hives, as, if circumstances permit, I am very much inclined to do so myself. Before, however, experimenting, I beg leave to submit to you and your readers my proposed modus operandi tor criticism, favourable or otherwise. A twin-hive, capable of holding twelve bars in each compartment and fitted with the orthodox perforated division-board, will be provided. The alighting-board will extend along the whole length of one of the long sides of the twin-hive and so ivill the entrance too, which will thus be about thirty-six inches long, but a strip of wood twenty inches long will be made to close the middle portion of the entrance, leaving an eight-inch entrance at each end of the hive front. Of this strip more anon. To stock the hive, two single hives standing side by side, and having from eight to ten seams of bees, will be selected, and one of them walked till the entrances of the two are about thirty-six inches apart, as are those of the twin-hive. So soon as the bees of the walked hive have marked their new locality, and on a warm afternoon to avoid chill, the two stocks will, after being thoroughly quieted, be moved from their stands, and the twin-hive set in their place. The bees and bars will then be lifted carefully from each stock and placed in the separate compartment provided for it. In placing the bars, those containing brood and stores will be placed next the perforated division-board and the empty and unoccupied ones next the entrance. The bar at each end will be all the better if fitted with an inch starter, as it will then be possible to dabble a little in Mr Simmins' method of swarm-prevention. After covering down so to be safe against strife overhead, a partition will, if thought

necessary, be placed midway between the entrances, and extended from the porch to the alighting-board. And now for the aforementioned strip of wood. After a few days, the strip will be carefully removed so as not to disturb the bees, two pieces each two inches long will be cut from it, and the remainder replaced in the middle of the long entrance. Then one of the two-inch pieces will be used at each end to close up part of the entrance. This process will be repeated as often as may appear desirable until the whole of the strip is consumed. The entrance will then be a sixteen-inch one in the middle of the hive front, and the hive very much like a Wells hive. If the foregoing plan prove practicable, all the time, risk, trouble, and room required in raising nuclei will be saved.—EB

(December 1, 1892). *British Bee Journal, Bee-Keepers' Record and Adviser* **20**:472. Queries and Replies [Query 683]. The Wells division-board.— Would you kindly say how thick the division-board should be between two lots of bees in one hive after Mr Wells' system, and how perforated? —JBG, Ealing.

Reply.—The dummy or division-board used by Mr Wells is less than a quarter of an inch thick, the perforations being made by a hot wire pushed through the wood. The size and number of the perforations and the method of boring the latter are matters which may be left to the maker, but a fairly good-sized perforation—so long as a bee cannot pass through—and plenty of them, will, in our opinion, render the division-board more effective. If the perforations are too small there is an increased chance of the bees propolisising up the holes.

(December 1, 1892). *British Bee Journal, Bee-Keepers' Record and Adviser* **20**:472. Queries and Replies [Query 684]. Food consumed in winter by single and double stocks.—

1. Would your correspondent, Mr Wells, be good enough to give us some details as to the weight of honey consumed during the winter and spring months by his double stocks? Do they consume more or less than single stocks?
2. Does he stimulate his bees in spring?
3. Is carbon, such as is used for increasing the light from gas, suitable for placing among quilts and in hives as a preventive against foul brood? The district around here appears to be quite free from it, yet perhaps it is as well to take precautions.
4. Will you kindly give me a few hints for starting a bee-keepers' society in this neighbourhood? — OB Bartleti, Witney, November 20th, 1892.

Reply.—

1 and 2. If Mr Wells is not already overrun by the numerous queries addressed to him, no doubt he will reply to yours.

3. Yes, it will answer very well.

4. The Secretary of the BBKA, Mr J Huckle, Kings Langley, Herts, is better able to give information as to starting Associations than any one in the kingdom, we suppose; write to him.

(December 1, 1892). *British Bee Journal, Bee-Keepers' Record and Adviser* **20**:474. Notices to correspondents and inquirers. Letters or queries asking for addresses of manufacturers or correspondents, or where appliances can be purchased, or replies giving such information, can only be inserted as advertisements. The space devoted to letters, queries, and replies, is meant for the general good of bee-keepers, and not for advertisements...

(December 1, 1892). *British Bee Journal, Bee-Keepers' Record and Adviser* **20**:474. Cuthbert Bede (Durham). — The Wells System. — We have on several occasions strongly deprecated any departure from the particular adaptation of the plan of working two queens in one hive known as the Wells system, as followed by Mr Wells himself, and if our correspondent refers to *Bee Journal* for April 7th (p.132), November 10th (p.438), and November 24th (p.459), full particulars will be found therein of the method and its working as described by the gentleman who is naturally better qualified than any one else to speak on the subject.

(December 8, 1892). *British Bee Journal, Bee-Keepers' Record and Adviser* **20**:478-479. Preserving queens when returning double swarms: the Wells system. [Letter 1252]. In BJ for November 24th (1237, p.461) Mr H Neve asks how I manage to provide both portions of my double-queened stocks with queens in returning swarms? If I am present when the swarm issues, I watch for the spot where the bees intend to settle. When that is seen, I make for it, and, keeping a sharp look-out, capture one queen, if possible, and cage her. This queen is then put into a warm place until the hive is ready for returning the swarm. When all is prepared, I place the caged queen in one half of the hive, and block up the entrance to that portion, so that neither bees nor queen can pass in or out by that way. I then let the whole double swarm run into the other half of the hive, to which the entrance is open and free. The bees pass up through the excluder zinc, and so populate both sides of the hive, as they did before the swarming took place, While both queens are preserved. If you cannot succeed in capturing one queen as above, the swarms often settle in such a way as to show where each queen is by forming two separate balls or lumps as they hang in the cluster, somewhat similar in shape to two loaves of bread stuck together. In that case I get a skep, and gently work its edge between the two lumps of bees; then quickly brush one lot into it, and set the skep and bees on a cloth on the ground. The remainder of the swarm is then shaken into a second skep, and set on the ground a little way off, a very few minutes sufficing to show whether there is a queen in each skep or not, because the bees will soon desert the skep into which they have been shaken if there is no queen with them, and will join the lot where the queen is. Under such circumstances, if I have a spare queen on hand, I put her in one side of hive, as I do with a captured one, and let all the bees run in the other side. Otherwise I should leave a frame of brood, with one ripe queen-cell upon it, on one side of hive, block it up, and return swarm in other side. In the latter case, of course, I've have but one laying queen for three weeks after swarming, and so it is important to secure the old queens, if possible. Of course this might be done with the help of a self-hiver if the hiver had a division in it. Another correspondent (Letter 1240, p.461) wishes me to describe the perforated dummy which I use. I beg to refer him to my letter in BBJ for May 19th last (p.193), where the dummy is fully described. —G Wells, Aylesford, Kent, November 26th.

(December 8, 1892). *British Bee Journal, Bee-Keepers' Record and Adviser* **20**:482. The Wells' System and working for sections. [Letter 1258]. In following the accounts of this mode of working hives, nothing has yet been said respecting the kind of section crate to be used. Would one holding forty-two be too large? This would go quite over the tops of frames, without any hindrance to the bees from

either side of the hive mixing with each other in and under the crate, whereas if two crates of twenty-one sections each, placed end on, be used, the sides would touch in centre, and, being made flush, would present a difficulty for a free circulation of bees all over the frames, on account of the bee-space under crates being blocked mid-way. Will Mr Wells kindly say which he adopts or recommends for a hive containing twenty brood frames, i.e., ten on each side of perforated division board? I presume Mr Wells does not remove the division board from brood chamber when working section crates. —JHN, Watford.

(December 8, 1892). *British Bee Journal, Bee-Keepers' Record and Adviser* **20**:483. Queries and Replies. [Query 692]. Dividing Stocks after Swarming.—

If (on the Wells system) a double hive swarms, and I remove six or eight frames of brood into an empty hive, divided in centre with perforated board, have queen-cells in each compartment, place queen-excluder on top, but allow passage for bees from the one compartment to the other, may I expect one or two fertile queens? —Alex Strathdee, Ballindalloch, NB.

Reply.—Reference to Mr Wells' own statement, printed in our pages, shows that his plan is to divide the brood combs of the hive after swarming into about three lots, each of which has a good queen cell left. Each lot is kept separate in a small nucleus hive, and being put away in a warm corner and fed, in due time the queens hatch out, become fertilised, and form the small nucleus colony (with a young fertile queen), which he adds to his stocks in autumn. You cannot do better than follow closely Mr Wells' plan; but if you, in preference, form two nucleus hives by dividing one of ordinary size, there is no reason why you should allow the bees to mix before supering-time. Indeed, it would be risky to do so.

(December 15, 1892). *British Bee Journal, Bee-Keepers' Record and Adviser* **20**:487. Two queens in one hive. [Letter 1262]. I was much interested in reading Mr Wells' account of his doings (Letter 1214, p.438), and seeing that he has promised to answer any questions relating to them, I should be glad to ask him two or three. First, then, is not a swarm (from any hive) of over fourteen pounds something enormous? I think so. I should be very glad to hear of other bee-keepers' experiences of the weight of natural swarms. When I started bee-keeping, I studied Mr Cowan's Guide-book, and was much impressed with the data given on the weight of swarms. Almost invariably I have weighed my swarms, and many that I have hived for others, both from skeps and bar-frame hives, yet the heaviest I have ever known was nine pounds, and I believe that to have been two united. Secondly, is not thirty pounds of wax a very large quantity to obtain from one year's working of such a small number of hives, my experience being that it takes a great quantity of old comb to produce a very few pounds of marketable wax? I don't think I have had as much during my whole seven or eight years' bee-keeping. Thirdly, has the immense number of over seven hundred combs mentioned all been used in the five double and five single hives this season, besides those left to winter on? If they have, no doubt a great many more bee-keepers, older in the craft and abler than myself, would be very pleased to know how they were managed, especially as Mr Wells says the take of honey in his district was much below the average. — The Village Blacksmith.

[We quite believe that, in writing as above, our correspondent had no intention whatever of being offensive; yet his questions are not questions at all, as he puts

them, but rather imply a doubt as to the perfect accuracy of the statements referred to. To ask Mr Wells if a swarm weighing over fourteen pounds is not something enormous could only evoke the reply, It is enormous, but, nevertheless, quite true. And, as we must suppose that Mr Wells has spoken truthfully throughout, it is scarcely in good taste to ask that gentleman whether he has, or has not, been romancing. For ourselves, we have perfect confidence in Mr Wells, and in all that he has said, and, if approached in the right way, have no doubt that he would willingly give a practical verification of what he has done to any one wishing to visit him in the honey season. As for the size of the swarm, we see nothing at all wonderful, considering the strength of the double-queened stocks, and the width of the entrance—nearly two feet—in the fact of fourteen pounds of bees swarming out from such a colony. — Eds.]

(December 15, 1892). *British Bee Journal, Bee-Keepers' Record and Adviser* **20**:489. Amount of food consumed in winter by double-queened stocks. [Letter 1265]. In Letter 684, p.472 CB Bartlett asks what amount of food is consumed during winter and spring by double-queened stocks. They certainly do not consume so much in proportion as single stocks, but I cannot state the exact amount. I winter each stock on seven combs (standard size), and if each of these seven combs are about two-thirds covered with sealed stores, I consider the bees quite safe until the middle of the following March or beginning of April. Then, if food is wanted, I remove an empty comb or two, according to amount of food then in the hive and the quantity of bees, and replace with combs of sealed stores, which I keep in stock for the purpose. No further stimulating is needed, for I always find them much more forward than single stocks, even when these latter have been stimulated.—G Wells, Aylesford, Kent, December 6th.

(December 15, 1892). *British Bee Journal, Bee-Keepers' Record and Adviser* **20**:491-492. [Query 696]. Adapting hives to the Wells System. — I have four hives, holding twenty four frames each. Two I am running on the Wells principle, having this autumn divided the hives, and placed two good lots of driven bees in each hive.

1. Would it be wise to make the entrance at the ends of the hive, instead as now all the length of the front? Would it not lessen the excitement during swarming? The work could easily be done.

2. Again, could I not with the other two hives, when in good condition, divide the same as if I were making an artificial swarm? Would the bees raise a queen if so divided? —ET, Bridgend.

Reply. —

1. Having two entrances would not lessen the swarming excitement, because on the Wells plan the offspring of both queens are practically one colony, mixing freely in the surplus chambers.

2. We strongly deprecate any variations from Mr Wells' own method when carrying out his system. Besides, we see little advantage to be gained by forcing a portion of the bees to raise another queen at the busy season, and would, in preference, work two single and two double-queened hives this year, for the purpose of comparing results in your hands.

(December 15, 1892). *British Bee Journal, Bee-Keepers' Record and Adviser*

20:498. Notes by the Way. [Letter 1272]. ...Why, if we adopt the Wells system, and increase our output of honey by one-half, we shall not be able to do so—this starts another train of thought, and doubtful questions will crop up as soon as one thinks of this system; first, why should a perforated dummy between two colonies, and a super common to both colonies above the perforated zinc laid on brood frames, increase the output of honey from that hive of two colonies working in common, than if the dummy or dividing-board were plain, and each colony worked in separate supers? Who will answer this question? I have a few twin hives, as they were called when first brought out early in the eighties, and my bees have done very well in them, but they are not so handy for manipulating as a single hive, and, notwithstanding the thin wood dummies in use between the colonies, the said colonies do not cluster close on each side of the thin division-board for mutual warmth, as the idea and expectation was that they would do when the hive was first introduced; and, of course, being quite separate colonies, the results of each season have been classed as two colonies—thus, if the twin hive produces in a season one hundred and forty pounds of honey, I should say those colonies have both produced seventy pounds each—not say, that hive has been the best in the apiary this year...

(December 22, 1892). *British Bee Journal, Bee-Keepers' Record and Adviser* **20:499.** Size of section racks for double-queened hives. [Letter 1274]. Replying to the question put to me by JHN (Letter 1258, p.482), he can either have his section racks made to hold forty two sections and to cover the whole surface of the top of his frames, or he can use those holding but twenty one sections by placing them end to end; but in the latter case he must cut away a bee-space from ends of the two racks which meet in centre of hive, thus giving the bees free access to all the sections. But by no means must he remove the perforated division-board; and if he mounts his queen-excluder zinc on strips of wood a quarter of an inch thick, be sure to let one of these strips be placed so that it runs right along over the top of division-board (perforated), when the excluder is in position between sections and tops of frames, or the zinc might buckle a little, and possibly let one of the queens slip over the top of division-board, which of course would entirely frustrate the object in view. —G Wells, Aylesford, Kent, Dec. 13th.

(December 22, 1892). *British Bee Journal, Bee-Keepers' Record and Adviser* **20:499-500.** A quadruple hive. [Letter 1275]. Being one of those bee-keepers who manufacture all their own appliances, I have made a hive to work something on the Wells system. It is of three-quarter-inch stuff, thirty six and a quarter inches square outside measure, and holds four stocks of bees with their respective queens, the whole occupying forty four standard frames. The dummies, or perforated division boards, are three quarters of an inch thick, with plenty of small holes, so that the warmth may pass from one stock to the other. A large queen-excluder will cover the tops of all the frames to keep the queens apart, while the bees of the four stocks will have free access to all the sections and shallow frames placed above. If so disposed, I can have 128 sections at one time on the hive. I am going to try this big hive next season, and will report results, whether successful or otherwise. I have forty stocks, in frame hives and skeps, and have not had a single swarm this year. From one of my skeps, having a

square wood top, I took this season two boxes of honey in shallow frames (thirty pounds in each), two racks of twenty one one pound sections, another rack with ten of the same size, and finally an octagon super holding ten pounds of honey, or a total of 122 pounds from this single stock. We are fortunate in having a fine flow of honey from the gooseberries, on which the bees were at work early in the season.—H Seemark, Willingham, Cambs.

[Of course it is not for us to object if readers choose to try combination hives holding four, or, indeed, any number of stocks of bees, and we shall be very pleased to report a success if the experiment turns out such. There must, however, be a limit to such things, and we advise our correspondent to try one only of these big hives, because, without desiring in any way to stifle experiment, we venture to say it will be a great surprise to us if a second one is ever seen in his apiary. — Eds.]

(December 22, 1892). *British Bee Journal, Bee-Keepers' Record and Adviser* **20**:500. Bees in Warwickshire [Letter 1276]. We bee-keepers in Warwickshire have not had an average take of honey this year. My average was thirty-two pounds per hive, twelve hives. We have been troubled with honey-dew. I sent post-cards advising bee-keepers that I had visited to take off the sections when I found that the bees were bringing in very dark honey, but only two took my advice and removed them in time. The sections were in consequence unsaleable and had to be fed back to the bees. I am working two hives on the Wells principle, and would be pleased to show and explain their working to any one who may pay me a visit. today the bees are taking in a little pollen.—R French, December 14th.

(December 22, 1892). *British Bee Journal, Bee-Keepers' Record and Adviser* **20**:500. The Wells System Exhibition-Chicago [Letter 1277]. Through your columns I would like to thank Mr Wells for his great kindness and disinterestedness in explaining to us bee-keepers his method of obtaining such large quantities of honey from his hives by the two-queen system, which information he might very justly have kept to himself had he been so minded, and I regret to see that some of your correspondents appear inclined to heckle him as if he were a candidate at a parliamentary election. While upon this point, I think your foot-notes to Letters 1260 and 1262 might be read with advantage by some of your correspondents, who appear to consider that other correspondents write for some personal motive of their own instead of for the benefit of bee-keepers generally. Among this latter class, I have to complain of Mr Garratt's criticism (Letter 1234, p.460) upon Mr Blow and myself in regard to our remarks upon honey for the Chicago Exhibition; not that I object to being criticised fairly (as I think I can defend myself tolerably well), but I object to his stating that we must surely be suffering under the remembrance of some personal feeling of slight or disappointment. This is a matter upon which he can know nothing. I cannot answer for Mr Blow, but it is certainly not my case. It is true I had another reason, which, out of compliment to those who differed from me, I did not care to express; but if Mr Garratt is at all inquisitive upon the point, I shall be willing to inform him privately.—AT Wilmot, St Albans.

(December 22, 1892). *British Bee Journal, Bee-Keepers' Record and Adviser* **20**:500. Queries and Replies. [Query 698]. Working double stocks. —

1. I should be glad to know whether the plan for introducing two stocks of bees into a double hive, proposed by EB, on p.472 of BJ, December 1st, is a safe one, viz to bring two hives gradually together, and then transfer the frames and bees to the respective compartments of the double hive, with perforated dummy between.

2. If this were done in favourable weather in March, would the bees be sufficiently naturalised to let them work into a common super in May?

3. Whether there is any advantage in having the entrances of the two compartments adjacent to each other in the centre of the hive, or would it not be better if the entrances were at opposite ends of the hive, parallel to dummy, as there would be less difficulty in manipulating at swarming-time? If this method of transfer is likely to succeed I propose trying it this spring, and shall therefore be grateful for advice.— Lincolnshire Rector.

Reply.

1. There is nothing unsafe in the plan proposed by EB.

2. Yes; three or four weeks will secure all the advantages of the perforated division-board.

3. There are advantages in working double-queened stocks when both entrances face the same way, and, so long as the wedge-shaped arrangement, described by Mr Wells, on p.133 of BJ for April 3rd, 1892, is adjusted properly, we prefer that plan.

(December 22, 1892). *British Bee Journal, Bee-Keepers' Record and Adviser* **20**:501. Echoes from the Hive. Honey Cott, Weston, Leamington.— Last week we had a sharp touch of wintry weather with a lot of snow, nearly four inches. It began to melt, so I thought I must just go up amongst the hives and brush off the snow. No small job to sweep about seventy hives, and only about half an hour to do it in. Didn't I think about X-Tractor and his bacon -boxes! How I should have liked it to have melted of its own sweet will! but, nevertheless, I could not endure bacon-boxes, or find a place to put them when not in use. I have found several roofs that I have had to see to at once, taking them down to the house to be dried so that they could be painted, while others I have dried, and painted the cover well, and then tacked on some stout calico, and well painted them afterwards. The lowest temperature here was about nine degrees of frost. This week we have had quite a change to mild weather. today has been warm and sunny, and the thermometer up to fifty-two degrees in the shade. The bees were out in great numbers. I could not help going up amongst them to hear their cheerful hum; but as a rule, after such a turn-out, we generally get some rough weather within a day or two. (December 15th.) It is all very well for our friend JBR (Letter 1263, p.487) to say he will not take less than 1s. per pound for his honey. I think he would have to keep some of it a long time before he got that price round about here. I have some seasons, although not this one, been glad to clear out extracted honey at 6d. per pound. This brings me to have my say about the honey bottles where we have to wholesale it at 9s. or 10s. per dozen. It is quite within our right to sell at so much per dozen bottles as well as per dozen pounds. If any one asks me for pound bottles I would let them have them, but at a higher price. I have sent you an old BBJ for July, 1876, so that you may see what I said about hives two feet six inches long with a division-board and two stocks in each. The reason I abandoned it was, that when one lot started to swarm the other stock got the

fever too. However, I do not think that I tried to work the two stocks into one super as Mr Wells has done. — John Walton.

(December 29, 1892). *British Bee Journal, Bee-Keepers' Record and Adviser* **20**:506. Useful Hints. The double queen system.— We are very pleased to notice Mr Wells so willingly replying to all inquiries regarding the big results recorded by him in our pages. To those hearing of these large harvests and reading details of such successful bee-work there is nothing, we should think, more interesting than having presented to them an opportunity of seeing how the work is done, and hearing from the lips of the operator such details as he only can give. And if anything were needed to prove Mr Wells' *bone fides*, it is furnished in that gentleman's generous invitation, on p.506, offering free inspection of his apiary to any bee-keeping reader who may be disposed to pay him a visit. No doubt, such results as have been recorded of the double-queen system seem hardly possible to some bee-keepers, but if our readers do not press too hardly on the good nature of Mr Wells, by occupying more time than he can well spare, or by visiting him in too great numbers, no doubt they will receive a useful lesson in bee-keeping by observing the methods employed and profiting from them.

(January 12, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:16-17. My bee doings in 1892. [Letter 1292]. At the close of another year it may possibly be of interest if I give you, as concisely as possible, an account of my doings since August 11th, With reference to the two hives purchased on 28th July, and numbered 2 and 3, I noticed on the 13th August that, while no drones were appearing at No.2, they were flying in numbers, and being cast out, at No.3. I commenced giving medicated syrup (using Naphthol Beta) with rapid feeders, to encourage breeding and increase their winter store. I was somewhat surprised to find, on the 3rd September, that drones were still flying from No.3. I gave each their syrup at sundown, and, on looking into the feeders, No.2 was nearly cleaned out, while No. 3 was untouched, and with only two bees standing on the edge, looking stolidly at their fare. I suspected something wrong, and still more so when, in the forenoon, I noticed robbers about. I dusted some flour on them, and saw they belonged to my old stock No.1. I at once hung a curtain, saturated with carbolic solution, across the porch, but this didn't wholly stop them, and it was only when I took a piece of perforated zinc, with an inch entrance, and coated with vaseline, that they, after the most persistent efforts to gain admission, desisted. Seeing the state of matters, and not wishing to turn up the skep for examination in such circumstances, I left them alone. I was, however, fully in the belief that the hive was queenless. On the Saturday following, when all was quiet, I turned up the skep. The bees were all crawling about listlessly; there was no brood, only some sealed stores near the crown, and no queen that I could see . On the Friday following I went out to my friend, and got another skep, with a queen of last year in it, but very light; it weighed seven pounds without the board. I took them home, and next morning prepared to unite. There were still plenty of drones flying from No.3. First of all, I made a light frame to fill the front of the porch, and covered it with queen excluder. I then lifted No.3 off its board dusted it with flour, and covered it with scrim to keep in the bees. I then took the new hive, dusted it likewise, and set it on the board of No.3. My assistant had meanwhile laid a board covered with a cloth on the landing-board in front, and I

shook the bees out upon it. Some flew away, and some crawled off the board, but about a quart made tracks for the entrance. I meanwhile pinched off all the drones I could catch, carefully watching for the queen, until I had disposed of quite a handful which I examined in case of a mistake. The result was, the hive had been, as I suspected, queenless. I did not expect fighting, and for three days I saw none. They have since done very well, and I put the two skeps into winter quarters respectively thirty six pounds and thirty four pounds heavier than when I got them. So again I have to thank adversity for affording me another lesson in the manipulation of these wonderful insects. From my old hive I took twelve one-pound sections, beautifully sealed, and thirty-seven pounds of extracted honey from the upper box. I gave them back the frames for a week to clean, and, with a cake of naphthaline inside, they are packed and ready for next year. I put an empty shallow box below, to give them room, and I calculated they would have about forty pounds of stores for winter. From what I have heard, the heather has been a failure. There was any amount of clover-blossom and field-beans round about me, but they never had the smell one expects to feel from either. With cold, northerly winds and sunless sky, the bees seemed to have no heart for working, but I am more than satisfied. The relief that I have felt from my interest in my bees when I go out from Friday till Monday, away from the care and worry of business, and an occasional lesson in bee literature in the evenings at home, has been of priceless value to me.

There is another subject in which I am very interested, viz working two queens in one hive. In the *Record* for May and June you gave a description of Mr Wells' system. I make myself believe that I understand the system upon which it is worked and its purpose; but, I am in the unfortunate position of having seen scarcely any frame hives, with the exception of Neighbour's cottage and those at Stirling Show. I may explain that, in the September *Record*, you say, p.123, If readers will bear in mind Mr Wells' own account of what he did, &c. Well, in order to get this account, I got, through my bookseller, the back numbers of the BBJ for this year, and what still puzzles me is Mr Wells' statement on p.133 (in reply to your own query): Most of the hives had sliding floor-boards, so that the floor-board could be dropped two inches, and a wedge-shaped piece was inserted below the dummy, &c. Also, on p.73 of the *Record* and p.193 of the BBJ: In the evening I lower the floor-board, &c, and You have not the advantage of lowering the floor-board, &c. It is this sliding floor-board, that can be dropped, lowered, or slanted at will, that I can't make out. There must be more in it than a trade term, some of which, as used by English joiners, puzzle us Scotch fellows sadly. I intend trying the system, but I want to know fully the why and the wherefore before I do anything with it. By the way, and this reminds me of what had for the time being escaped my memory, could it not be possible for some of the manufacturers of bee-appliances to establish an agency in Edinburgh? So far as I know, and looking up the advertisements in *Record* and BBJ, nothing can be got within sixty miles, and to see anything is for a great many out of the question. With few exceptions bee literature is not obtainable in this city, except by order. I believe few have any idea how few really good hives can be found in this neighbourhood, and there are numbers of bee-keepers who have not the remotest idea where anything except a straw skep can be had. I felt disappointed that at the show in the Waverley Market there were so few bee-appliances shown, and others have expressed the same feeling of disappointment to me since. Something surely

could be done for us so as to give us a chance, were it only to follow in the footsteps of your intelligent and up-to-date English bee-keepers. Before concluding this inconceivably long letter, I would take leave to say that I think all honour and credit is due to Mr Wells for bringing his hive before the readers of your valuable periodicals, thereby conferring upon those who may intelligently wish to adopt its principle the benefits of his invention. At the same time, I cannot help feeling pained, not to use a stronger expression, at the attempt on the part of some of your correspondents who would wrest the right (Mr Wells makes no claim) of originality from him, and who, on their own showing, do not understand the end and aim of the idea which underlies the whole, and which is so forcibly and plainly put in your leader in the May Record, and on p.176 of the BBJ, in reply to a query (Letter 1010). But these claims to inventions are nothing new, and whether the invention consists of using flour as a pacifier, putting on a box of shallow frames above the brood nest, or working two queens in each hive, some one is sure to crop up who had seen, an old shepherd, of forty years' standing as a bee-keeper use the first; another had been dreaming all winter about the second; and, for the third and latest, one is found quoting Holy Scripture: There is nothing new under the sun, he exclaims; I made and worked a hive on the same principle as Mr Wells in the spring of Letter 1866, and stocked it with a swarm the same year. But enough! I could imagine that there are people to be found in this world who, with very little effort, could persuade themselves into the belief that either they or their forefathers had invented and made an ark, and saved the remnant of a submerged world long before Noah was in existence! Allow me this opportunity of again thanking you for all the assistance I have got from you, directly and indirectly, and to assure you that the wish which accompanied your first communication to me, That I might derive both pleasure and profit in my new hobby, has been most amply fulfilled. — Robert Peebles, Edinburgh.

(January 12, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:16. A reminder to Dr Tinker. [Letter 1291]. I have very patiently and anxiously awaited every week's new number of the BBJ for a most interesting letter from Dr Tinker (Letter 958, p.96 of BJ for March 10th last) to be continued as stated, and hoped he might come to my rescue, as to one entrance for rearing a second queen in full colonies with a laying queen. May I be excused for drawing your attention to this to be continued?— JGrK, Southborough, January 3rd. [We, too, have been patiently awaiting the completion of the article referred to. We shall draw the attention of our good friend, Dr Tinker, to the above, and trust he will take the reminder in the way desired by our correspondent and also by ourselves. — Eds.]

(January 26, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:39. The Wells System and joining up colonies. [Letter 1314]. With your permission I should like to give my experience in bee-keeping. I began with two swarms (both in frame hives) in June, 1891, from which I got forty pounds of section honey, besides leaving the bees enough for wintering on. I then made three more hives, and populated them with driven bees, which made my number up to five, four of which came out well in the spring, the other rather weak. At the end of the season I had taken 150 pounds of sections, and thirty pounds of extracted honey,

besides having three swarms, which increased the number of my stocks to ten. I have read a great deal about the Wells system, and thought I should like to try it; so I made a hive to hold twenty frames, divided in centre by perforated dummy. Would you tell me the best time for transferring two lots from single to double hive, also how to stop fighting on alighting-board, as I think the bees are sure to fight?—ETW

[Whenever the weather is warm enough for bees to fly, they may be transferred safely; and if the bees, when transferred, are carefully separated by the perforated division-board, they will not fight.—Eds.]

(February 2, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:48. Concerning the *Bee Journal*. [Letter 1324]. While sitting by the cosy fire on a cold winter night recently, reading your retrospect of past years, my thoughts wandered back to many happy hours spent in perusing the *British Bee Journal* (of which I have been a regular reader for about eight year. My first number I obtained from Neighbours while on a visit to London, and from this I got my first lesson on bee-keeping. Since then, I have learned much that I know on the subject of bees through reading its pages. I advise every beginner in bee-keeping not already a reader, to take it, for I can truly say from personal experience, it is the source of knowledge on the craft. Some time back, I thought of giving up taking it, but I always find something of interest or instruction. For instance, Mr Wells' plan of working bees, which I may try some time; but the locality where I live is only a poor one for bees. I have only got some of the black honey, which has been spoken of several times during last year. I have given it the bees back again. I hope to do better in the coming season. For some time I have been much interested in the correspondence on standard honey bottles, especially with (Letter 1284, p.5) the article where your correspondent speaks of half and quarter pound bottles of the pretty globe shape, which I think are very handy for both large and small quantities of honey. —J Ball, Sheffield.

(February 2, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:48. Queries and Replies. [Query 707]. Disinfecting hives— Will you kindly give me your advice to following queries:—

1. If I paint the inside of hive from which I destroyed stock affected with foul brood, will it kill the disease, as the hive is a good one, nearly new, costing 16s.?
2. Has Mr Wells ever given inside measurement of his two-queen hives; if so, can you kindly refer me to number of BJ in which it was given? —AD, Parracombe.

Reply.—

1. The hive should be exposed to the fumes of burning sulphur, or else well washed with strong carbolic acid solution before being painted.
2. Mr Wells uses a hive holding fourteen or sixteen standard frames for his double-queened stocks, and gives to each queen a second brood chamber of ten shallow combs, fire-and-a-half inches deep.

(February 2, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:48. [Query 710]. Entrances for double hives.—

1. I have been thinking that it would prove very useful if Mr Wells would publish the information he has given in the *British Bee Journal* in a separate form, so that there would be no need to search through the *Journal* for it. What do you say?

2. I am making a double hive, and propose to make half-inch holes close together in the inner wall of the front of the hive for the bees to enter by. The outer wall and packing behind will thus form a porch, and the holes, whilst allowing of free ingress for the bees, will prevent mice and toads from entering, and might also be a protection against robbing. As I am only a novice in bee-keeping, I shall be glad to know if there is anything wrong in my idea. The holes would be level with the alighting-board. — Frank R Sell, Cornwall.

Reply.—

1. We fancy Mr Wells has no idea of publishing his views in pamphlet form.
2. The plan of entrance you propose would not answer at all well, nor is it suitable to the system of working on the double-queen method. Mice and toads are kept out of hives by making entrances three-eighths of an inch high.

(February 9, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:51-52. Useful Hints. The Wells Hive.—(Continued from p.42. where the note says: The Wells Hive. —It was the intention to offer a few observations under this head, but want of space compels us to defer our observations till our next Hints appear. The Wells Hive.— It is easy to see, from the announcements already made in our advertising columns, how great is the interest expected to be taken in this hive in the coming season by bee-appliance manufacturers, who, next to ourselves, have probably a better opportunity than any persons we know of for judging in what direction bee-keeping opinion is drifting. But it should be known that, so far as our own knowledge goes, there is no one hive on the market which can claim more than another any special right to the designation of Wells hive. Mr Wells has made public his plan of working, and such of our hive manufacturers as are practical bee-keepers have no doubt been able to follow out the plan sufficiently to see what is required. As a matter of fact, however, Mr Wells has no hive specially constructed for the carrying out of his particular method. His hives were made before he thought of working two queens in each, and consequently he had to adapt them to the altered circumstances. The special features his hives do possess, and which (according to what was said in explaining his system) are very important, are those of having at least fourteen or sixteen (eighteen are still better) Standard frames, at right angles to entrance, in the brood chambers. The floorboard should also be so constructed that it may be lowered two inches or more in front when required; the entrance also must extend along the whole hive front. Then it should be borne in mind that the surplus chambers of ordinary size were placed singly by Mr Wells just above with division-board dividing the two compartments of the brood chamber, thus allowing the honey-gatherers of both compartments to crowd into one surplus chamber. These chambers were then tiered up or storified in the height of the season. Of course, it would be advantageous at times to be able to use a surplus chamber large enough to cover the frames of both compartments; but it should not be forgotten that the main feature is to admit the bees of both queens into one surplus chamber, so that a double force of honey-gatherers are at work on the same combs. These points borne in mind, we have no doubt that readers will be able to choose a Wells hive likely to answer their purpose, or otherwise to adapt one of those they already possess as a means to the same end. The trouble about swarms issuing simultaneously from both portions of a Wells hive, and the difficulty of parting queens, makes the following extract from the *American Beekeeper* very

opportune. It refers, to parting two or more swarms which have joined up or gone together. The article is headed, How to Separate Swarms when they Cluster Together, and the writer, Mr HL Jeffrey. Under the above title, MH Dewitt, on p.68, May number of the *Beekeeper*, has described the laborious job of pawing over two, three, or more swarms to find the queens, and then divide them up to equal as many colonies as you have found queens, or in such parts as suit the apiarist. I formerly practised that plan myself some fifteen years ago, but I learned an easier way by an accident as far back as 1878. It happened as follows:—One day, while caring for an apiary, a swarm came out, and, after it had clustered, and while I was getting the hive and stand ready for the bees, along came a runaway swarm, and in passing the tree on which was the cluster, the decamped swarm united with it, and before they were quiet another swarm came out and the three went in together. I began to sweat in contemplation of my job, and being at a strange place, I was caring for the bees during the owner's, I did not know where to find things quickly, so I improvised a large hive directly under the cluster by fastening two boards up edgewise on the ground, so that I could hang frames on them as in a hive. I hung in thirty or more empty frames, with a comb in every fifth frame, and then knocked down the cluster. I threw a thin cloth over the whole of them, and then attended to the hive that had swarmed. This being about noon, I gave them no further attention until perhaps three or four o'clock in the afternoon, when, upon lifting the cloth, I found that the bees had separated into swarms, and there was very little, if any, mixing up of bees from the different colonies. One of the hives that had swarmed contained pure Italian cells, and they were to be saved. Another was hybrids, and the other blacks. The circumstance, as it happened, gave me a chance to see how far they would separate. I watched them closely as a test. Since then, if two or more swarms go together, I never hunt up either queen, but hive them between two boards on the ground, and always have the bottom edge of the boards raised from the ground by a half-brick or stick of wood. I have sometimes separated two swarms by setting the hive on a stand on two seven-eighth square sticks. On the top of the hive I lay two more square sticks, and place another hive on them. Then two square sticks across that, and another hive on top, making three hives high, and in an hour or so each swarm is a separate hive. I have had to try the sticks so many times that I know it has worked, and I have never seen it or known it to fail, but I very much prefer the two boards in place of the hive. I then hive them by putting a hive over each cluster, and give two or three puffs of smoke, and let them alone till all is quiet, and then set each hive on the intended stand.

(February 9, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:55 Notes on sundry bee matters. [Letter 1329]. The honey crop gathered in West Cheshire last season was, I am sorry to say, a poor one. There were, it is true, a few days of excellent honey weather, but the general results were unsatisfactory from a bee-keeper's point of view. A good honey harvest is the very thing to keep us talking of the pleasures and advantages of bee-keeping all through the inactive period of the year; but there are few of us who can regard with equanimity half-filled supers and light hives at the close of (as it generally is with us) a very brief honey season. Under these circumstances, there is nothing to be wondered at in young hands forming a poor opinion of the possibilities of bee-keeping as a

source of pecuniary advantage to themselves. There is plenty of scope for bee-keeping in my locality, but there are few bee-keepers. I can only account for this on the supposition that the rustic inhabitants are strongly impressed with a belief that bees are difficult things to manage, and unpleasant companions at the best. As far as lies in my power, I endeavour to show that these notions are not well founded; but my labours to this end have not accomplished much. Many would be willing to instal a few hives in their gardens, provided the management of them could be left to some one who—to quote the expression made use of—understands bees. I entertain very poor hope of the success of the County Council's efforts to popularise bee-keeping as a minor rural industry, for I hear very little of the movement in Cheshire. The idiosyncrasies of rustic minds appear to me to be averse to the acquisition of knowledge; at any rate, our agricultural population do not seem in any hurry to avail themselves of the opportunities now given to them of obtaining the information which, to say the least, they are sadly in want of. I have been much interested in your observation in last Useful Hints on the foul-brood remedies, and I cannot help remarking that the careful attention which this decidedly unpleasant subject has received in the *Journal* for the past two years is beginning to cause me uneasiness. The monster foul brood stalks the land, and has, so it appears, caused some to relinquish beekeeping. Remedies and preventives are well enough so far as they go, but I hardly think they can be relied upon implicitly. The pest does its destructive work just at a time when, as it seems to me, the bee-keeper has the least power to combat it with cures, for how, when bees can obtain food in the natural manner, can the bee-keeper assure himself his medicated food is reaching every bee or larva in the colony? With this in mind, it may be possible to account for reports of treatment of the disease not being uniformly satisfactory. Mr Leigh (Letter 1318, p.46) asks for opinions of readers of the BBJ on a new hive which he has designed for use this year. Seven frames standard size is, in my opinion, rather small space for a brood nest when the hive is well populate; at least, I may say I have no difficulty in getting queens to well fill with eggs eight frames one-fourth larger than standards. In fact, the difficulty, as far as my experience leads me to believe, is to get the bees to rear all the eggs a queen lays. Even were ample space given within rational limits for the queen's ovipositing power, I conceive that the bees would control increase of population, the progeny of a particular queen, let her be ever so fertile, and I think Mr Wells has completely baffled this instinct of the bees by his ingenious method of working hives—hence the success of the Wells system.—A Donbavand, Whitby Heath, Cheshire, February 5th, 1893.

(February 9, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:56. The bee doings of a village shoe-maker. [Letter 1331]. Well, sirs, as the year comes and goes so my bee account runs, and at the close I tot up the items to see which way the balance turns, and if you think these few jottings possess interest for readers of the *Journal*, I shall be pleased, for I feel towards my BJ as an old smoker does to his pipe. I should not like to be without it. I began the season of 1892 with eight stocks, having lost four during the previous winter. Two of them were very weak, but the others were about the two best stocks I had; and for the benefit of those disposed to act as I did, I will just tell how I lost them. When packing up for winter I scraped the top of frames clean and laid on the quilts without forming winter passages over the top of frames, or doing anything to

allow the bees a passage over them; consequently during the cold weather last March these two lots died of sheer starvation, while one hive had six frames full of honey and the other had seven. It reminded me forcibly of the old adage, Wit bought is better than wit taught. I don't buy any more that way if I know it. I had four swarms in the summer; one I returned to its old quarters and the others I put into empty hives from which I had lost the bees previously, and one swarm I bought for 10s. From these I had 151 sections and 136 pounds of extracted honey—total, 287 pounds. But we had almost no heather honey this year as a fortnight of miserable weather occurred just when the heather was at its best; so the bees could not visit it, otherwise my take would have been much larger. In 1891 year I got nearly all my take from the heather; but I am well satisfied as I have now eleven hives well stocked with bees and stores, I have twenty pounds honey left for sale and a quantity of sections not quite full for home use, and after paying all expenses I have cleared the pretty little sum of 8l. 6s. 7d. by my bees. But besides that I also took first prize for both sections and extracted honey at the Lynton district show, which added another 15s. to the earnings of my bees. This is apart from the pleasure gained, for it is a real pleasure to me to be among them, and they humming away so merrily and so busy at their work. I had to destroy one stock badly affected with foul brood, and it was the stock that gave me the largest return of any single stock I had (seventy pounds). I was much disappointed when I found that this stock—of which I was not a little proud—had foul brood. I never saw foul brood before, and, I cannot, for the life of me, make out how it got there, unless it was in the bees when I got them, for they were a driven lot from some old skeps. I find if you want to make bees pay you must look after them and at the proper time, and those who expect them to pay without taking any trouble ought to be disappointed. I am going in (on a small scale at first, as I don't believe in being too fast) for the Wells system this year, and I think the bee-keeping fraternity is very much indebted to Mr Wells for the courteous way he has met the many inquiries made regarding the two-queen system. Our friend the Village Blacksmith's letter I thought savoured a little of sarcasm, for which I could not see much need. When I first read Mr Wells' letter I thought that thirty pounds of wax was a large lot for a small apiary, but then, I thought, that depends on what system you work it on and the season also has a little to do with it as well. There is also nothing to be surprised at in Mr Wells' statement about a swarm fourteen pounds in weight from such a hive as Mr Wells describes. I had a swarm myself this last season from an ordinary single hive of twelve standard frames which weighed close on to nine pounds. Trusting that the year 1893 will be a good one for both bee-keepers and our worthy editors. —A Delbridge, Parracombe, near Barnstaple.

(February 9, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:163. Useful Hints. The Wells Hive.—It is easy to see, from the announcements already made in our advertising columns, how great is the interest expected to be taken in this hive in the coming season by bee appliance manufacturers, who, next to ourselves, have probably a better opportunity than any persons we know of for judging in what direction bee-keeping opinion is drifting. But it should be known that, so far as our own knowledge goes, there is no one hive on the market which can claim more than another any special right to the designation of Wells hive. Mr Wells has made public his plan of working, and such of our hive

manufacturers as are practical beekeeper have no doubt been able to follow out the plan sufficiently to see what is required. As a matter of fact, however, Mr Wells has no hive specially constructed for the carrying out of his particular method. His hives were made before he thought of working two queens in each, and consequently he had to adapt them to the altered circumstances. The special features his hives do possess, and which (according to what was said in explaining his system) are very important, are those of having at least fourteen or sixteen (eighteen are still better) standard frames, at right angles to entrance, in the brood chambers. The floor-board should also be so constructed that it may be lowered two inches or more in front when required; the entrance also must extend along the whole hive front. Then it should be borne in mind that the surplus chambers of ordinary size i.e. placed singly by Mr Wells just above width division board dividing the two compartments of the brood chamber, thus allowing the honey-gatherers of both compartments to crowd into one surplus chamber. These chambers were then tiered up or storified in the height of the season. Of course, it would be advantageous at times to be able to use a surplus chamber large enough to cover the frames of both compartments; but it should not be forgotten that the main feature is to admit the bees of both queens into one surplus chamber, so that a double force of honey-gatherers are at work on the same combs. These points borne in mind, we have no doubt that readers will be able to choose a Wells hive likely to answer their purpose, or otherwise to adapt one of those they already possess as a means to the same end. The trouble about swarms issuing simultaneously from both portions of a Wells hive, and the difficulty of parting queens, makes the following extract from the American Bee-keeper very opportune. It refers, to parting two or more swarms which have joined up or gone together. The article is headed: How to Separate Swarms when they Cluster Together, and the writer, Mr HL Jeffrey, Under the above title, MH Dewitt, on p.68, May number of the *Bee-keeper*, has described the laborious job of pawing over two, three, or more swarms to find the queens, and. then divide them up to equal as many colonies as you have found queens, or in such parts as suit the apiarist. I formerly practised that plan myself some fifteen years ago, but I learned an easier way by an accident as far back as 1878. It happened as follows:—One day, while caring for an apiary, a swarm came out, and, after it had clustered, and while I was getting the hive and stand ready for the bees, along came a runaway swarm, and in passing the tree on which was the cluster, the decamped swarm united with it, and before they were quiet another swarm came out and the three went in together. I began to sweat in contemplation of my job, and being at a strange place (I was caring for the bees during the owner's absence), I did not know where to find things quickly, so I improvised a large hive directly under the cluster by fastening two boards up edgewise on the ground, so that I could hang frames on them as in a hive. I hung in thirty or more empty frames, with a comb in every fifth frame, and then knocked down the cluster. I threw a thin cloth over the whole of them, and then attended to the hive that had swarmed. This being about noon, I gave them no further attention until perhaps three or four o'clock in the afternoon, when, upon lifting the cloth, I found that the bees had separated into swarms, and there was very little, if any, mixing up of bees from the different colonies. One of the hives that had swarmed contained pure Italian cells, and they were to be saved. Another washybrids, and the other blacks. The circumstance, as it happened, gave me a chance to see how far they

would separate. I watched them closely as a test. Since then, if two or more swarms go together, I never hunt up either queen, but hive them between two boards on the ground, and always have the bottom edge of the boards raised from the ground by a half-brick or stick of wood. I have sometimes separated two swarms by setting the hive on a stand on two seven-eighth square sticks. On the top of the hive I lay two more square sticks, and place another hive on them. Then two square sticks across that, and another hive on top, making three hives high, and in an hour or so each swarm is a separate hive. I have had to try the sticks so many times that I know it has worked, and I have never seen it or known it to fail, but I very much prefer the two boards in place of the hive. I then hive them by putting a hive over each cluster, and give two or three puffs of smoke, and let them alone till all is quiet, and then set each hive on the intended stand.

(February 16, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:65. The Wells System. [Letter 1340]. I am much obliged to Messrs Webster and Wood for their hints about syrup-making. They will make all the difference, I expect, both as to the trouble and efficiency of feeding. I am preparing to give the Wells system a thorough trial; but I should very much like to know what is the opinion of some of your correspondents as to the reason of its success. One would have imagined that the presence of two queens in a hive would have utterly upset the organization and interfered with the working. Can it be that the two queens, finding that they cannot fight with each other, are stirred up by a spirit of emulation, and that that spirit is shared by their subjects? or is it the case that the worker-bees, freely going in and out of both hives, have a double stimulation imparted to them, first in one hive and then in the other?—A Sussex Rector.

(February 16, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:67-68. My experience as a bee-keeper. [Letter 1344]. I commenced bee-keeping in June, 1880, by hiving a stray swarm, but was compelled to move to London on the first of July in the same year, which put an end to my first start. However, being a lover of country life, I embraced the first opportunity to leave London, which I did in December, 1891.

In April, 1892, I purchased a frame hive, stocked with bees, from an old skeppist near Ashford, Kent, he being anxious to sell it as he not understand modern plans, and had not opened the hive since the bees had been hived in it the previous year.

I next inquired for modern bee-keepers in the district, but failed to find any until our Hon. Secretary (Mr Garratt) lectured at Ashford, which brought a few together. I hoped to be one working amongst them, but shortly after I had to remove to Maidstone, and not making the acquaintance of any bee-keepers here I have had to rely on my books and papers for all I know about the craft. However, though working single-handed, I have been going ahead and am now wintering six stocks of bees in frame hives, which are all doing well. I had a peep in the other day, and was surprised to find so much difference in the quantity of stores consumed; one hive had stores in every frame, while another had food in one frame only; in fact, I only just saved them from starvation. I gave them about six pounds of candy, which they are taking well.

The first stock I purchased gave me twenty four one pound sections, and ten

pounds of extracted honey. A stray swarm which came to me gave me twenty-five pounds sections, and got themselves a good store for winter. I purchased six skeps, from which I drove the bees, and made two strong stocks of them. I also purchased two frame hives in July which had been greatly neglected. My expenditure for the year was 11*l.* 11*s.* 8*d.*; my takings were 4*l.* 19*s.* 9*d.* Honey for home use, which was about thirty pounds, I valued at 6*d.* per pound, and very soon disposed of the remainder at 9*d.* and 10*d.* per pound.

My stock in hand stands me in 6*l.* 11*s.* 11*d.*, which comprises six good stocks of bees, twelve frame hives, six straw skeps, extractor, smoker, &c. Being within easy distance of Mr Wells, I hope to visit him shortly, when I think I cannot fail to get a few valuable hints for the coming season. I am satisfied with my start as a bee-keeper, and wish all bee-keepers a successful year.—A Man in Kent.

(February 16, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21:69**. [Query 720]. Dangers of the Wells System.— I have adopted the Wells system, and shall be glad if you will explain one or two difficulties.

1. Is there not a great danger in this system of the bees forsaking one side of the hive, and both lots keeping in the other, resulting in the death of the queen and brood in the forsaken division? As both sets of bees would have the same smell, owing to the perforated division-board, the one set would be received by the others.

2. In stimulating, could I not place the feeding-bottle over the central division-board over the zinc excluder, so that both divisions could take food from the one feeder! —J0 Buttler, Wellington.

Reply.—

1. If any danger were likely to arise in the direction referred to, Mr Wells would no doubt have experienced it, and in consequence offered some caution against such a contingency, which he has not done.

2. Bees are always best fed in the centre of the cluster, and, in stimulating a double-queened colony, we should use two feeders.

(February 23, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21:71-72**. Useful Hints. Weather.— A month of February without snow and almost without frost would seem to be a little unseasonable, and as such not quite welcome to the bee-keeper, were it not for the pleasure of once more seeing his bees busy on the wing, and the ever-welcome sight of the first pollen of the year being trundled in...

The Wells hive.—Quite a number of correspondents seem curiously oblivious of the nature of their requests for information when asking us to give full directions for making a Wells hive, or to tell them how certain deviations from Mr Wells' 72 plan, which occur to them as improvements, will work; or, which is the best form of the Wells hive at present on the market? and so on. Only a year or two's experience of working stocks in hives adapted to the two-queen system will enable us—or any one else—to give a reliable opinion on the subject. We must therefore refer our querists to the illustrations of Wells hives which will probably appear before many days in the catalogues or advertisements of those manufacturers who have given time and thought to the designing and perfecting of such hives as they believe will best fulfil the requirements of the system. Besides, it would be manifestly unfair for us to select, from, among those

advertised, one for special approval, to the detriment of others. We must also offer a word of caution in view of such mishaps as that mentioned elsewhere. In all cases—while breeding—is in progress, and before the time when the bees of both queens are allowed to mix in one surplus chamber—a strip of wood should be firmly fixed above the lower quilt, and along the whole length of the perforated division board, so that disturbing or removing the quilts on one side of the board cannot, by accident, displace those on the other. This is important.

For the rest, we will gladly supply any information in our power regarding either the hive or the system, but it should not be forgotten that, personally, we have had little more practical experience of one or the other than many who make inquiry of us. We must also beg of our correspondents to read up what has already appeared on the subject in our columns before asking for information which has been given several times over. It would be tedious reiteration not only for ourselves, but for readers also, to repeat answers which have been given again and again as we are asked to do.

We have also more than once besought correspondents to stick as closely to Mr Wells' methods as possible in making trial of his system; because whatever may have been known before of the plan of working double stocks in one super, and however old the plan may be according to those who are unwilling to give credit where it is due, Mr Wells is the first man who has made a conspicuous success of the double-queen plan of working, and brought into prominence a method which, as formerly tried, had, for obvious reasons, fallen into disuse.

(February 23, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21:77**. Results of the Wells System. The reason why. [Letter 1348]. And yet another correspondent asks the reason why of the superior results produced by a Wells hive as compared with those produced by an ordinary twin-hive. Perhaps I may be permitted to inaugurate a discussion thereon by giving my notions on the subject? To simplify matters, let us suppose that at the beginning of April there is a hive of each kind standing side by side, and containing an equal number of bees. A peep into the hives will show that the bees of the twin-hive form two clusters, one in the centre of each compartment, while the bees of the Wells hive form only one cluster, for the perforated dummy is practically no division at all. Now, a very little calculation will show that the joint areas of the convex surfaces of the clusters in the twin-hive are to the area of the convex surface of the cluster in the Wells hive as three is to two. Now, note the result of a rise in temperature. Suppose, for instance, the twin hive clusters on a warm day can spare a thousand bees each for foraging, it follows from the above ratio that the Wells hive cluster can send out three thousand bees on business bent. This advantageous plenitude of foragers fills up the Wells hive quicker than a twin-hive can be filled, and so on go the supers, &c. The strength of the Wells colony, too, is kept up throughout the season with less expenditure in bee-blankets than the twin-hive requires, except, perhaps, for a week or so, when both hives may be equal ram and jam full of bees.—EB

(February 23, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21:80**. Echoes from the Hives JBH (Keynsham)— If you made a Wells Hive to hold twenty standard frames it would answer, as you say, to transfer the bees and combs of two of your strongest skeps into it. But you should carefully read up all that has

appeared on the subject before attempting to work colonies on that plan. The book sent will inform you of the time to do it.

(March 2, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:84-85. Notes by the Way. [Letter 1351]. We have now reached the third month of the year, in which we pass the vernal equinox and spring commences. The lengthening days even now inspire our hopes and rouse us up to the fact that the busy bee time is close at hand. February has filled the dykes many times even here on comparatively high ground; how those who dwell in the valleys have fared we can only conjecture. Results of the Wells System.—In a note to the *Record* for this month, I have advocated the adoption of the two-queen system in preference to the usual method of uniting weak stocks in the spring. It is generally conceded that coddling with weak stocks never pays, but this system just fills the bill. Say a bee-keeper has a few hives, perhaps two of them may be weak in the spring: the usual practice with a busy man is to depose one queen and unite the two colonies. This has in the past made one fair colony, and possibly it has been some days after the two colonies have been united before the remaining queen has started breeding again (except the weather has been very favourable), the brood nest having been disturbed more or less by the introduction of what little brood was found in the colony of the deposed queen, and the combined brood nest probably taxes to the utmost capacity the bees of both colonies to cover the now enlarged brood nest; but by adopting Mr Wells' plan the two colonies can be semi-united, and thus help each other by mutual warmth, and I have no doubt that the two colonies will progress considerably faster than if united under one queen. I intend giving the plan suggested a trial here this spring if I find any weak colonies, and I have no doubt I shall among so many. Is that another point, EB?...—W Woodley, World's End, Newbury.

(March 2, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:86-87. Averages on the Wells System. Is a double-queened stock to be counted as two colonies? [Letter 1353]. I see it stated in the *Journal* that Mr Wells secured an average of 150 pounds per colony under his new system. Is this double colony counted as one or two colonies? If two colonies it means seventy-five pounds per colony, which is below the average yield of a single colony in a good clover district in a fairly good season, consequently I see no advantage in uniting two strong stocks under this system, as each stock, if worked separately, would give at least seventy-five pounds extracted honey. For hives below the strength, of, say, twelve frames of brood at the beginning of the honey-flow, it might be well to work under this system, as a super might be filled between the two, when neither would be able to do so alone if weak in numbers. I think there must be considerable variation in the weight of honey gathered from different sources, such as clover, heather, &c. Mine is almost entirely a clover district, and from frequent trials made during the past ten years, I find that a quart of honey weighs exactly three and a half pounds, and I have found scarcely any difference between honey just gathered and that which has been ripened and sealed. I should like to see this compared with the weight of heather honey, and that gathered from other sources, such as bean and lime districts. Some of my hives are three feet long, and when I have twelve frames of brood I put down queen-excluding divider, and fill out the hive with empty combs or foundation. A few days after the flow

commences I put another hive or super on top of the frames, the same length as the hive, with a sheet of excluder zinc over the first six frames, and a thin quilt all the way back over the rest of the frames between the super and hive proper. I should say the super is same size as the hive proper, and takes standard frames. In this way I have not much trouble with swarms, and need not be in a hurry to extract, as there is plenty of room for surplus honey. The frames in these hives are parallel to entrance, and in the height of the season the bees enter at both ends of the hive from entrances extending to full width of the hives. With regard to spring feeding, I used to think that, provided a hive had plenty of stores, it was better to leave it severely alone; but after experimenting, I have come to the conclusion that slow and regular feeding in early spring is essential in districts depending on the clover for surplus honey. The great difficulty has been to obtain a good feeder; that is, one which preserves heat by allowing the quilts to lie closely packed all over the tops of the frames, and feeds slowly, say, a tablespoonful every twenty-four hours. This year I am using a feeder made as follows: —A piece of wood about one inch thick and six inches square, with a hole about two inches square cut in the middle. Place this on the thin quilt next the frames, and in the square hole place the tin cover of a quarter pound mustard can, or anything similar; and over the hole a square of glass, kept in position by a thin slit of wood tacked on each side of the hole; a narrow slit in the quilt to allow two or three bees at a time to come through, and all is ready. To fill the feeder, slide the glass back just enough to pour the syrup into the tin cover. The feeder can also be used for soft or hard candy by taking out the tin cover, and filling the hole under the glass with the candy. Heaps of trouble! some bee-keepers may say, but it amply repays when the honey-flow comes, and there are strong stocks to gather it, If any stocks increase too fast, there are always a few weak ones to be found, to which a frame or two of hatching brood is very acceptable. — JOC, Cornwall, February 9th, 1893.

[If our correspondent, by whatever system of management he adopts, last year obtained results approaching those reported by Mr Wells, he will do well to continue working on his present lines. But it has been distinctly stated that stocks are not doubled in order to obtain the average of 158 pounds per colony. Reference to what has already appeared in our pages on this point will show why we agree with Mr Wells in counting each double-queened stock as one colony — not two.—Eds.]

(March 2, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21:87** Beginners and the Wells System. [Letter 1354]. I do not know wherein the Wells system differs from an ordinary twin hive with a division of perforated zinc, nor do I know whether Mr Wells recommends his new system to young bee-keepers as being more profitable; but I would advise young beginners to be careful how they plunge, for a double hive is a formidable affair to manage—at least I found it so many years ago, and although I still keep mine as a curiosity, it has not been in use for six or seven years. I found that although I did exactly what you strongly advise about keeping the quilt of each half well pressed down, so as not to disturb one half while manipulating the other, the bees of the other half would persist in attacking from the flight-hole (or entrance), and it was truly surprising what intelligence they displayed in this respect, for after a time it mattered not which side I desired to interview, they were ready for me on both sides. I have kept bees

for forty years, and am no coward, but to this twin hive I had to raise my hat and pass on. Then, as regards swarming, there was always the double chance, which is a great drawback to any system. And if there happens to be a weakly foul-broody stock within a mile of the place, the chances are two to one they will find it. For these reasons I feel certain the double hive will be a disappointment and loss to most young beginners who try it. — Thomas F Ward, Highgate.

(March 2, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21:87-88**. Mishaps with the Wells hive. [Letter 1355]. I was in hopes that Mr Woodley would have given us some more information in last week's *Journal* respecting the loss of his two colonies of bees, *a la* Wells, mentioned on p.44 (Letter 1315). As I think there is something to be learned from such a contretemps in the hands of a master of the craft like Mr Woodley, I should like to ask him a few questions upon it, and also ask him to give us any further information that he may have gleaned upon the subject, as I feel certain that he has not let the matter drop without making further inquiries into the why and wherefore of his mishap. How and when were these two colonies put into this double hive, and was he certain that each colony had a laying queen, that had bred in this hive, when he examined them in November? If so, did he find a dead queen in the deserted part of the hive, or had she gone through the division-board with her bees? And what did the stores consist of—was it honey that had been collected by the bees, or was it stores that had been given to them already sealed up? I cannot help thinking that the queen in the deserted part of the hive must have died, and then her bees joined in with the other lot. But, even then, I don't understand their dying of starvation, with plenty of food so near to them, as I don't recollect ever losing a lot of bees by starvation when there has been any food in the hive; and I have given up cutting winter passages now for several years past. I don't say Served him right, as oftentimes there is more learnt from a failure than through continued success. What a glorious day we had for bees on Sunday, the 19th ult! Mine did enjoy what few crocuses there was out in bloom, as many as four bees in one flower at once time. I have never known them so busy carrying pollen in February before. — Man of Kent.

(March 2, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21:90**. G Sawyer (Gt Marlow).—Wells division boards.—If the holes are made just so large as to prevent the possibility of the passage of the worker bee, very little propolisation will take place; but, if too small, the holes are much more likely to be propolised.

(March 9, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21:92**. Useful Hints. The double-queen system.— Referring to the great amount of interest taken in this system, we do not quite regret to observe that some correspondents have written what may be termed steadyers on the subject, nor can there be any objection to the advice given by CMR in our monthly, the *Record*, to hasten gently with regard to it. We have all through urged a trial with a very limited number of hives on the double-queen plan, knowing that experience will be required before deciding whether to go in for it largely or not. There is, however, no reason that we can see why disappointment and loss should result, even to beginners, as prognosticated by our correspondent, Mr Ward (Letter

1354, p.87). In his case, the viciousness of the bees dealt with appears to be the main cause of failure; anyway, no trouble of the kind happened to Mr Wells, who—after two years' trial—is more hopeful regarding his plan than ever. Another point we find it necessary to refer to is the need for readers clearly understanding what is meant by advising the joining of a couple of weak stocks together in order to form a double-queen colony on the Wells plan. From letters which have reached us, it is apparent that the term weak stock is not quite a safe one to use, because of the readiness with which inexperienced bee-keepers apply it in a general sense without reference to the cause of weakness. It is surprising to find how many are strangely apt to overlook this fact, and yet it would be obviously worse than useless to hope for any success from the joining together of two stocks rendered weak by having aged and worn-out queens at their head, or worse still, owing their weakness to disease. Consequently it will be best to drop the term weak stock and substitute second swarm or cast. These latter are usually weak in spring, but being headed by young queens, they pull up so rapidly as to frequently push ahead of much stronger stocks by the time the honey-flow begins. These are, therefore, the so-called weak stocks so admirably adapted for uniting in pairs when first making trial of the double-queen plan, and we ask that correspondents who have sent queries on the subject of uniting weak stocks, will take the above remarks as a reply.

(March 9, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:92-93. Berks Bee-Keepers' Association. The annual meeting of this flourishing Association was held on Monday, the 27th ult, at Reading, and, considering the state of the -weather, there a very fair attendance.

The routine business having been disposed of, one of the experts explained the Wells hive, one of which he had on view. The hive was afterwards submitted to a critical examination, the general opinion being that at present it would be better to proceed slowly with the new idea, and that in the hands of a novice it may be a failure. The meeting terminated with hearty good wishes for a successful season. We are requested to inform the members of this Association that in future all communications should be addressed to the Hon Secretary Berks BKA, 17 Market Place, Reading.

(March 9, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:97-98. The Wells hive. [Letter 1361]. I do not always find it very easy to follow written directions, probably owing more to my own obtuseness than to any other reason. In your issue of February 9th (p 51) you say, The special features his hives do possess.. are those of having at least fourteen or sixteen standard frames &c. Now, I do not see whether this means fourteen or sixteen in each division, or only that number in the entire hive. I think you probably mean the latter; but, as I have worked my hives heretofore with at least ten frames in each, fourteen or sixteen, or even eighteen does not appear to me to be sufficient for the two compartments. But there is a much greater difficulty in the next paragraph, in which you speak of the floor-board admitting of being lowered two inches or more in front, when required. I should be very glad if you would explain how this is to be accomplished. The hive stands on the floor-board from end to end and from front to back. By contrivance can it be lowered two inches in front? and if so lowered, what becomes of the two inches space thus made under the dummies

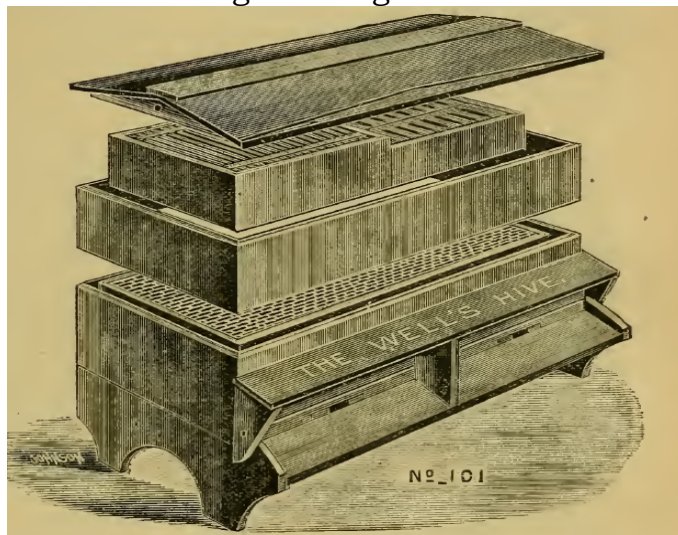
and the frames, and what is to prevent the two queens getting at each other? I cannot understand it at all, at all, as Paddy would say, and, moreover, what is the object of this two-inch opening? Now I am writing, may I mention a clearing-board which I have found very effectual all my bee-life? It is simply a frame sixteen inches square, made of deal two inches wide and three-quarters of an inch thick. On each of the four sides two or more holes are bored from the outer to the inner edge, and in each hole a little tube of perforated zinc is inserted, which projects an inch beyond the outer edge. The frame has nailed to it a piece of board, which covers it on one side, thus forming a little well fourteen inches square and three-quarters of an inch deep. The section rack, whether containing seven, fourteen, or twenty-one sections, is removed from the hive and set upon this frame, covering the well. I find the bees will all leave in two or three hours through the zinc tubes, none returning that way.—TI, Maldon, Essex.
[To arrive at even a superficial understanding of the Wells System our correspondent must read Mr Wells' own description of it. Reference to *Bee Journal* for April 7th, 1892 (p.132), will make clear the points referred to. To admit of floor-boards being lowered, the hive must have fixed legs, and the floor-board slides on runners fixed on the inner sides of these, so that it may be lowered or removed altogether without disturbing the frames. Such hives are quite common.—Eds.]

(March 9, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21:98-99**. A many-queened hive. [Letter 1365]. Will you kindly allow me to ask Mr Perry for a description of his many-queened hive, and his method of stocking and working it? I think a full and clear account will materially aid such readers of the BBJ as may, like myself, be prospective experimentalists on the Wells system in spotting the essentials and eliminating the non-essentials of this new departure. Mr Woodley's proposed plan appears at first sight quite feasible. Two difficulties in its execution, however, occur to me, viz (a) the difficulty of finding two weak stocks standing side by side (and they must so stand some time before being operated on); (b) the difficulty of placing brood combs of each stock close up to the perforated division-board without exciting the bees to murder and regicide. The former difficulty might, perhaps, be overcome by using a strong and a weak stock in lieu of two weak ones; the latter is more formidable, but should not prove insuperable in hands of Mr Woodley's experience...
—EB, March 5th, 1893.

(March 9, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21:99**. Echoes from the Hives Honey Cott, Weston, Leamington, March 4th.—
Here, as well as most places, on the 19th February, the bees had a grand day, 56° Fahr. in the shade, and 74° in the sun, bees rushing about helter-skelter, on the look-out everywhere. Unfortunately we have nothing nearer than the woods a mile away, except a few snowdrops and crocuses, which were visited by hundreds of bees. Several days again this week it has been very mild, and natural pollen begins to roll in. A few days ago, I found one stock gone, that I had missed in feeding up in the autumn. All others are in fair condition, and if the weather still continues mild I expect to put out the pea flour for two or three weeks. I saw the watering-place was visited by great numbers of bees at noon today, showing unmistakably breeding was going on. Have only opened one hive as, I was afraid

something was wrong, but it turned out all right. The other night I was giving a cake of candy and had the first sting of the season—on the forehead, which I think, I can fairly say, I rather enjoyed than otherwise. Well done, friend Woodley! for giving it those two gentlemen (three I might say), who recommend the feeding-up plan just before the harvest. Of course they will say the honey is three parts sugar. I quite like the idea of working two weak stocks *a la* Wells. — John Walton.

(March 16, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:103. Wells Hives. No.1. — Meadows' Wells hive. The interest evinced by all classes of bee-keepers in what is now known as the Wells hive induces us to present illustrations of such hives as have been designed for the purpose of carrying out the plan of working with double queened colonies. We have not, as yet, had an opportunity of making a personal inspection of the hives illustrated, and so confine ourselves to the description furnished by the manufacturers themselves. No.1 of the series is that of Mr Meadows, of Syston, who was the first to send out an illustration of a Wells hive, which we give here. The hive as shown consists of extra stout stand, forming legs, and is built on the plan of a separate outer case for brood and surplus chambers, the former holding twenty standard frames, fitted with WBC ends resting on metal runners. It also has the Wells perforated dummy, two ordinary dummies, queen-excluder, two outer cases, and two section crates or shallow bodies, as preferred (one of each shown in illustration), improved roof, with new pattern bee-escape ventilators, and porch, with improved ventilating entrance. Shallow bodies or section racks have loose plinths fitted on bottom of one side, which can easily be removed. When working in pairs, a crate of sections, or shallow body, extending over full size of top, could not be readily handled when full because of the great weight.



(March 16, 1893). The *British Bee Journal* queens fertilised in full colonies with laying queen. *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:107. Queens fertilised in full colonies with laying queen. [Letter 1374]. Will your correspondent JGK, who in his letter (Letter 1001, p.155, April 21st of last year), re queens fertilised in full colonies with a laying queen, be kind enough to tell us through your *Journal* how he prevents the virgin queen (returning from her honeymoon) from entering the part of hive containing the laying queen? It being my intention to re-queen my twelve stocks this spring, I thought his plan would

suit me down to the ground, as I could not undertake to make a dozen nucleus hives this spring, my leisure time being very limited. Could I use the Wells perforated dummy instead of the double queen-excluder zinc which Dr Tinker advocates? — RT, Leicester.

(March 16, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:107-108. Bees in North Devon. The Wells hive. [Letter 1375]. The past season of 1892 was an average one in this district, my own stocks yielding about fifty pounds per hive. One hive, however, which I have been trying on a new principle, gave me 150 pounds surplus extracted honey. It is a ten-frame hive on the tiered-up plan. I have tried it three seasons now with splendid results and it has not swarmed. As Mr Woodley says We have not yet reached the topmost point of bee-keeping. There is a secret to be learned in queen-excluders yet. Referring to the entrances of Mr Wells' hives, don't you think it would be better to have one in front and the other at the end? I have made three of these hives, holding twenty frames each, into which I put driven bees last autumn. Two of these hives I made with entrances front and end, and the other one with both in front, all with movable floor-boards. Now, the two with entrance front and end are working well, gathering pollen freely, but one of the lots in the other hive is dead. They were two fine lots of bees when I put them in. There is about half a pint of bees, with queen dead. Now, in my opinion, it is a mistake having both entrances in front, for the bees would persist in going from one to the other and fighting when feeding up for winter. —I want to register a little article, will you kindly say where I am to send it?—TJ, North Devon.

[Seeing that Mr Wells has never experienced trouble by having the entrances along the whole hive front, it is difficult to suppose that the mishap was caused by that part of the arrangement alone. Registration fees should be sent to HM Patent Office, Chancery Lane, London. — Eds.]

(March 16, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:108. Queries and Replies. [Query 729]. Wells hives—Size of entrance in winter—

1. Referring to lowering the floorboard and putting -wedge of wood under the perforated dummy, would not a wedge of wood be required under the ordinary dummies, which would be lifted from the floor-board with the rest of the frames?
2. In working for extracted honey, do you leave the first crate of shallow frames (when filled) where it is, or lift it up and place the empty one underneath as with sections ?
3. Don't you consider the entrance Mr Wells leaves for his bees in winter, viz two inches the whole length of the hive (Letter 1019, p.193, May last) too much? What about the field-mouse? Perhaps he is not troubled with it. On examining one of my hives this spring, three large ones made their appearance from between the quilts; one I killed, but did not attempt to kill the others, because of disturbing the bees, so they got off scot free.—RT, Leicester.

Reply.—

1. No. The only complete division required is in the centre.
2. In our own practice the first box of shallow frames given is left in its original position till the final removal at end of season. Boxes given later are dealt with according to circumstances.
3. Mr Wells does not leave an entrance two inches deep the whole length of the

hive, as stated. He inserts a block with slides, by means of which the entrance is reduced to three-eighths deep, and any length as required.

(March 16, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:108. [Query 732]. Adapting hives to the Wells System— If a long hive, having an opening one end, has an opening cut the other end, in order to adapt it to the Wells system, would the draught pass straight through so much as to form a serious objection?—FY, Clapham.
Reply.—We think not.

(March 16, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:109. [Query 734]. Late start in breeding— Saturday, the 4th inst, being a fine warm day, I overhauled and cleaned the floor-boards of my six stocks of bees, finding them all healthy-looking, fairly strong, and with, say, from six to seven frames half filled with capped food.

1. Not noticing any eggs or brood, would it be advisable to look again in a fortnight, as I did not even notice a queen, although pollen was being brought in? If I satisfy myself that the queens are all right, would it be any advantage to give them a little warm syrup every night for a time, because last year they were very late in beginning to breed?

2. I transferred on the same day two stocks into a Wells hive. One stock is working every day; with the other, however, only an occasional bee peeps out now and then. Is there any suggestive cause for this or reason for alarm? — Wm Greener, Gowertown, March 7th.

Reply.—

1. With so much food in store and pollen being carried into the hives, you will not have long to wait before sealed brood will be seen, but you are evidently in a late district with perhaps a scarcity of natural pollen. In the latter case we should advise a little soft candy mixed with pea-flour being given.

2. Something must be wrong to cause such a difference in the working of the respective stocks in the double-queened colony, and an inspection of the inactive one should at once be made, with the view of ascertaining the cause of difference.

(March 16, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:110. Amateur Carpenter (Kidderminster). Wells Hives.—

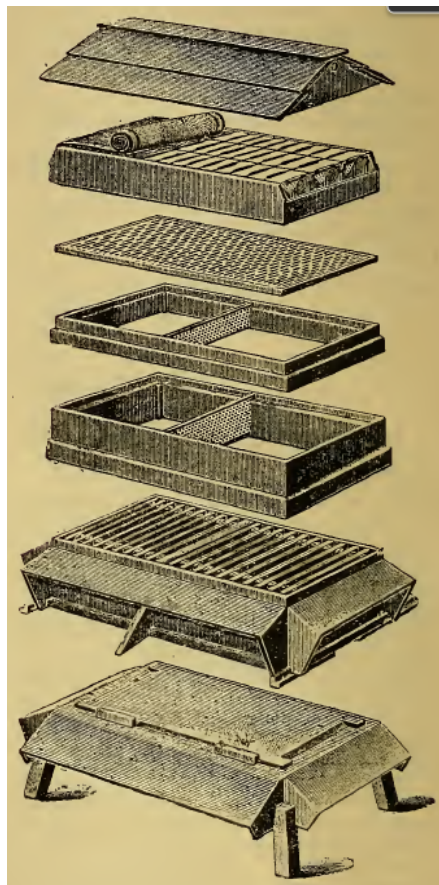
1. We can only refer you to such illustrations as appear in our pages. There is no special Wells Hive, and it will be for readers themselves to say which they prefer of those now being made under that name.

2. A south-east aspect is best for hives.

3. Instruction for making an extractor may be had post free from this office for 3½d. in stamps.

(March 23, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:114. Wells Hives No.2.—Blow's Wells hive. The hive, as illustrated in the accompanying cut, consists of a body to which are affixed porches and entrance runners in the usual way. This body holds twenty frames, and is divided in the centre by a perforated wood dummy. There are four entrances—two in the front, quite close together but separated by a projecting piece of wood affixed to the front porch—the other two entrances are one at each end. The floor-board is on legs, the lower

body having double walls on both sides. Upper body in two parts, so that either shallow or standard frames may be worked as desired. This body also contains twenty standard bar-frames (or twenty shallow frames, whichever preferred), and is fitted with removable walls and perforated dummies, and with lift for crate, so that tiering of crates can easily be done. Super of thirty nine one pound sections, with slotted metal divider, queen-excluding zinc adapter, and quilt.



(March 23, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:115-116. Notes by the Way. [Letter 1376]. The past fortnight has been good bee-weather; willows are in full bloom in sheltered positions, and the wild anemones are just putting forth the first blossoms in the woods, so that the supply of natural pollen is every day increasing. We began supplying the artificial substitute, viz equal parts of Symington's pea-flour and wheat-flour, or equal parts of Brown and Polson's corn-flour and ordinary wheat-flour, and both are taken by the bees with avidity; in fact, two or three bees seemed on the alert for the artificial pollen, for while I was preparing the straw hives and shavings on which to sprinkle the flour, they began prospecting among the shavings, and immediately I sprinkled the flour, began collecting the same into their pollen baskets. The Wells hive and system is still to the fore, and I would suggest to TI (Letter 1361), re the lowering of floor-board two inches in front, that either a strip of wood or perforated zinc is fixed vertically in the floor-board, and fitting close up to the perforated division-board or dummy when the floor-board is up in its place, and when it is lowered this fixture on the floor-board is practically an extension of the dummy, and still divides the two colonies. That the system is engrossing the minds of bee-keepers, the pages of both bee-papers, BBJ and *Record*, are witness,

and I have no doubt appliance-makers who advertise the Wells hives get many queries on their working. I, myself, have received several lately on the subject, but my only source of information on the practical working of the Wells system has been the published correspondence in the *Journal*. In answer to our friend in Kent (Letter 1355), my mishap was the result of carelessness to a great extent; the two colonies were two strong lots of driven bees, put into an ordinary hive with a perforated dummy, *a la* Wells, but I quite expect the point I neglected was in not dividing the entrance out to the extent of the alighting-board; the ten-inch entrance of hive was only divided to the outside of the box containing the brood combs. It was my intention to transfer the twin colonies into a hive better adapted to the system, but other work crowding in, the intention was postponed till the spring, which will never come to that twin colony! There is the usual number of if's in the case—if the colonies had united the other side of the division-board (where the largest quantity of food was stored), all would have been well; and if I had given that intended cake of candy, the combined colony would have pulled through safely. If EB (Letter 1365), or any other bee-keeper, has two weaker stocks than the others in the apiary, and wishes to bring them side by side, each hive can be moved forward, say one yard every day bees are flying, and of course to a converging point. Now, when the two hives are side by side, they can be transferred into the Wells hive at once, weather and temperature permitting. Smear the division-board (both sides) with honey, in which mix a few drops of peppermint. This cleaning-up will find both colonies something better to do than fighting, or threatening to do so, through holes which form a barrier to a pitched battle. I was sorry to miss attending our Berks annual meeting; this is the first omission during the last decade. Glad to hear there was a fair attendance, and gladder still to know that our late indefatigable hon. secretary, Miss RE Carr Smith, will continue her fostering interest in our Association. I look forward to the increasing usefulness of the Association in the future. The continued grant of the County Council is evidence that we are doing a good, useful work in the county. TJ (Letter 1375).—Respecting the entrances to the twin-colony hives, I don't think, from several years' experience, there can be any objection to the two entrances being in the front of the hive. I have had seven or eight twin hives in use nearly ten years with both entrances in front of hives, and have never had a case of fighting between the colonies, and it is with these hives I intend to run some three or four on the Wells system this coming season. All the alterations required will be the removal of the half-inch plain division-board, and the insertion of a Wells dummy and the piece of excluder zinc over the frames. I should not advise a feeding-stage, feeder, or large cake of candy common to both colonies; rather let the fraternisation come when the honey-flow is commencing, and then workers will not be disposed to fight. The fact that the bees will fill the holes in the dummy with propolis, and thus prevent the communistic design of the bee-keeper, is a proof that the Wells system is not in conformity with the natural instincts of the genus. Lime-trees do not bloom for ten or twelve years after planting. I have taken note of this from personal observation. I notice our friends in Northants intend (by *Report* to hand) to have a show of British honey during the coming season somewhat on the lines of our Berks Association Show at Reading last September, only with this difference: the Northants Show will take the form of benevolence to the widow and family of a deceased bee-keeper, to whom the profits will be given. I think this will meet with a ready response if our

friends in Northants gives us a reminder through BBJ and Record next July. I notice some bee-keepers have been looking through their hives, and shortly some others will either be transferring their colonies to clean hives, or at least clearing out the debris of the past winter. To every one who contemplates doing this, I would say, don't be in too much haste, but if perforce circumstances require the job to be done early, do it quickly, not exposing the brood longer than absolutely necessary, so that the hive you change your colony into is perfectly clean, and with each transfer place two or three pieces of naphthaline among the combs. Next month will be the feeding month of the year, and if foul brood is rife in your neighbourhood, or within a radius of three or four miles, it will be good policy to feed medicated syrup. The persistence of the foul-brood pest is demonstrated very fully in the very excellent article running in BBJ in last week's issue; we certainly run some risk by the use of foundation. I trust science will devise some means of sterilising the germs of foul brood without destroying the properties of beeswax, which makes it so valuable to modern methods of bee-culture. The report of Berks Bee-keepers' Association for 1892 is to hand. I intended to give a short note on same, but on perusing it, I find I must defer notice till next week, as the success and progress of the Association deserves more than a passing note. —W Woodley, World's End, Newbury.

(March 23, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:117. Criticising the critics. The Wells System. [Letter 1378]. Perusing from time to time our *Journal*, as we bee-keepers do, it would astonish persons not interested in that seemingly insignificant and yet wonderful creature, the bee, to know what an amount of criticism it has caused, I suppose from time immemorial. We look into the word criticism. Is it the art of judging, or, if we use it personally, one why finds fault? Sometimes we are apt to think the latter is the one more oftentimes meant. We all know if it was not for competition and criticism we must assuredly in time become stagnant, and yet I venture to say that very often things which have been practically tested and plainly given out are wrongly conveyed to the mind and wrongly read. I have not the pleasure of knowing the gentleman who has caused the last movement for the benefit of bee-keepers, but he seems to have had rivals, and now critics, like your correspondent (Letter 1354, p.87), who says, u I do not know wherein the Wells system differs from an ordinary twin hive with a division of perforated zinc, nor do I know whether Mr Wells recommends his new system to young beginners as being more profitable. Now, has our friend, Mr Ward, ever felt a piece of zinc that has been out of doors on a frosty night, and also a piece of wood? Second, Mr Wells, if I am not mistaken, has neither recommended his system to the old or young, and from what I have followed in the past the BJBKA made it recommendable. Then, a little further, your correspondent goes on to say. Then, as regards swarming, there was always the double chance, &c. Now, if I read correctly, Mr Wells did not experience that double chance. Would not practical experience be of more service? Last year I tried and failed with this system. Two swarms issuing the same day, and that a Sunday, I hived them in a hurry, and could not have confined each lot exclusively. The bees must have passed somewhere through the division, for on an examination I found the queen of the weakest cluster cast out dead on the alighting-board; but, nevertheless, I intend trying again this year. — Benevolous, Ironbridge, March 8th.

(March 23, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:118. Queries and Replies. [Query 736]. Mishaps with the Wells System.— I united two stocks in a WBO ten-frame hive, with perforated wood dummy between, on the 19th ult. On the 1st inst, I gave them another ten-frame brood body containing stores. Unfortunately the perforated dummy allowed the bees to get at each other. However, I discovered it, and rectified the error; but both stocks were much reduced. On the 2nd inst (a lovely day) I had a look at them, and found extensive robbing going on. The robbers did not care a bit about carbolic solution, and even carbolic powder did not drive them altogether away; so I closed entrances with perforated zinc. This morning I found the enclosed bee, with many others, slain just inside the entrance. Is it a queen? There are only two seams of bees left in one side and one in the other. Would it be advisable to unite them in one side and introduce another stock on the other? I have received a Wells hives with the holes in the dummy large enough (18) to pass a dead worker through. Will it be safe to use it between two stocks?—HC Hanker, Longparish.

Reply.—The bee sent is not a queen at all, only a worker-bee. We fear our correspondent is altogether too inexperienced to safely work colonies on the double-queen plan without help. Joining two stocks in one hive without first making sure that the perforated division-board would effectually keep the bees apart was a fatal error. We should strongly advise calling in help or consulting with some bee-keeper of experience before proceeding further, because the fact of the two lots of bees at present in the hive being engaged killing each other renders the prospect of the safe introduction of a third stock more than doubtful in the hands of a beginner.

(March 23, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:119. [Query 741]. Transferring bees to double-queened hives.—

1. I intend working one hive this summer on the Wells system. When would be the best time to put the two colonies, which are now in separate hives, into the Wells hive?

2. Are nine standard frames on each side of the perforated dummy sufficient? Bees in this locality have wintered well, and seem in good condition.—HFK, Ballyfrenis, Donaghadee, Ireland, March 14th, 1893.

Reply.—

1. We should say the first week in April is about the best time.

2. Ten standard frames on each side of the dummy will be better than nine.

(March 23, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:119. Trade catalogues received. JH Howard (Holme, near Peterborough). Thomas B Blow (Welwyn, Herts).— Both, the above well-known manufacturers issue entirely new catalogues for 1893, consisting, in each case, of fifty-two pages, fully illustrated. All the recent improvements in bee-appliances are embodied, including full descriptions and instructions for working the form of Wells hive which each maker considers best adapted to the system. Mr Howard gives illustrations of several useful novelties for the coming season, including the Howard combined self-hiver and super-clearer, from which good results are expected in the way of filling a known want. We should also add that Mr Blow's catalogue has an illustration showing his extensive new hive factory and apiary at

Welwyn, and regarding which we hope to give some particulars in a future issue.

(March 30, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:121-122. Useful Hints. Weather. — March: a seasonable month; temperature low generally at beginning, but high at close. So said the Chart referred to in our issue of February 23rd last, and the weather of the past month has been closely according to forecast. Cold nights have been pretty frequent, but the many sunny days of late have been quite June-like in their warmth; indeed, so rapid has vegetation pushed forward during the last week or so that bees in Kent are busily at work on gooseberry-bloom, which is very abundant in our neighbourhood as we write. It will be little short of a revelation to our northern friends to read that Mr Wells (the Mr Wells) related at the conversazione of the BBKA how he had been obliged to give surplus chambers to some of his stocks so long ago as the 14th inst, so strong in bees were they getting at that date. If he goes on at that rate, the ten double-queened colonies he now has should score again this season. Present Bee-Prospects. —Judging from reports from the north, we are certainly having the best of it southward. Bees here have been working busily nearly every day for some time past, and natural pollen seems abundant, judging by the quantity carried in. Our fear is lest a check should occur later on, and a long spell of cold take the place of present warmth. Forward stocks should in such a contingency be carefully guarded from possible chill to the now rapidly increasing quantity of tender larvae in brood nests. Doorways may require narrowing to very small dimensions in the event of their being exposed to piercing cold winds. Wraps also should be added to where there is any scarcity of warm coverings. Feeding, too, if required, must not be neglected. In a word, bee-keepers at such times ought to display a little of the spirit which animates the Wallasey cottagers, who grow the famed early potatoes produced in that corner of Cheshire. These men, so the story goes, will get up in the night and cover the tender young leaves of the just-appearing potato-plants with the warm blankets from their beds, should they wake up and see signs of a sudden and unexpected frost before morning. We don't expect that bee-men will go that length; but those who have already heard the welcome hum of progress coming from the doorway of a hive at the close of a good bee-day, will neglect none of the precautions mentioned if they are wise.

Double-queened hives.—It will have been observed that a correspondent (Letter 1354, p.87) takes a strong line against twin hives—in which he includes those worked on double-queen plan—his contention being that all double hives are formidable affairs to manage. Our correspondent, however, overlooks the fact that we have the evidence of Mr Wells himself, as given at the conversazione of the BBKA on the 15th inst, that so far from encountering any difficulty in this way, he is more favourably impressed than ever with the advantages of his system. His ten stocks at this date are, he says, all double-queened, and in such forward condition as to compel him, in one case, to give surplus chambers in order to accommodate the crowd of bees in the hive. Our correspondent's warning to beginners to be careful how they plunge is well timed—indeed, we have ourselves already advised against too much impetuosity on the part of novices when handling Wells hives; but we see no cause for discouraging any, whether beginners or otherwise, who may desire to make a trial of the system. The adage, Once bitten, twice shy, is, no doubt, very true, and as our correspondent failed to

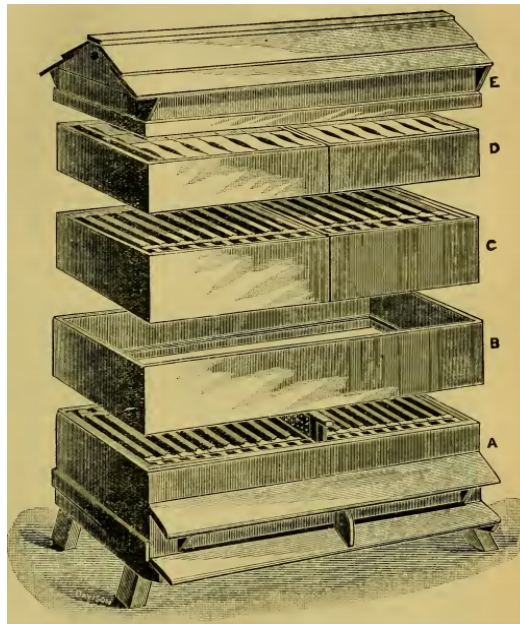
do any good with a twin hive, his objection to such so far holds good. In fact, it was at the outset admitted that twin hives had been tried and had failed, and it remained for Mr Wells to bring forward a plan by which, not twin, but double-queened hives have been made an unequivocal success.

That caution is required on the part of beginners is very true, and that we have realised the need for it is shown in some remarks we felt it to be our duty to pen some days ago in the pages of our monthly, the Record. We there advised beginners to start by fixing up the double brood chambers so as to ensure the complete separation of each from the other, and to leave severely alone any of the movable parts which would allow the slightest risk of the queens or even the workers meeting until such time as the latter could join forces in the surplus chamber. We observe that our correspondent this week again refers to the subject (p.126), and as he writes with the authority of an old hand, his views are entitled to every consideration. But we ask, Is it desirable that progressive or wide-awake bee-keepers should stand still and look passively on while Mr Wells is securing nearly double the amount of honey the best of us can harvest. In short, we make bold—if Mr Wells will pardon us for not asking his permission—to invite our correspondent to visit Aylesford in June next, and if he does not see something to induce him to change his views with regard to the double queen system we shall be very much surprised indeed.

(March 30, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:126. The Wells System. [Letter 1882]. Your correspondent, Benevolous (Letter 1378, p.117), asks me a very funny question, viz Have I ever felt a piece of zinc that has been out of doors on a frosty night? Well, I have puzzled my brains, but for the life of me I cannot say that I have, and yet I am past the half-century; it is very stupid of me certainly, and I ought to have done so, had it been only to satisfy that gentleman that I knew how cold it was; but I can, perhaps, do it another way, for I do remember touching a piece of wood under the same conditions, and it was exactly the same temperature as zinc would be. But what on earth has this to do with the Wells system:. If Benevolous tells me that by the Wells system the bees are going to cling to the perforated divider through the winter, and so make one cluster for the sake of mutual warmth instead of two, as was suggested in the *Journal* lately, I say he is greatly mistaken. I object altogether to the word criticism as applied to my warning, which was intended for young beginners only, and I again say to all such, take the advice of an old hand, and don't plunge into this system. See the failures already being reported! Why even your correspondent himself confesses his failure, and yet he asks, Would not practical experience be of more service? If mine is not practical experience, what else is it? Perhaps Benevolous will kindly explain wherein the Wells system differs from the twin hive? I have no motive in giving advice save the desire to prevent young beginners from being carried into expensive and difficult methods with great expectations, while experience teaches me that disappointment and loss are most likely to be the result; and, having derived great benefit from the *Journal* myself ever since it first appeared, if I can be of service to my fellow-readers, I desire to render that small return whenever circumstances will permit. Will Benevolous criticise those inquiries about the Wells system which are constantly appearing in the columns of the *Journal* under Queries and Replies and kindly tell us whether, in his opinion, the writers ought to be encouraged to pursue such a complicated

and difficult system? which I say is only suited to the greatest expert, in whose hands I should be perfectly ready to criticise the system. May I take this opportunity of saying how pleased I was to see Mr WB Webster describe the bees mixing nectar with the pollen while on the wing instead of saliva, as a certain gentle-man lately discovered; it is a very ticklish question, notwithstanding the discovery which was announced so emphatically, and I agree with Mr Webster chiefly on the ground of economy, for the exhaustion of producing such large quantities of saliva can scarcely be compensated for in the digestive powers it is supposed to possess. I do not think it possible to tell by observation only whether it be nectar or saliva. — Thomas F Ward, Church House, Highgate, March 24th.

(March 30, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:125. Wells hives. No.3. — Neighbour's Wells hive. The double body-box (a) holds twenty frames of standard size (Lee's patent), with WBC ends. The two stocks are separated in the middle by a perforated wood dummy, an extra dummy of ordinary make being supplied to each set of frames, to be used for reducing in winter if such an arrangement is thought desirable. Sheets of perforated zinc for excluding the queens from the upper stories, and quilts for covering the frames, are included, (b) Is a cover of sufficient depth, when the roof is on, to take three sets of sections, or four shallow-frame crates during the honey-flow, and when in use for this purpose rests on a ledge of wood attached to the inside. For wintering, the cover is inverted, and then affords an extra protection to the stocks, in fact, becomes a treble walled hive. The entrance and porch are in no way affected by this change. (c) A pair of shallow frame crates for extracting purposes are here shown. These are placed close together, openings being provided so that the bees from both stocks may unite.(d) A pair of section crates, having the same arrangement of openings at the sides, when they join together, (e) is a strong, weather-proof roof, which fits well down on to the cover, and, on account of its weight, is not likely to be blown off during the prevalence of high winds. A channel; placed along the ridge on the front side to prevent the rain from dropping upon the alighting-boards. The floorboard can be lowered in front for ventilation, and an arrangement is provided by which the same floor-board may be removed altogether and reinserted on runners fixed two inches below, so as to allow space under the frames in winter.



(March 30, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:127. Depth of entrances to Wells hives. [Letter 1384]. I noticed in the *Journal* (p.108) a question asked about the depth of opening at entrance of the Wells hive. I think your correspondents will find they can secure sufficient ventilation without the danger of lowering floor-board and displacing dummies, admitting mice, &c, if they make the openings as I have done. I first saw out a strip two inches deep across the front of each half of the hive, leaving two inches at each side for support. I plane this strip until, when put back in its place, it leaves three-eighths of an inch space between it and the floor-board. I then fasten it by small hinges on the hive again. On this strip I fasten the ordinary movable shutters, leaving the three-eighths of an inch entrance for general use. In case more ventilation is required, the strip, with the movable shutters, can be raised on its hinges, and thus give an opening any depth up to one and a half inches. I see that the excluder in the illustration of the Wells hive is made the whole width of the hive and covers both brood nests. I make mine in two separate parts, and think it better, as I can examine one brood chamber without any risk of the other queen finding her way into the one I have open.—RF Sheavan, Atherstone.

(March 30, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:128. Queens fertilised in full colonies with laying queen. [Letter 1388]. Your correspondent RT (Letter 1374, p.107), asks me a question which I beg to reply to as follows:—By exchanging hives the artificial swarm and old queen are below, brood combs above. When queen-cells in latter are expected to hatch out, reverse the hives, giving double queen-excluder between. While writing, I would warn bee-keepers going in for Wells hives on the principle named in Query 732 (p.108), on no account during the winter months to have entrances on different or opposite sides of such hives, which would cause the cold outside air to rush with roaring force through the two hives, creating draught.—JGK, Grove House, Southborough Kent.

[Notwithstanding our correspondent's warning, we still hold to the opinion expressed in our reply to FF, viz that no harm would result.—Eds.]

(March 30, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:129. [Query 744]. Stocking Wells hives.— I have been much interested in the various articles on the double-queened hives introduced by Mr Wells, and I am adapting a large hive I have, and should be obliged if you would advise me as to which would be the better course to take with a view to securing a good yield of honey. I have two straw skeps and two frame hives (one rather weak). Would it be best to transfer the frame hives' stocks to the Wells hive and feed with syrup, or to drive the skeps and put the bees on fully drawn-out combs, or to wait till the skeps swarm and then put the swarms in, or to place the skeps on the top of the frames of the double hive and let the bees work down, and remove the skeps when the bees had taken possession of the bottom frames? I do not care to increase my stocks this year, and so should like to do what would be most likely to give me a good yield of honey. — Draper.

Reply.—We should transfer the stocks in frame hives into the double-queened one. By doing this the full results of the system will be at once gained.

(March 30, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:129. Notices to Correspondents and Inquirers. JHH (Newton-le-Willows).— Wells division boards.—The holes in the slip of wood sent are too far apart and smaller than is recommended by Mr Wells. It has been found that if the holes are small the bees more readily propolise them up than if larger. The larger oblong holes burnt through the wood will not exclude queens as you suppose. For that purpose zinc only must be used.

(March 30, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:129. GS Lyons (Hastings). — The Wells System— Since the object is to get the best results this season, regardless of cost, two full stocks would of course make a far better start than two nucleus colonies. But, as to the frames fitting properly, any correct size standard frame will fit the hive you have.

(April 6, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:132-134. British Bee-Keepers' Association. (Continued from p.123) *Conversazione*. The proceedings commenced at 6 pm, Mr Jonas presiding. Mr Carr thought it would be a good opportunity, as Mr Wells was present, to obtain from that gentleman some further description of the details of his system, which had been as they all knew, phenomenally successful. He (the speaker) had a special interest in the matter, because as co-editor of the BBJ he could bear witness to the mass of correspondence which had been received at the office of the *Journal* regarding the Wells hive and method of working. Inquiries were made as to the make, shape, dimensions, and all the different adaptabilities of the hive, and any description of the double-queen system Mr Wells would favour the meeting with would be of assistance to bee-keepers generally, as well as to the editors themselves, who at present knew little more than their correspondents did of Mr Wells' methods. It was proposed to give illustrations in the BBJ of the hives in question, coupled with any information on the subject Mr Wells liked to supply; and since the bee-season would soon be upon us, it would be desirable to know if he intended this year to make any changes in his plan of working.

Mr Wells, in replying, said that he would be very glad to render any assistance he

could. He had tried his system of working with two queens for two years, and the longer he continued the plan the better he liked it. All his hives now were double-queened, and the splendid condition in which they appeared to be astonished him. Only the previous day he had been compelled to put an extra box of shallow frames on the top of the standard-size frames below. He had very little more to add to what he had written in the *Journal*; perhaps there was one new experience he might relate as being of some interest. He had lost a queen during the winter, and as soon as the bees began to fly, the queenless lot came out, and of their own accord moved into the other side, where there was a queen, thus saving him the trouble of uniting or shifting them. He had only ten hives and twenty queens, and he intended to continue on the same lines as he had been working during the last year or more, which had been the most profitable in his experience. He had brought up for inspection a sample of his dummy or division-board, which had been in use two years, and about which he had received a good deal of correspondence. He would be happy to answer any questions. Mr Cowan inquired how, in making a start on Mr Wells' plan, the doubling was managed, whether by uniting two full stocks together, or whether a small nucleus colony was added to a single stock in spring. The difficulty of starting in the last-named way was in building the nucleus up to a full colony in time for the harvest. He noticed a few days ago in an American paper a reference to this system which was described as quite a new thing of American invention. He was glad that his own country could claim the priority. Mr Wells replied that as a first start on the double-queen plan he had joined two stocks by bringing the two hives containing them close together some time before joining both lots in the same hive. His after-proceedings were on the lines he had already explained at the meeting last year. Because his hives only held fourteen frames, seven on each side of the division board, he found it necessary to add a box holding fourteen shallow frames above, in order to enlarge the respective brood nests to seven standard and seven shallow frames. Of course, the queens had access to these, but he divided the upper brood chamber by a solid divider, thinking that the perforated one below would answer the purpose of giving all the bees the same odour, and this had proved to be the case, for on the previous day (14th inst) one of his stocks becoming very crowded with bees, he had given a surplus chamber into which all the worker-bees could enter through the excluder, and he had seen no signs of any fighting. In answer to Mr Cowan and Mr Hooker, Mr Wells said that the two hives he brought together were both double hives, so that he had only one lot to change. By using the lifter shown last year he lifted the whole of the frames out in a bunch from one hive and dropped them into the other, so that the least possible disturbance took place.

Some discussion here took place between Messrs Carr, Blow, and Baldwin, as to the most convenient form of surplus crate for the Wells hive, and it eventually became apparent that the differences arose from the fact that Mr Wells using a hive holding only fourteen standard frames and a surplus chamber holding the same number of shallow frames, whereas in all the Wells hives now being made the number of frames in the body box is twenty. Mr Wells explained that the hives containing fourteen frames only were not large enough for his system, but he had utilised such hives because he already had them in his possession and could not afford to waste them; he put a crate of shallow frames on top to extend the brood nest, as explained above, and then the excluder zinc above these. Last year he

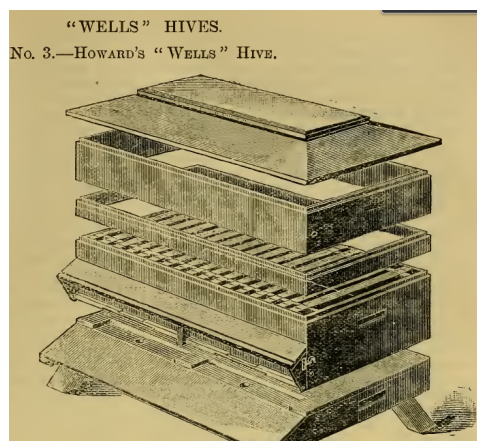
had as many as five boxes of shallow frames above the brood chamber in his best hives. He worked principally last year for extracting. Referring to a twenty-frame hive, what he recommended was that the crate should be in two parts, and that a quarter of an inch should be taken off from each of the two crates of sections, or of shallow frames, on the inner side, where they met together, which would allow of the bees running indiscriminately over the top of the excluder zinc. It would be possible to have one crate to cover the whole of the twenty frames. Mr Blow, in order to avoid misapprehension, stated that, if fourteen frame hives were used, it would not be practicable to cover them with the super crates that would suit a twenty bar hive. On the occasion of his visit to Mr Wells' apiary it was his privilege to see a collection of crates and frames the like of which he had never seen before. The combs were fixed to every part of the frames, no holes being visible anywhere. He also saw there another sort of hive with several entrances, which, with the assistance of perforated dummies, and allowing three combs each, was used for the purpose of maintaining several nuclei, and thus a stock of queens could be easily kept. Mr Garratt and Mr Hooker thought the plan described an excellent one. Mr Baldwin spoke in favour of the exclusive use of standard frames for both brood and surplus chambers; there were many disadvantages in using different-sized frames. Mr Wells invariably used standard frames for nuclei, but as regarded tiering up for honey extraction he preferred shallow frames. Mr Carr advocated the use of standard frames for brood, and the shallow frames for surplus chambers. Nuclei would always be put on standard frames. He differed from Mr Baldwin as regarded the statement that each of Mr Wells' hives contained two stocks. To say that that was so in the ordinary sense of the term was a mistake; if not, the average produce of each hive must be halved. It was not two colonies, but two queens that made a Wells colony; and in the autumn, when Mr Wells removed the older of the two queens, he removed the perforated divider and simply pushed the whole of the bees up to one end of the hive. Then he reinserted the divider, and on the other side of it placed one of his young queens along with the nucleus colony in which she had been reared, thus again making the stock a double-queened one. Then, as to the supering part of the system: if they had two queens each at work on the ten standard frames, and the bees were given a surplus chamber of twenty frames, there was no advantage to be gained, from the supering point of view, over keeping two stocks apart and supering each with ten frames; but if a small chamber of only ten frames were given above the perforated divider, then the bees from both lots would be working in it at double strength. Mr Wells said that whenever he fancied there were not enough bees to fill up the surplus chambers, he contracted them by putting dummies on the ends thereof, supplying what combs were needed, and removing the dummies if more room should be required. Mr Baldwin thought that if two separate colonies were put into the twin hive, which he understood was Mr Wells' system, he was correct in speaking of them as two colonies. Whether or not they were ultimately reduced to one colony did not affect the question. Mr Cowan said it seemed to him that Mr Carr and Mr Baldwin were both right and both wrong. At one time of the year the bees formed two colonies, and at another time one only. Mr Wells' system proved that two colonies by themselves did not produce so much as two colonies put together. The discussion was continued by Messrs Wells, Carr, Baldwin, and Hooker. Mr Blow believed that one of the chief secrets of success was the introduction of young queens every year—that was just when

they were in their prime for breeding purposes. He considered that Mr Wells' method involved great care, and would certainly not be successful in the hands of careless bee-keepers, as unless the bees were managed with skill and judgment fighting would ensue. Mr Garratt thought that fighting would be unlikely to take place when the bees were all intent on gathering honey and pollen, but that possibly after the honey season was over it would be difficult to keep them quiet when, side by side. Mr Wells had never known a case of the kind. He always made certain that the bees could not get together inside. As to the outside he always for the first three or four days put up a large temporary division on the alighting board between the entrances. After that time he thought there was no danger. A conversation ensued between Messrs Hooker, Garratt, Wells, Baldwin, Blow, and Meggy, relative to the manipulation of frames, singly or in bulk, and the raising and lowering of the floorboard.

The Chairman exhibited a specimen bottle of honey, corked, labelled, and prepared in the same way as the stock sent out to Chicago. Mr Carr exhibited a glass honey-pail capable of holding seven or eight pounds. It had a screw cap of iron, nickel-plated, into which were inserted handles for carrying. He also showed an American Porter bee-escape. The Chairman showed a sample of honey produced by Mr Wells' bees in 1885, which, he thought, proved that there was no occasion for bee-keepers to be in a hurry to dispose of their supplies. Mr Cowan exhibited a sample bottle of perfectly liquid fruit sugar used for adulterating and making artificial honey. A similar specimen was forwarded to the BBJ in 1890, when an endeavour was made to introduce the article to bee-keepers. Some of those present would remember the correspondence in the *Journal* about it. In the American papers there had been some advocacy of feeding bees on sugar syrup to produce combs; but he was glad the English papers had not followed such a course. The practice was common enough in 1874, but the shows had done away with that sort of adulteration. The Scotch were at one time adepts at producing supers with sugar, and they were total together free from the stigma now. Only two years ago he saw in Scotland sections being worked with a bottle of syrup on the top of them, it being argued that the bees would not store the syrup in the sections, but use it as food. It had also been maintained by several authorities (Professor Cook among the number) that, because the cane sugar which nectar contained was converted into the grape sugar of honey, that ordinary cane sugar given to bees would be transformed in the same way, and that it was quite impossible to tell the difference between sugar-fed combs and the legitimate production. It was well known that as adulteration advanced scientific men had no difficulty in finding means to discover such frauds. Formerly analysts depended principally on the polariscope, which, however, failed to some extent in coping with the latest methods of adulteration. However, Dr Haenle had now found that, by dialysing honey before using the polariscope, he could tell whether honey was adulterated with cane or any other sugar. Dextrose turned the rays of light to the right, and levulose to the left. In the composition of pure honey levulose was slightly in excess of dextrose; consequently in such case the rays of light were turned more or less to the left. But it was found that some honeys turned them to the right. This was unaccountable until it was discovered that these particular products contained a large quantity of dextrose derived from pine-trees. But further investigation proved that however much those honeys turned the rays to the right, after dialysis they turned the rays to the left. Then,

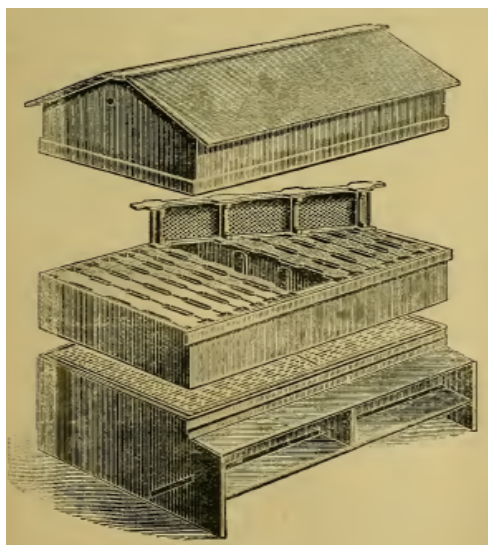
with cane sugar, experiments had been tried by feeding bees therewith. After six months' storage in the hive the honey was extracted, when it was found that the rays of light turned to the right, just as they did before the sugar had been absorbed by the bees; after dialysis they still turned to the right, although the sugar had passed through the bodies of the bees, because there was sufficient dextrose to cause that deflection. Professor Cook said he produced a certain number of pounds of honey on cane sugar, 67 per cent, of which was converted into grape sugar, therefore it was honey; but if the essential characteristic of honey was the flavour derived from certain flowers, then Professor Cook's production was not honey. By the process of dialysis before polarising it was possible to detect even so small a percentage of adulteration as one or two per cent.; and he had been much struck with the accuracy of results of experiments in that direction. Great progress had been made of late in the chemistry of honey, and he would not advise any beekeeper to attempt the objectionable system referred to. He thought many American beekeepers had done themselves harm by talking about it and admitting the possibility of such a method, and he was glad that the mass of beekeepers there had set their faces against it. Mr Carr exhibited a self-hiver, the invention of a bee-keeper who lived near London. The merits of the different exhibits were freely discussed in general conversation until the close of the meeting.

(April 6, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:135. Wells Hives No.3. Howard's Wells hive. The brood body contains twenty frames and metal ends, two plain dummies, and one Wells dummy. Lifts are also made that shallow frames may be worked in them. Two WBC Shallow-frame boxes, or two WBC section boxes, with other such boxes, under or over-tiered, or any of our ordinary section racks, may be worked in like manner in the lifts illustrated. All bodies and super lifts are made with the Howard break joint, and any part may be used under or over the other. The same hive may be worked on the Layens-Howard system of working two queens under one roof.



(April 6, 1893) *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:135. Wells Hives. No.4.—AW Harrison's Wells hive. The floor-board is arranged so that it may be lowered to give more space under the frames when reducing size of body hive; the perforated dummy is movable; the front and back are made of 1½ in. well-seasoned timber, and the sides are double. The porch is fitted on the extended sides, giving it more stability. The hive contains twenty frames, and the

queen-excluder zinc is in two pieces, so that either side of the hive can be opened without disturbing the other. Either a crate of sections, shallow frames, or WBC hangers can be supplied. Surplus chambers may be had in two divisions, with communication between them if desired. The hive is also supplied fitted with strong splayed legs, if such are preferred. It can also have an arrangement for lowering the floor-board two inches in winter if desired.



(April 6, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:136-137. Notes by the Way. [Letter 1390]. ...The interest of bee-keeping still centres around the Wells hive. I am glad to note that you, Messrs Editors, counsel bee-keepers to go slowly into the system. Those of us who have some of the old-style twin hives may utilise them with very little trouble or expense to give the system a trial, but at the end of the season I doubt very much if a larger harvest of honey will be reaped from the hive worked on the two-queen, semi-divided colony than from the two distinct colonies in the twin hive. On paper it may look all right—in practice it may come out a success; but still I cannot detach myself from feeling and knowing, say what we will to the contrary, that the two-queen colony is practically two colonies, and that the produce of two such combined colonies should be counted as the produce of two colonies, just as we always—and, no doubt, our German cousins, from whom we got the idea of twin hives, also reckon the colonies in twin hives as separate colonies. When, by selection and improved breeding, we can rear queens that will dwell together and vie with each other in ovipositing 137 in the same colony, and the middle wall of partition can be dispensed with, then it will be a two-queen colony. So long as the partition is required to prevent regicidal combat, so long will it, in my opinion, remain a twin colony, or a dual colony, or two colonies in one hive...—W Woodley, World's End, Newbury.

(April 6, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:139. Trade catalogues received Geo. Neighbour & Sons (High Holborn, London, WC). — Messrs Neighbour re-issue their large and profusely illustrated list of last year with additional matter describing such novelties as the firm have since produced, including, as a matter of course, a Wells hive.

(April 13, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:143-

144. Enemies of bees—driven bees in twin hives, etc. [Letter 1397]. I have never seen it stated in your *Journal*, or observed it myself before, that woodpeckers are destructive to hives. To my surprise, on examining my hives at the end at the last bad weather, I found that the slides of the entrance, and also the wood of the front wall, of seven or eight hives (an inch thick) had been more or less destroyed, looking as if it had been chipped away with a blunt chisel. I expect the bird, being short of food, was attracted by seeing dead bees just within the entrance, between the front wall and the dummy. Early drones.—On February 19th, while standing near one of my hives, I was surprised to see several drones leave and enter hive. This led me to suppose the hive queenless, but, on examining, I found it full of bees, two combs containing worker brood, and eggs—in fact, a strong stock, covering nine standard combs. I examined this stock again on March 24th, and found the bees had increased in strength, there being five combs of eggs, worker and drone brood sealed, and also a sealed queen-cell with some honey. This appears to me to be extremely early. I have found sealed drone brood in one or two more of my twenty-one stocks. Fuel for smoker.— I find a strip from an old thick sack answer better than anything else. It will keep alight longer, give plenty of pungent smoke, and is less likely to go out than any of the many kinds of fuel I have tried; is also cheap. Dummies. —The indiarubber tubing used for making doors draught-proof is very useful in making dummies fit close and warm, if tacked on the edges of the dummies; they can easily be removed, and yet allow of the expansion of the wood from damp. Driven bees in twin hives. — My experience has taught me that single lots of driven bees, if wintered in a twin or Wells hive, come out just as strong in the spring as stocks made up of from two to four lots. I have two stocks of driven bees in a twin hive, and one in an ordinary hive, all with an equal quantity of food and number of combs. It certainly is remarkable how much stronger those in the twin hive are at the present time. I should be glad of your opinion concerning early drones. — Harold Adcock, MRCS, &c, Uppingham.

[The only inference to be drawn from the early appearance of drones is, that bees will probably swarm very early this year. — Eds.]

(April 13, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:145. A many-queened hive. [Letter 1399]. In replying to EB (Letter 1365, p.99), who asks for a description of my many-queened hive, first let me say how much I would have preferred to see his full name, instead of initials. Well, then, in describing the hive which I exhibited at the Windsor Show in 1889, it has a floor-board with flight-board all round; a flight-hole is cut on each side, as with bees having the same odour I have invariably found a difficulty in keeping them from uniting; but, if the entrances are kept as far apart as possible, this difficulty is overcome. The divisions between the frames which I use are made either partly or wholly of perforated zinc (forty-five perforations to the inch). In the former case I use a thin quarter-inch board, and cut a hole six inches by three inches within one and a half inches of the top, then cover this with the zinc. When using a whole sheet of zinc, I make a saw-kerf on either side of the inner wall of hive and slide the sheet of zinc down these. I find that with too few the bees will propolise them up, but not when a larger number is used. The tops of divisions are, of course, kept level with top bars. I may be asked why the bees give up their old entrance, and take to using one side only, when allowed to run together in surplus chambers. I have,

however, always found that whichever side a bee has been accustomed to, it keeps to that side and uses no other. I notice that most of the hives made for use on the Wells system have the entrances at front only. In my opinion, we shall hear of more failures than successes this year on this account, and I would advise all amateurs not to start with more than one hive of this kind. As to the difficulty suggested by EB in placing combs of brood from both queens next to perforated divider without exciting the bees to murder he will not find such excitement last more than half an hour, and then the bees will settle down. As to joining weak and strong stocks, I always try to keep the stocks as nearly even in strength as I can to start with, and when once established, he will find they will keep so —of course, barring death of queen or other causes of a similar character. The above is a rough description of Perry's Many-queened hive and the mode of using same. If there is anything which EB or any one else cannot understand, I will try and make it clear, but I wish your correspondents would give their names in full. — John Peppy, Banbury, March 27th.

[Our correspondent begins and ends his letter with a complaint against the use of initials only instead of full names, but we see no reason for such complaint. If controversial matter was being dealt with, or reflections of a personal character had been introduced, it might be different; but in the case referred to there can be no valid objection to correspondents using either initials or a nom de plume if they do not wish their names to appear. — Eds.]

(April 13, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:146. Two queens in one hive. [Query 140]. Most of my stocks that are worked for extracted honey hold ten frames, and during the honey season are tiered with one or two extra boxes. In autumn, when preparing for winter, I lift the bottom box and put another containing empty combs underneath, and find the bees winter well in that form. During April, if weather is favourable, I take away the bottom box to get them into close quarters for brood-rearing. On the 3rd inst I took off the top box of one stock, and found it strong in bees and plenty of brood, with a queen showing age by her jagged wings. The bottom box which I intended to remove was also strong in bees and contained a young queen. There was no excluder zinc or anything to keep the two queens separate. Both queens had been in that hive since the 1st of last September. On the 13th of August last the stock was queenless, when I put another stock to it containing an over-year queen. On the 1st of September I could neither find queen nor brood, so I ran in a young queen (I never use a cage). The bees were packed for winter shortly after, and remained thus until last Monday, when I found the two queens one on each set of frames. As I had a Wells hive ready for use I put one lot in each compartment, and they appear to be working all right. —L Ween, Lowestoft.

(April 13, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:148. [Query 750]. Dividing stocks for double-queening on the Wells System. I write on behalf of a working gardener, to inquire if it would be advisable to divide a strong lot of bees and give another queen, so as to make a double-queened hive, and work on the Wells System? The hive they are in will hold eighteen or twenty frames, and as they are a very strong lot, a swarm having been joined to them in the autumn, we think the bees might safely be divided and an extra queen given. I may say we have some knowledge of introducing queens and know where to get

one if you think the plan feasible. I should have said he wants it done as soon as possible. We have had very warm days here for three weeks, with the exception of last Monday, which was quite cold and chilly. The bees are working on willows and such flowers as they can get. The fruit trees and bushes are just beginning to bloom. — David McLeish, Alyth, Perthshire, March 30th.

(April 20, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**: 151-153. Eds BBJ. The double-queen system. A visit to Mr Wells' apiary. The frequency with which we are applied to for information, and the many-sided nature of the queries put by readers regarding what is known among them as the Wells system, have not seldom caused us to realise how extremely advantageous it would be to all concerned could we but have ocular demonstration of the way the system worked in the hands of Mr Wells himself, and on the very spot where his success had been achieved. But the gratification of this oft-recurring wish becomes more than ever desirable just now, when so many of our readers have determined to give the double-queen plan a trial in the coming season. In view, therefore, of these facts, an intimation was conveyed to Mr Wells of what we purposed doing, and this brought a prompt reply, with a very cordial invitation to come and see all he had to show us. Accordingly, on Friday, the 14th inst, a small party of three, consisting of both Editors of this *Journal* and Mr JM Hooker, left Charing Cross for the journey of forty miles into North Kent, where the village of Aylesford is situated. The day was beautifully fine and warm, more like June than mid-April, and very grateful indeed to our eyes was the sight of the numerous and extensive fruit orchards in full bloom along the greater part of the route. Arrived at Aylesford, a pleasant drive of two miles brought us to our journey's end, and, after a hearty welcome from our host and his good wife, we were soon outside among the bees. The first thing which struck us on looking around was, how small a portion of the success of Mr Wells' particular method could rightly be attributed to his immediate surroundings! Here was a neat little garden, twenty-two yards long by about fifteen wide, trimly kept and orderly in every particular, but one of a row of similar gardens, with the houses close to, and seemingly unsuitable in several respects as a place for working bees in on a plan which—according to critics who see but failure in it — requires a peculiarly favourable location in order to make it a success. The gardens adjoining that of Mr Wells are separated from it only by an open paling fence three or four feet high, so that, if vicious bees and the troubles arising from them were a necessary accompaniment of the double-queen system, it would become an intolerable nuisance to neighbours whose dwellings were in such close proximity as we saw here. But nothing of the kind was visible. The hives, ten in number, face SE, and are ranged less than a yard apart in a single row along one side of the garden, with just sufficient passage-way between their backs and the paling mentioned to allow of all manipulations being performed in the rear. There is no pathway immediately in front; consequently the bees have an open space for free flight, and, as the hive roofs are all fitted with portable hinges, they are not lifted off as is usual when opening the hives, but raised to an upright position, thus forming a sort of screen behind which the operator works, while interposing no obstacle in the way of bees passing in and out. The careful way in which such small details as these have been considered no doubt contributes much to success in maintaining order in the apiary. Another instance of the same kind is worth

noting. The pathway whereon the hives stand is of concrete, smooth, hard, and cold as a flag. Along the whole front of the hives are stretched strips of cocoanut matting, which, after doing household service indoors, is here utilised for the comfort of such tired and heavily laden bees as fall to the ground in aiming for home. The cold concrete sometimes chills them and prevents their rising, said the thoughtful bee-keeper so I just got that matting from my wife when she had done with it, and you see it serves the purpose intended very well. How much of the best type of bee-man is conveyed in such kindly thoughtfulness for the welfare of his little labourers! Is it too much to say that the consideration of the one for the other brings its own return in hard work and good temper on the part of the bees. Anyway, here before us were ten hives, all double-queened, working away busily enough to make any bee-keeper wish that he had ten such in his garden. Moreover, they were almost evenly busy; not some with entrances crowded and others slack, but all busy alike, and, withal, labouring contentedly enough to satisfy any reasonable mind that colonies worked so will bring neither disaster nor failure, if properly dealt with. Some entrances were so arranged that the openings to the respective divisions of the hives were nearly a foot apart; others, with the porch not divided at all, had only a flat slip of wood a couple of inches wide separating the two entrances, bees from both divisions crossing over each other's pathway in the most fraternal fashion, but not fighting! In a couple of cases the hives had one entrance in front and the other at the side, as has been suggested by some one in our columns. These seemed to answer well enough, but, so far as we could judge, and for several reasons, we think Mr Wells is right in preferring both entrances in front. Our observations thus far refer to what was observable from the outside; and now, our host having lighted his smoker, we proceeded to take note of things inside the hives. When it is borne in mind that the old, or ordinary, system of working twin hives has been described by a correspondent who has had experience of it as a complicated and difficult system, only suited to the greatest expert, it behoves us to ask, is a long experience of bees really necessary for carrying out the method with which we are now dealing! Mr Wells — though keeping bees in skeps for many years, and annually smothering them because he knew of no better way—first began working on the modern method eleven years ago; he also informed us that almost all his knowledge had been gained from Cowan's Guide-book and the *Bee Journal*. He is, moreover, so little possessed with self-conceit or assurance that we can fancy his smile on being classed as one of the greatest experts who alone are capable of managing double-queened hives. Another point charged against the system is, that bees are rendered vicious by being worked on the double-queen plan. Well, on this point we can only say that four hives, containing the progeny of eight queens, were examined, the combs and brood being overhauled and their condition ascertained; no veils or protection of any kind were used by any of the party, and not a single sting was inflicted, nor was a single bee, we believe, injured. Surely, then, the danger apprehended by some of our correspondents is not real, unless brought about by causes which don't appear upon the surface. That the warmth of double lots of bees in one hive is mutually beneficial was also made very apparent by the way in which the cells on both sides of each comb next the perforated divider were filled with brood. Bee-keepers of experience will appreciate this fact because they know how seldom brood is found on the outside of outside combs in mid April. Here, however, in every hive examined was plain

evidence that the bees of both queens formed one continuous cluster, extending right through both brood chambers; the perforated divider inserted in the centre causing no break in it. The combs on the other side of each compartment were just in ordinary or normal condition, with no brood on the outside, although placed next to a warm, chaff-packed dummy, about three inches thick. This feature is not unimportant because it shows that the very thin wood divider (not more than one-eighth of an inch thick) used by Mr Wells, if perforated exactly as he does it, answers perfectly the purpose for which it is intended. We need but to say of the stocks examined, that they were strong and in excellent condition, very forward, in perfect health, and storing honey fast. But that any very special method, differing from the ordinary one, is needful in managing bees on the double-queen system was no where apparent. In fact, the hives were not made for the system, but have been adapted to it. They are all the handiwork of Mr Wells himself, though only an amateur joiner. But he is evidently very apt in knowing what is required for his purpose, being what one would call a good contriver. This was evidenced, among other things, in his arrangement of the double pairs of small staples driven into the hive sides for keeping the perforated dividers fixed and rigid. Rigidity could, of course, be secured by sliding the latter down grooves made in the hive sides; but that would not permit of moving the dividers laterally, which is at times necessary. The staples referred to therefore project only so far as to hold the divider in position, while allowing the side bars of the frames to pass without touching. After noting all we could outside, and expressing unanimous interest in and approval of what we had seen, a move was made indoors for a little rest and refreshment. Then the workshop and store-room was invaded, only to find the same order everywhere. Here were the nucleus hives made from meat-cases, and utilised now, along with surplus chambers and various other boxes, for the accommodation of hundreds of store combs ready for use. And beautifully built-out white combs for storage they were, too; no sagging, but straight and attached to the wood all round. The frames were wired on the simple plan of five upright wires to each frame, and a breakdown never occurs. Mr Wells makes his own brood foundation, using the now rather primitive plaster casts for impressing the sheets. He also has an excellent arrangement for extracting the wax when melting down combs. It consists of a tin tank, 28 inches by 17¼ inches, and 16 inches deep. By fixing them alternately top and bottom upwards, it holds two dozen frames of comb. Nine inches from the bottom a projecting ledge of tin extends right round the tank, and a wooden tray or strainer, with sides six inches deep, covered on one side with coarse canvas or cheesecloth, resting on this ledge, keeps the frames down by means of a couple of buttons. In working it, after the frames of comb are in and the wax-tray fixed, the whole is lifted on to the stove or kitchener. Water is then poured in till it comes through for some distance above the canvas bottom of the tray, and the whole is allowed to boil, we suppose; but, anyway, it stands on the stove till the wax has all risen to the top of the water, and when cold it is lifted off, a solid cake. The wax is thus boiled out of the frames, while the frames themselves are thoroughly cleaned and disinfected, if such is needed, at one operation. We will conclude our all too brief account of the very enjoyable couple of hours spent with Mr Wells by describing how he makes the perforated wood dividers anent which so much misapprehension appears to exist. He first selects a piece of well-seasoned yellow pine, without knots, of course; this is planed down to one-eighth inch thick, and

is then compassed and pencilled off by lines quarter of an inch apart, till the whole surface is divided into quarter-inch squares. Beginning at the first line on the left where the lines cross each other, a series of holes are, by means of a bradawl, punched through the wood right across the divider. The second row of holes starts at the second upright line; then the third row is begun directly under the one first made, and so on until the whole surface is covered with holes thus:



These small holes are next enlarged by being burnt through with a hot wire one eighth inch in diameter, sharpened at one end, and it is found that the numerous perforations entirely prevent the wood from warping.

(April 20, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:155-156. The Wells System. [Letter 1403]. I believe the Wells hives, in competent hands, will prove a success; but there must be competency and care. A bee-keeper here has just put two stocks into a Wells hive, and only one stock had been flying from the new position, the other being brought from a different location, the result being naturally a general mix-up and war of extermination. In my letter (Letter 1228, p.451) in November last I told how I had stocked my first Wells with two small nuclei, headed by sister-queens of 1892. It is certain that neither of these baby stocks would have wintered by itself, and I am pretty sure that had I united them in one ordinary hive it would have been risky. I opened the Wells today, and I found what Mr Wells said would happen—five heavy frames of brood in the centre, three on one side the perforated divider, and two on the other. Here, in a mass, they had clustered during the winter, just as if they were but one colony, and the divider were but a comb between; and here are baby bees staring at their cousins through 400 little holes in a wall only one-eighth of an inch thick. I don't care now whether Mr Woodley would call this a twin colony, or a dual colony, or two colonies in one hive, as on p.136. I am going to extract honey from that hive, and any sort of a name will do after that. I made another Wells last November, and in March I drew a fair stock, and the weakest I had side by side to populate that. Finding dead drones on April 4th at entrance to larger stock, I opened hive, and got my first experience of a drone-breeding queen—two frames full of drones, and the poor bees had had to elongate the worker-cells to accommodate the monsters. I caught and exterminated the culprit. All I had to do was to remove the perforated divider and push the small colony, with a laying queen, up to the larger one. The bees mingled happily. They had all been introduced to each other a fortnight before. Here, in partial failure, was an advantage with the Wells otherwise denied. The empty side awaits a small swarm or nuclei, as most convenient. To meet the contingency of a swarm from a large Wells — remembering Mr Wells said both sides swarmed together, and that no skep of his was large enough to hold such—I have attached two skeps together. Out out the top of one, unwind the cane and use it to bind the walls up, and you will have a receptacle big enough to catch any swarm that flies. All my stocks wintered well; all are led by young fertile queens; all are in newly painted white hives (the favourite colour of X-Tractor); and, viewed these sunny days among the

exquisite green of the currant-bushes and the glow of the opening wallflowers, the very sight seems ample repayment for all one's trouble. — HCJ Horninglow Cross, Burton-on-Trent.

(April 10, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:156. Doings in Derbyshire. [Letter 1404]. Bees in this quarter have wintered remarkably well in almost every case, very few losses being heard of, the bees also coming to spring work in fairly strong numbers. Drones are appearing early, and stocks now strong give promise of early swarms. So we could have a few warm showers to aid the growth of the clover, and good weather in June or July, then honey will be in abundance this year. Natural pollen has been very early this spring, the artificial pollen being called into requisition very little. It is not to be wondered at that the BBKA find a decrease in their funds. Bad seasons are telling on bee-keepers generally, many Associations thereby suffering. I have noticed a decrease of subscriptions in our county for the last three or four years. What we most want is a few really good honey seasons, which will do Associations a deal of good. In our county we find much trouble in defining clearly the cottager class, many gentlemen to whom the idea of being classed as cottagers (in the strict sense of the word) would be quite repugnant, paying the cottagers' subscription, for the simple reason that they can obtain the same advantages as by paying the ordinary members' subscription of five shillings and upwards. Only twelve months ago we sent a circular to members calling their attention to the above important facts, and good results have accrued from it. Our Committee have instituted an All England class for honey this year. The County Council have renewed the grant of 501 to the DBKA, and lectures are now being organised, coupled with open-air demonstrations where convenient in various parts of the county. The Wells system is apparently still well to the front; but the standard honey-bottle question seems to have dropped through—at least, I have not yet seen the decision of the BBKA on the question. I have long been looking for the promised article from our friend Mr Woodley on The Production of Comb Honey, but have not had the pleasure yet. Now, friend Woodley, speak up, please, ere it is too late, and let us gather a few wrinkles for our guidance this and other years. Trusting we may have a prosperous year alike for the clover and The Heathen—H Hill, Ambaaton, Derby.

[April 27, 1893] *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:163. Leicestershire Bee-Keepers' Association. The Annual Meeting of this Association was held in the Mayor's Parlour, Old Town Hall, on Saturday, the 15th inst.. He wished their Society every success. With the grant from the County Council they ought to be able to diffuse their influence throughout the county. He considered that the grant of 501. was a good beginning, and he hoped they would succeed in securing an increased amount. A vote of thanks was passed to the Mayor, and Mr Meadows then gave an interesting address on the Wells hive, one of which he exhibited and sold to the Mayor. — Communicated.

(April 27, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:163-164. Notes by the Way. [Letter 1408]. The weather is still fine and dry. It is now fifty-six days since we had any rain...
...taking a prize. The subject of self-hivers does not appear likely to be taken up

so strongly as some subjects that have been discussed in the columns of BBJ, such as bottles, standard frames, and lately the Wells system of bee-keeping. The subject is a new one which the majority have not given a passing thought to, and the past few poor bee seasons have not induced a lot of swarming. But when we get a return of swarming seasons, as undoubtedly we shall, then the utility of self-hiving appliances will be forcibly brought to the mind of the bee-keeper who bemoans the loss of several swarms which have betaken themselves to the church tower or some other unreachable place. To the few pioneers in the craft who have been working out the problem, each most likely on similar lines, the appliances invented by Mr Howard in this country and by well-known bee-keepers in future. I notice friend HCJ (Letter 1403, p.155) does not care much for the nomenclature of the colony in the Wells system. Neither do I myself, though I must admit that a spade may as well be called a spade, for all that. If HCJ purchases any of the hives that have been illustrated in recent issues of BBJ he will find that they have been to all intents and purposes designed to hold two colonies, one on each side of the dividing-board, be it a plain or a perforated one; and I contend further that to call the honey stored by these two colonies, though it may be in one super, the produce of one stock will be misleading. Then, as to nucleus stocks having brood up to the division-board of the Wells hive: I had occasion on Saturday last to open a twin-hive of two driven lots last autumn, and each of these was located close up to the division-board (a plain one), with brood up to the board both sides of it, and I heard the other day from Mr Walton of a case exactly the same. Perhaps in each case it may be the result of the continued heat-wave rather than of either system. Mr Taylor's article, as our Editor remarks on p.142, gives the reverse side of the question of self-hivers. Then another Mr Taylor, in the same number of the *Review*, goes in for revolving hives, hoping to develop a non-swarming system; yet any number of hives can, he hopes, by this system be worked as one colony in socialist style. This Mr Taylor, of Forestall, Minn, has no confidence in non-swarming traps or self-hivers. Some writers are as hopeful of practical results from self-hivers as others are doubtful. The Editor of the *Review* has a short article on the Wells System. I notice, he says, that the dummy of the Wells hive is made of perforated metal—this is a mistake. I think Mr Wells uses and advocates wood dummies. He also argues that the adoption of the plan is really an acknowledgment that the queen's power is limited, or that we are using too large brood chambers — though he (the Editor) admits that a point is gained by the combined heat of the two colonies in building-up in the spring. Will those who adopt the system take notes of the state of the bees at the entrance of the Wells hives compared to ordinary one-colony hives, and see if the Wells hive does or does not save the bees a lot of wing-labour, fanning at the entrances. One would suppose that with a perforated division-board a current of cool air would circulate from hive to hive or from entrance to entrance, especially where the entrances are located near each end of the hive.—W Woodley, World's End, Newbury.

(April 27, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:165-166. Twin hives. [Letter 1410]. I have been greatly interested in reading in the BBJ week after week about the so-called Wells system, and, with your permission, will give my experience with twin hives. I have four such hives in work at present; the first I bought in 1888 at the Devon County Show at

Barnstaple, and, as it now appears that twin hives are coming again to the front I may say that I consider it the best hive yet seen. Mine holds eighteen standard frames in brood chambers, parted with a small-hole perforated zinc dummy. I have room on top for two crates of shallow frames or sections, but I prefer two tiers of standard frames to one standard and one shallow. I never have any bother about swarming by giving the queen plenty of room—say, eighteen standard frames, nine under and nine on top, with abundance of ventilation. I have a piece of perforated zinc fixed in the floor-board, with a tunnel underneath the latter. When taking honey, I always pick out the best combs for use in the brood chamber, and melt down the other. I don't believe in keeping old combs for use in brood chambers, preferring to use full sheets of fresh foundation each year. I can get my stocks up stranger in the spring in this way than by using old worked-out combs. I have had splendid takes of honey from these twin hives, one of them turning out as much honey per season with me as three ordinary ten-frame hives. I see a correspondent (Letter 1354, p.87) says that all double hives are formidable affairs to manage, but such has not been my experience, extending since 1888; but I can't agree with Mr Wells about the entrances. I like one in front and the other at the end. Bees have never been so strong with me as this year. I never saw them so forward in the first week of April. One stock of hybrid Ligurians quite fill the hive, and I shall have to give them an extra lot of frames.—WASM, North Devon.

(April 27, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:166. Double-queened hives and their management. [Letter 1411]. I am sure we have all read your charming account of a visit to the apiary of Mr Wells at Aylesford with the greatest pleasure. The description presents us with a picture which we all love to dwell upon, and it is satisfactory to know that all the stocks were in such excellent condition. I do not think it necessary to remind you that the month of April is hardly the time for bees to be bad-tempered and unmanageable, nor do I think it necessary to argue whether Mr Wells is entitled to be described as an expert—I mean a great expert—for, accepting your own account of him, I am quite sure his modesty will not suffer if we say he is a great expert. But what strikes me as being important is the description which you give of the system, viz he double-queen system, whereas some of us consider it more correct to say the twin or double-stock system. And if we are going to judge of its advantages over the single-stock system by comparison of results, it is necessary to start with a good understanding on this point. For myself, I have no hesitation in saying that the Wells apiary consists of twenty stocks of bees, and if the net product exceed that of twenty stocks under the management of Mr Hooker, or of either of our Editors—in which case the difficulty of manipulation will not be considered—on the single-stock system, we shall have no hesitation in making our friend blush by describing him as a benefactor to the human race! Having myself experienced the difficulty of teaching young beginners how to manage the ordinary ten-bar frame hive, with its sections and supers, and all its various parts, which are always expensive enough to deter many from becoming bee-keepers, and difficult enough of management to disgust many others, it seems only charitable to advise young beginners' not to plunge into a system which appears to increase both these difficulties until we have a unanimous verdict in its favour. — Thos F Ward, Highgate, April 22nd. ps—I note another failure in last

issue, Letter 1403, p.155.

(April 27, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:166. Queries and Replies. [Query 757]. The Wells perforated divider.— The account of the editorial visit to Mr Wells' apiary on p.151 of BJ for April 20th will be welcome to many. Will you allow one more question about the thin wood dividers ? The difficulty of course is to prevent warping, and Mr Wells has told us that he relies on an edging of tin. I have never been able to understand how this can be applied so as to act as desired. In your description of the divider there is no mention of strips of tin If these have not been abandoned, will you kindly let us know more about them? —*South Devon Enthusiast*.

Reply.— The divider is bound on three sides by tin strips, but the perforations prevent warping.

(April 27, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:168. [Query 762]. Supering Wells hives.— On Saturday, the 15th inst, I placed two strong stocks in a Wells hive and they settled down quite amicably. How soon after putting two stocks together in this way may supers be put on? — H Livermore, Enfield.

Reply. —We should say that a week or ten days would be ample time for the bees to acquire an odour common to both.

(May 4, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:171-172. Useful Hints. Continuing our hints of last week, ...Wells hives. —We continue to receive queries regarding these, and in view of the nature of some inquiries sent, again strongly impress upon readers —who have so far made acquaintance with only the most elementary details of the double-queen system —the necessity for making an effort to master the important points essential to the successful carrying of it out before trying the plan at all. Otherwise failure is almost sure to follow. We have no hesitation in saying that inquirers are far from being prepared for a safe stocking of their Wells hives, whose present knowledge carries them no further than asking if a queen-excluding dummy of the ordinary excluder zinc will not be better than one of perforated wood. Referring to the latter, we append some details intended to follow the remarks on p.153 of BJ for April 20th: —The divider is finished off by binding it on three sides with strips of tin, which makes it stronger and more durable. It is important to burn the holes after the first boring for several reasons, and this burning is done very rapidly by Mr Wells, who has half a dozen of the sharpened wire tools in use, and all heating at once. He withdraws one from the fire, and, while red-hot, passes it through several holes; then uses another, and so on till all are gone through. The burning leaves no burr on the holes to irritate the bees. It is satisfactory to know that many who claim to be little more than beginners are doing very well with their double-queened hives, and are fully alive to all the care needed in managing such hives. There is also, so far as we can gather, no attempt at rushing into the Wells system to the exclusion of ordinary methods. The rule appears to be a limiting of trials to one, or at most two double-queened stocks, so the system will have a fair trial in many hands without a deal of either trouble or expense on the part of experimenters. A few will no doubt make a failure of it, as some do with ordinary methods, but even the failure will not be a serious one...

(May 4, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:174. Uniting bees without fighting. [Letter 1415]. For many years I have been trying to find out in what way beehives are best placed so that they may be united without fighting and without trouble. About twenty years ago a friend of mine had his beehives divided by perforated zinc; he, unfortunately, died before the system was properly tested, and after his death the bees were given up; but I remember that he told me the plan answered very well. I have been much interested in Mr Wells' system, as I have found from experience that if we can bring bees together so as to give the two stocks the same smell, or at any rate to get them accustomed to the smell of each other, that the chances of fighting are very much lessened. In your *Journal* of April 20th I have read with much interest the account of your visit to Mr Wells' apiary, and I feel sure that the clustering of the bees together in winter will induce early breeding, and in that way must very materially strengthen the hives; and so convinced have I been in the success of the system that I have this winter made a double hive for my own use, and I took the earliest opportunity at the end of February, on a warm day, to stock it. We have certainly had splendid weather, but I have never during my long experience, as far as I can remember, seen two stocks now placed in this hive so strong at this time of the year. The length of this double hive is 4 feet 6 inches. Each end holds sixteen frames. The entrances of the hives are at the end, and are at present eleven and eight inches long respectively, while a crowd of fanners are at each end; but for the last day or two I have thought it necessary to give extra ventilation. In your description of what you saw, some of the entrances were stated to be without any division, except a flat slip of wood. I think this will prove to be a mistake. For some years I had hives the porches of which were joined by a passage two feet long and four inches broad. The bees seemed to pass through it, but I lost two or three young queens, which had evidently gone out to mate, and on their return went up the passage instead of entering their hives. A very experienced bee-keeper warned me I should lose young queens. I told him I had done so. In future I closed this passage at such times, and lost no more. I feel sure a projecting division is needed, and it would be an additional safeguard if the entrances were painted different colours. I do not see any advantage in the bees of both hives working together in the same super, as I think the same amount of honey would be deposited in two smaller supers containing together the same number of sections. The main advantage in this system is the clustering of the bees together in winter. All bee-keepers should, I think, be much obliged to Mr Wells for telling us the result of the experiments he has made. There are very few who do this, and we should all get on faster if they did.—F McC Ecclefechan, NB.

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(May 4, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:174-175. Queen-traps for preventing runaway swarms. [Letter 1416]. I am very much-obliged by your answer to my letter (Letter 1409, p.165), but fear I did not make myself sufficiently clear. The point I wish to raise is a most important one, I feel sure, to hundreds of bee-keepers besides myself, and it is this. Would any harm result from having a queen-trap fixed the entire length of entrance, which would simply catch the queen should she attempt to come out with a swarm? Personalty, I do not want a self-hiver, so long as the queen is caught, as I presume that the bees composing the swarm would return on finding the queen

not with them. I fail to see that there would be practically more trouble in dealing with a stock from which a swarm had issued and returned, than there would be with one from which a swarm had come out and been caught in a self-hiver. If a simple queen-trap answers its purpose, the presence of the queen would show that the particular stock had swarmed, and the bee-keeper could then make a swarm or deal with it as he wished. The drawback of all the self-hive is I have yet heard of or seen is that additional hives, &c are required, whereas, if a mere queen-trap will do, expense and trouble are greatly lessened. I have procured a queen-trap from a well known dealer, and shall have gained practical experience by the end of the season. In the meantime, I, with many others, would esteem your opinion as to whether any harm is likely to result from the queen being trapped and the swarm allowed to pass through and return at will. On examining my Wells hive a week after placing two stocks in it, I found the perforated divider had seriously buckled, and although, as far as I could see, the queens had not passed by, yet the combs on either side were rendered useless for breeding. I fear that unless this difficulty can be overcome, there will be more failures than successes with the Wells hive. Would it not be possible to substitute something else instead of wood, which would not buckle? If metal is not suitable, would vulcanite stand the heat and at the same time be acceptable to the bees?—H Livermore, Enfield, April 29th.

[No harm whatever would follow the capture of queen in trap. There must be some serious fault in the perforated Wells divider you have. We have seen several of those made by Mr Wells himself, and in none of them was there the slightest tendency to buckle Refer to what is said on the subject in Hints on another page of this issue. — Eds.]

(May 4, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:175. Wells hives. [Letter 1420]. I have one hive on the Wells system as set forth in the *Journal* and the bees therein are filling the supers rapidly, so the Wells hive is a success here.—HO Huntley, Senwick, Worcester, April 24th.

(May 4, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:177. Echoes from the Hives. Kingston-on-Thames, April 27th. — Most of the bees in this neighbourhood appear to be in healthy, vigorous condition. Hives are filling up rapidly with brood and honey. Four stocks have been lost during winter, and one lot decamped from a straw hive. One bee-keeper has commenced on the Wells system, and hopes to report results later on in the season. In view of the long drought, I am watching with particular interest a fine field of white clover half a mile away from my bees, and wondering if it will yield well this year.—H Crawley.

(May 4, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:177. The Willows, Landbeach, Cambs. April 29th.— Yesterday I took from my bees two crates, each containing twenty-one sections, well filled with new honey; one crate from a single stock on ten frames, and the other from a colony worked on the Wells system. These are all so well filled that out of the forty-two sections, I have only to return three to be finished. I have nineteen hives, and only one of these of the Wells type, into which I put two late swarms last season, and they commenced working up in sections earlier than any of my single stocks; so I think of following Mr Wells a little farther. There were two swarms of bees from

skeps in this parish on April 20th, and with a continuance of this glorious weather, we hope to break some more records this season.—Charles R Pigott.

(May 4, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:177. Queries and Replies. [Query 766]. Adapting hives to the Wells System.— I have a frame hive holding sixteen standard frames and two dummies, but the frames run parallel with entrance. I should like to work it on the Wells System, and so beg to ask:—

1. Would it be a suitable hive for that purpose, and is it necessary to have two separate entrances?
2. Would the ordinary queen-excluder dummy do to keep the queens parted; if not, where could I obtain the proper dummy for it? I have a good stock of bees in the hive at present, and I intend to put another strong stock in it at once if you consider it will answer the purpose.—JS Barnstaple.

Reply.—

1. It can only be adapted for the purpose by making a separate entrance at side or in rear for the second division of the brood chamber.
2. An ordinary queen-excluder is quite useless for the purpose, seeing that worker bees as well as queens are to be kept apart. Any manufacturer could supply the proper dummy, or you can make it yourself by referring to instructions on p.172 of this issue. We must impress on those making a trial of the double-queen (or Wells) system the necessity for acquainting themselves with the principles on which it is worked.

(May 11, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:185-186. Early sections and Wells hive. [Letter 1430]. On April 7th last I put section crates on two of my ordinary hives (one containing twenty-eight and the other twenty-one sections) and a crate on my Wells hive, containing forty-five sections. Up to the present I have taken from my ordinary hive thirty-four sections, weighing thirty-five pounds seven ounces, and from my Wells hive two sections weighing two pounds one ounce, leaving about thirty-six nearly finished. So far there does not appear to me very much difference between the two systems, but I intend to keep notes of the two stocks I have pitted against my Wells hive, and compare the results at the end of the season. The sections were partly drawn out (the ones I extracted from last season), and partly Howard's Champion with full sheets of foundation. There are plenty of fruit-trees in the neighbourhood, and I notice that I put section crates on last year on May 17th, and took my first sections off June 3rd. — Lower Edmonton.

(May 11, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:187-188. [Query 776]. Age and distance at which queens mate.—

1. Would a young queen be fertilised by drones from hives about eighth of mile distant? My hives are some distance away, but I wish to raise a queen in my attic, so desire to know if it is necessary to have drones in the same hive?
2. If a queen is not fertilised soon after hatching (five days or so), will she never become so? If not, what is the reason?
3. Often when examining my hive in summer, there is a gurgling noise made by the bees. What does that mean?
4. I only saw a swarm of bees for the first time June, 1891. I consider last year

my first true bee-year. From one hive I obtained 103 sections. Should I do better by Wells system, or any other system?

Reply.—

1. Yes. Young queens seldom mate with drones from their own hive if others are within reach.
2. Queens are sometimes fertilised three weeks after hatching, but the usual time is from three to six days.
3. Nothing more than the hum caused by disturbance.
4. 103 sections in one year from a single hive is so good a result that we will not venture to suggest any system which will lead you to expect an advance on it.

(May 18, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:192. Coming bee and honey shows. The show season of 1893 having now fairly started we turn with some interest to the announcements of bee shows to come recorded in our pages in order to judge how the season of 1893 will compare with its predecessors in that respect. In point of numbers the list far exceeds any year we remember at this early date, and we are glad to notice that the framers of the prize schedules before us are not binding themselves to stereotyped forms. The executive of two Associations—Essex and Berks — evince a keen appreciation of what is at present interesting bee-keepers in an unusual degree by introducing special classes for Wells hives or hives adapted for working on the double-queen system. Several schedules have also classes for a single one-pound section and for a single one-pound jar of extracted honey in which the exhibits in these special classes become the property of the respective Show Committees. This feature is, in some cases, being turned to good account for charitable purposes; and it should tend to increase the number of entries very largely when these facts are known...

(May 18, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:195-196. Comparing the double and single-queen systems. [Letter 1435]. I am very pleased to find so many bee-keepers giving the double-queen system a trial, and also glad to note that some are comparing results, viz one hive with two queens against two hives with but one queen in each; but I hope that all who are testing the double queen system on these lines will bear in mind that they do not really prove its merits or demerits unless they began their operations when packing up their bees for winter. I lay stress on this point because the winter and early spring months are very important factors in the double-queen plan of working. In fact, it may be said that herein lies the secret of its success. Most bee-keepers can get single stocks strong enough to gather the main crop of honey in June and July, but not many get them up to full strength in time for the fruit-bloom and other early-flowering plants in April and May; so when any one wishes to make a fair comparison between the two systems of working, they should start, say, about the middle of October in the following way:—Select four single stocks, each with young queens proved to be about equal in laying powers. Let each queen have about the same amount of brood, young bees, and plenty of food, so as to start the winter as nearly as possible on equal terms. Give them all the same amount of attention, keep a debtor's and creditor's account of all their requirements, labour, &c included. This (or some similar plan) will show the difference between the two systems.

We shall not be safe in deciding unless something of the kind is done, because I claim that less food is consumed in winter, less attention required in spring, that bees are ready to gather honey whenever it is to be had, are quite as easy to manage, not more vicious, and in no way whatever worse to handle, &c, but, in the end, very much more profitable. Perhaps some of your readers would like to know how I am getting on for honey this splendid weather. Well, of course we are in the same position as most folks; not much bloom to be seen, and there appears to be very little honey in the few flowers which are open. Probably it is for the want of rain; still I have no room to complain, as my bees secured a nice lot of honey in April, and appear to be getting just enough now for present requirements. Surplus chambers are not being filled, nor are their contents diminishing, but we have any amount of bees to gather the honey as soon as rain comes to make it flow. I have not yet removed much honey, as I prefer to leave it on the hives for some time. On the 12th instant, however, I examined one—a hive which contained fourteen standard and fourteen shallow frames for brood nest, and twenty-eight shallow frames, and a crate of twenty-seven one-pound sections—and I found that the twenty-seven sections and the top crate of fourteen shallow frames were completed. So I took them off, and could have had more from other hives if wanted it, but I usually let the bulk of it remain in hives until the end of the season, just removing as much as is, wanted for present needs. Now, Messrs Editors, I think you could assist me a great deal if you will kindly undertake to answer inquiries which readers who are interested in what they call the Wells system may be about to put to me. I am very busy in my business, and really cannot spare much time in the evening for writing, and as you have made yourselves pretty well acquainted with the subject, answers may be got through your valuable *Journal* quite as well as I could answer them, and your reply would speak to large numbers, whereas mine only speaks to one. Should there be any little detail which wants clearing up, I will do my best to make it plain through your pages.—G Wells, Aylesford, Kent, May 15th. [We shall be glad to do anything in our power to relieve Mr Wells of labour which, it will be admitted, must be not a little onerous and exacting when, as he told us, as many as ninety letters were sent to him in one day last year. — Eds.]

(May 18, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:196. Hives for Wells System. By a beginner. [Letter 1436]. Before the illustrations of Wells hives came out in BJ and Record I had partly made mine, which I designed to suit the system so far as I then understood its principles. As it differs from any I have seen described, and in one or two points the difference seems to me advantageous, I send you a few particulars. The hive being four feet long, I made the roof in three sections. The centre one holds the end ones tight, and all being small are easily moved without jarring the hive. For supering it shall take off the centre part of roof and put excluder zinc over only those portions of brood nests which come immediately underneath that part; then, put on an outer casing, with body-boxes inside as required, and the middle section of roof over them. The bees in super will be concentrated to a width of some nine or ten? frames. I shall be able to get at the outside half of each brood nest without moving the super. I shall have no long, awkward cases to shift when adding another story, and I shall save wood. If the hive does not answer, I can use the supering parts as an ordinary hive. For my dummy I used one-eighth-of-an-inch pine, which I first fixed firmly

on a flat surface, and then with an eighth-of-an-inch bit I drilled some 300 holes. Then I framed it in strips off the grooved side of match-boarding. I had to fix the portion of floor under dummy, as the floor-boards had warped and shrunk. I can give three-eighths of an inch entrance all round (ten feet). I had thought of allowing the bees to enter and depart from the super by way of a wide passage up between the outer case and body-box, because I had been told bees do not like excluder, and I thought, with only about sixteen inches of it, they would not be able to pass up and down fast enough, but recently you told a correspondent that extra entrance for super had been found not to answer,,so I do not like to attempt it. However, if you think no serious mishap would occur, I may try it. The East-enders in my Wells entered at the end at first (their entrance is gradually becoming nearer the middle of the front), and I had ample proof that, as you have said, end entrance was not desirable. I could not touch the brood nest without, disturbing entrance. Could not a few frames of brood and young bees be separated by perforated division-boards at each end of hive, and then be supplied with queen cells to raise new queens to supersede the old ones? —FF (nine months a Bee-keeper).

[Our correspondent had better not try queen raising on the plan he suggests. For the rest, we shall be glad to have a report on the hive referred to after a season's trial. — Eds.]

(May 18, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:197. Lincolnshire Bee-Keepers' Association. Caistor District. Afternoon and evening meeting of bee-keepers. A very enjoyable meeting of bee-keepers and those interested took place in Caistor on Thursday, May 4th, under the direction of Mr H0 Smith, of Louth, the afternoon proceedings taking place in Mr Percy Taylor's garden (kindly lent for the occasion), when a good muster of members and their friends assembled. The weather being delightful, Mr Smith opened and examined several of Mr Taylor's stocks, and found them all in healthy and good condition. The operation greatly pleased the younger members and ladies present, many of them never having seen the internal arrangements of a bar-frame before. Finding the queen was both amusing and instructive, it being quite a little competition as to who could first "spot her majesty. Mr Smith, in a very lucid manner, explained the working of both skeps and bar frame hives, driving, &c. Laid out upon a table on the lawn by the District Hon Secretary, Mr Charles Ainger, were frames and sections fitted with foundation, frames showing the methods of wiring, foul-brood remedies, various quilts and wraps, and many other things required by bee-keepers, all of which were examined and discussed; but perhaps the object that excited the greatest interest, especially amongst the more advanced members, was a hive for working the Wells system; it was minutely examined, and its merits fully criticised. In the evening the meeting was held in the Red Lion Hotel Assembly Room, when there was again a very good attendance. FA Dorrington, Esq JP, one of the vice-presidents of the Association, occupied the chair. Mr Smith first addressed the meeting, and, for the benefit of those who were unable to be present at the afternoon meeting, again went fully into the working of both skeps and bar-frame hives, explaining, by means of two skeps and irons, how to drive bees. A general discussion then took place upon various methods of working hives and the whole art of bee-keeping. The pleasant and instructive meetings were then brought to a close by votes of thanks being accorded both to

the Chairman and Mr Smith.—Communicated.

(May 25, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:203-204. Notes by the Way. [Letter 1439]. At last, after a long interval of eleven weeks, we have had the long-wished-for, prayed-for — rain... Those bee-keepers who have weak colonies now, should bring them together as soon as possible by moving each hive a little every day, and then, when side by side, put them both into one hive with a Wells dummy between the colonies, giving entrances at each end, or at or near the ends on the front side of hive, and in a day or two super them, first laying a piece of excluder zinc on the supering space above the united (though divided) brood nests. This plan will be far better than weakening strong stocks by removing combs of hatching brood to strengthen weak stocks; in fact, I consider it one of the best, if not the best point, in the Wells system. I know there are those who would say Why do you have any weak stocks? Well, with the best strain of bees, and selected queens, and the best of hives, there will be a few stocks in any large apiary that are not up to the mark...

(May 25, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:207-208. Many-queened hives—extending? The Wells System. [Letter 1446]. Seeing by your *Journal* such favourable results from the Wells hive, I venture to ask is there any reason why the principle should be confined to two colonies of bees? If two stocks can live together amicably, and work with increased energy, why not three, six, or eight, as most likely the workers will keep pretty closely to the supers immediately over their own brood chamber? Colony No.1 would know No.2a and No.2 would fraternise with Nos.1 and 3, and No.3 be familiar with Nos.2 and 4, and so on. The entrances could be carefully divided, and each painted a distinctive colour. It appears to me we should then be approaching the habit of bees in their natural way of working, such as when they take to the roof of a house, as they increase, they appear to separate into families, sometimes with one or two supers (and space) between, until a large portion of the roof is covered. The advantages I should expect would be economy of heat in the winter, there being so few outside walls; facility for protecting in sunny weather, or, if preferred, a shed would cover the lot; less labour in working, together with all the advantages of the Wells System. Of course the hive would be constructed to suit the altered circumstances, so that any one colony, or super over same, could be examined or manipulated independently of any others. An exhaustive article on the subject would, I feel sure, be greatly appreciated. — James McKean, Castleblaney. [We print the above communication as expressing what has already been thought of by several readers, whose views, though conveyed to us, were not intended for publication. We may, however, say at once that in our opinion it will be a waste of time to go on experimenting in the direction indicated. Depend on it if there had not been weighty reasons against extending the co-operative principle to the extent referred to, our American bee-keepers who, besides being good bee-men, love a big thing, would have worked the idea out ere now. To slightly alter a useful adage, we had better let Wells alone. Or, at least, let us make a success of the two-queen system before extending it further. —Eds.]

(June 1, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:213-214. Remarkable occurrences connected with queens. [Letter 1448]. Do not

remarkable occurrences in the apiary often repeat themselves in a season? Eg, in 1891 many queens were mated very late, the wet summer having kept them at home; in 1892 honey in many districts granulated early; and now, in 1893, bees have been most active in superseding queens. The accession of a queen in Mr Harris's case (1442, p.200) is strange. The following is not so striking, but appears to be more inexplicable. On March 30th I found a hive queenless; this hive had thrown out many bees after the cold winter, and I supposed the queen was one of the defunct. I gave a frame with one queen-cell sealed (and found out afterwards that that was the only queen-cell the other hive had for superseding with). This cell was destroyed. On April 22nd, no brood, inactivity. Put in a frame with eggs. April 28th, no eggs, no queen cell; young bees hatched from added frame nursing the regaining and only brood; some little pollen coming in. May 6th, no fresh brood or eggs; gave a frame with unsealed but inhabited queen-cell, with royal jelly taken from a super with the queen laying below, under excluder, a fertile worker in the super having just discontinued laying. (Please do not think this was a young queen laying in the super before fertilisation. The hive was the one from which, on March 30th, I took the queen-cell, and found afterwards it was queenless. A fertile worker took up business actively. But by April 28th I had a young queen in good lay there, and then the worker gradually eased off in the super. I had left the super on under excluder all the winter). May 13th.—Queen-cell destroyed; still no sign of a queen; gave another frame with eggs. Our Association expert, Mr Hamilton, also examined the hive on this date. May 22nd.—No queen-cell on last added frame, and not an egg in nest. Gave another frame with eggs. May 27th.—Found eggs where the young had hatched out; then found her majesty, lively, with light pubescence, not large, and I thought young. Now, I did not always look closely enough to be sure there was no queen-cell in some side or corner—it, of course, did not occur to me to do so; but I know it was not on any frame I gave a week after putting in, and I made careful search through the middle of the hive for eggs or young brood every time. The advent of the queen (or, as a remote chance, the long suspension of her functions) is difficult to understand.—S Jordan, Bristol, May 27th. see one of the queens thrown out next day. As no queen was ejected, I began to wonder whether both still lived. A fortnight later, on overhauling the frames, I discovered both queens laying and living amicably in what is now one stock. today, after a month from the removal of the dummy, the two royal ladies are still enjoying a joint reign. This seems to indicate that fertile queens do not bear any aversion to one another when both have acquired the same scent. Or is it that the workers being peaceably inclined do not stir up the strife which leads to the royal duel? Doubtless the uniformity of scent is the principal factor. Perhaps others who have joined weak stocks by the above plan may be able to report a similar result. The above development was quite accidental, and in no way a result of any attempt to improve (?) the Wells system. — Thomas Badcock, Southfleet, Kent, May 26th.

(June 1, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:214. The Wells System and weak stocks. [Letter 1449]. Mr Woodley points out the facilities which the Wells system affords for uniting weak stocks and securing honey by allowing them to work in a common super. Some weeks back I placed two such stocks in one hive, separated by a Wells dummy made one-eighth of an inch thick, and bound at the edges with zinc. About a week afterwards I placed a

super on. On examining the hive a week later, I found that the dummy had warped so considerably as to interfere with the combs on either side of it. I therefore took it out, but having no other available, I decided to let the two stocks become one, and replaced the super, expecting to see one of the queens thrown out next day. As no queen was ejected, I began to wonder whether both still lived. A fortnight later, on overhauling the frames, I discovered both queens laying and living amicably in what is now one stock. today, after a month from the removal of the dummy, the two royal ladies are still enjoying a joint reign. This seems to indicate that fertile queens do not bear any aversion to one another when both have acquired the same scent. Or is it that the workers being peaceably inclined do not stir up the strife which leads to the royal duel? Doubtless the uniformity of scent is the principal factor. Perhaps others who have joined weak stocks by the above plan may be able to report a similar result. The above development was quite accidental, and in no way a result of any attempt to improve (?) the Wells system.— Thomas Badcock, Southfleet, Kent, May 26th.

(June 1, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:214-215. Observations on and experiences with the Wells hive. [Letter 1451]. Like a good many other bee-keepers, I caught the Wells fever in the spring of this year. I constructed a hive, forty-five inches long, of the standard width and depth, having entrances in front, extending from end to end, with the exception of about six inches in the middle. In the centre of the hive, I placed a perforated thin dummy, having 200 holes burnt through, of one-eighth inch diameter. On each side of the dummy I put a stock of bees—No.1 containing ten frames, No.2 containing eight frames—all fairly covered with bees. On the top of the frames I placed excluder zinc over both stocks. About a fortnight having elapsed, I removed the coverings to see how they were getting on, and then I saw the first indication of the union of hearts between the two stocks, for I observed many bees come up through the excluder from No.1, and go down into No.2, apparently without molestation, and vice versa, others came up from No.2 and descended into No.1. This set me pondering the question, whether they used the two entrances indiscriminately; but this I found difficult of proof, as both stocks were black bees. I therefore placed a glass cover over some half-dozen bees as they alighted in front of No.1 hive, and discharged them in front of No.2, which they entered as if it was their own home. This I did repeatedly from both stocks with a like result.

Having observed that the stock in No.1 increased to twelve frames, while that in No. 2 remained almost stationary in eight frames, I thought I would equalise the two by transferring two frames from No.1 to No.2. This I did, shaking all the bees off into their own compartment. This necessitated shifting the dummy, and judge of my surprise, Sirs, on finding nearly all the perforations stopped! What can that mean, and what becomes of the similarity of odour theory? The few holes that were not plugged up were evidently in process of stopping, and the stopping is in all cases in the centre of the thickness, and does not extend on either side to the surface of the dummy, from which I infer that it is the work of both stocks alike. When I took the dummy out there were many bees on each side of it; these I shook off on to flight-board in front, and they used both entrances without hesitation. I inferred from this fact that perhaps I need not have displaced the bees from the two frames that I transferred from No.1 to No.2, for as far as the

bees themselves are concerned, I think it is proved that the two compartments are evidently only one stock.

It might be interesting to know whether my experience coincides with that of other Wells Hivites. The season here is too dry to produce much honey; swarms are very scarce, and but few supers are yet filled.—TI, Maldon, Essex, May 27th, 1893.

(June 1, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:216. Queries and Replies. [Query 788]. Swarms deserting Wells hives.— I have two beehives made for working on Wells' system. In the first week of May I put two swarms in each hive, one each side of the division-board. I sprinkled the bees well with syrup on hiving, and fed them with it afterwards, but one swarm from each hive flew away; the two remaining swarms, however, are working all right. On the following week I put in two more swarms to replace those that flew away; one of these immediately left their own side of the hive and went into the other with those that were there before, and remain there, but the swarm that I put in the other hive at the same time have nearly all gone back to the parent hive. There only remains about three parts of a pint of bees in the hive.

1. Would you kindly advise me what to do under these circumstances?
2. Will the small quantity of bees remaining get strong enough by feeding, or would it be advisable to put in another swarm with them? The parting is all correct, with perforated board in bottom chamber and with division at entrance. I wish to try the double-queen system, so would be very thankful if you would advise me how to get them to stay in their proper place. — Mathew Hider, Withyham, May 20th. Reply.—

1. If the hive is properly and effectively divided and the bees cannot get at each other from the inside, we cannot possibly understand why two swarms should not remain and work in it just as they would in two distinct and separate hives. Are you perfectly sure that each swarm had a queen? Again, when on the second attempt to introduce a swarm, the bees left their own side of the hive and went in the other, did they join from the inside or how? Altogether your failure bespeaks mis-management somewhere, but it is quite beyond us to say where. There was no use at all in sprinkling the bees with syrup when introducing the swarms, but even that mistake does not account for the repeated failures.

2. The handful of bees remaining of the deserting swarm are of no use whatever as a stock, even if they have a queen with them, which we doubt. With every desire to help you, we do not see how to give useful advice from a distance. Cannot you get some neighbour who is more experienced than yourself to advise you in the matter, as we could do ourselves effectually enough, no doubt, were we enabled to see you and your hive.

(June 1, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:217 [Query 793].

1. I have a frame hive quite full of bees, I don't want it to swarm, and can give no more room, except to put on section crate; there is no honey-flow till clover, which will be in full bloom in a fortnight or three weeks. Would cutting out queen-cells keep the bees from swarming?

2. I see on one frame about fifty drone-cells full of hatching brood, others flying. Are these drones of any use when I don't want a swarm?

3. I have two skeps with three-year-old queens, and would like to replace with queens from second swarm. Could I preserve young queens till they are fertilised and laying, so as to lose no egg-laying between killing the old queen and introducing the young one?

4. When putting on queen excluder for supering, should I put strips of three-eighths of an inch wood on top of frames, or excluder flat on frames?

5. I have a hive on the Wells system. Would you advise my using full sheets of strong foundation in stocking it with swarms?

6. What is the insect sent? It has a sting. —Jos Mitchell, Addiewell, May 26th.
Reply.—

1. If queen-cells are now formed, they had better be removed and a section crate put on at once. This should stop swarming.

2. None whatever under the condition referred to.

3. We cannot say what plan you purpose following to make this query apply. Write again, explaining your intended plan of procedure more fully.

4. Put the excluder direct on frame tops.

5. Yes, if the foundation is wired in.

6. Insect was smashed beyond recognition in post. It is, we think, one of the numerous family of wasps.

(June 8, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:224-225. Notes by the Way. [Letter 1456]. We have had a fortnight of fair weather. My Wells hive of two weak colonies is not a success at present. The super has been on since the 28th ult., and no work started yet, although the colonies, five and six frames respectively (entrances at each end), are crowded with bees; in fact one colony has started comb-building between the dummy and end of hive in preference to working in a (common) super. Theory first, practice after—one often upsets the other. There are many subjects I wished to touch on, but space forbids.—W Woodley, World's End, Newbury, Berks.

(June 8, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:227. [Query 797]. Best bees for extracted honey. —

1. What kind of bees are best for gathering extracted honey, natives, Ligurians, or Carniolans; or would hybrids of either of the above be better than the pure breed?

2. Are hybrids of the Carniolan natives more vicious than pure natives?

3. Why will not perforated zinc do for dummy for Wells hive? —Jas Pargeter, Leamington.

Reply.—

1. The black, or ordinary bee of the country, is supposed to be better adapted for comb honey than other varieties, which latter are credited by some apiarians with superior qualities in working for extracted honey. It is, however, very much a matter of opinion as to preference.

2. Sometimes these bees are remarkably docile, while at times they are just the opposite. No doubt judicious handling has much to do with the difference.

3. Reference to what has appeared in our pages on the Wells system will show that ordinary excluder zinc, if that is what is meant, is quite useless for the purpose intended.

British Bee Journal, Bee-Keepers' Record and Adviser **21**:231. Editorial, Notices

&c. Useful Hints. The Wells perforated dummy. A correspondent (Letter 1449, p.214) refers to this, and it was also mentioned by TI on the same page. The perforated dummy having rather failed in its purpose by warping so badly in one case as to necessitate its removal, and in the other nearly all the perforations were stopped up by the bees with propolis. Now, seeing that the dummy as made by Mr Wells himself is quite free from warping, and that comparatively little propolis takes place in his experience, it would be instructive and interesting if we could have had the dummies used by our two correspondents sent along to this office for the purpose of comparing with a genuine Wells perforated divider. An inspection of them might show wherein the difference consists. Cost of carriage to and fro will be gladly paid if our correspondents will oblige us in the interests of readers.

(June 15, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:232. Weak stocks and the Wells System.— With prompt and characteristic candour, Mr W Woodley, on p.225, reports his trial of two weak colonies in a Wells hive not a success at present. An innate feeling of what the result would be if weak stocks were relied on for double-queened colonies has made us rather deprecate the notion of starting the system with any but good, strong stocks, and if so experienced a hand fails in getting two weak lots to work satisfactorily, it may be assumed that others less expert will fail also. There is, however, one difference to be noted: if stocks are weak from causes easily understood and accounted for, there is no great disadvantage in using such. We cannot conceive more promising material with which to stock a Wells hive in autumn, than a couple of second swarms, or casts, which having issued late in the season may be numerically weak in the autumn, because no time was left in which they could become strong colonies. If time-enough were allowed before the winter set in for the young queens to breed as many bees as would form a brood cluster—small it may be—in spring, a couple of such queens, young and full of lusty fecundity, will so soon fill the hive with young bees as lusty and full of work as themselves that the colony so headed will run away from one strong, it may be, on going into winter quarters, but headed by queens already partly worn out by excessive egg-laying the previous season. The weak stocks referred to are ideal ones for Wells hives, but stocks weak it may be from disease, or failing queens, are unsuitable in every way.

(June 15, 1895). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:234. Separating swarms. [Letter 1462]. As the possessor of a Wells hive (not yet in working order), I have been considering how to overcome to some extent the difficulty of both sides of the hive swarming at the same time and uniting. In the March number of your monthly, under the heading of The coming campaign, an account is given how an American gentleman separated three swarms between two boards on the ground. Now, if swarms will separate between two boards on the ground, with empty frames and combs hung between them, I think a double swarm could very easily be hived by removing the perforated dummy from an empty Wells hive, and placing combs and empty frames in position, as described in the *Record*, and by then pouring the bees from the hiving skep into the centre of the prepared hive. I do not see why the two swarms should not sort themselves in a hive in an equally accommodating manner as they did between two boards.

In one case the perforated dummy would have to be reinserted and all closed down; whereas in the other, both swarms would have to be hived separately after they had divided up. Perhaps some of your numerous correspondents have tried the above method, and will report their experience. Will you explain, for the benefit of the uninitiated, how to clarify honey? — Sannyer Atkin, Norton Lees. [The only clarifying honey needs is to pass it through very fine muslin or coarse flannel, in order to remove any particles of wax, &c. Then, if it loses its clearness by beginning to granulate or become solid, it may be cleared and re-liquefied by inserting the vessel containing it in fairly hot water for a time. Dark or muddy coloured honey cannot be clarified so as to render it light-coloured and bright. — Eds.]

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(June 15, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:234-235. The double queen system and the wells dummy hive suitable for the system. [Letter 1463]. You will see by above heading that I do not use the term Wells hive nor Wells system. Both these terms are misnomers. As regards the former, Mr Wells himself tells us that, having hives by him holding fourteen frames, he adapted them to the double-queen system, or words to that effect; while as to the latter, both Americans and Englishmen have been trying to bring about the double-queen system for a long time. I myself have been at it for at least six or seven years, and I know others who gave it up as impossible about that time. No, gentlemen; Mr Wells has invented neither a hive nor a system, but he has succeeded in perfecting a system in which I believe all previous efforts failed, and has certainly shown us how two colonies of bees may be united without one of the queens being destroyed.

As regards Mr Wells' dummy, we were merely told that it was of thin wood perforated with holes too small for the bees to pass through. It immediately occurred to me that the secret lay in the fact that the dummy was sufficiently thick to prevent the bees communicating through it by means of their antennae, whilst the air passing through the holes from one part of the hive to the other gave all the inhabitants the same scent, and prevented them detecting the subjects of one queen from the subjects of the other. The experiment I am about to relate hereafter will, I think, tend to show that this theory is at least feasible. As to a suitable hive for this system, FF (Letter 1486, p.196) in your issue of May 18th last, seems to me on general principles to have hit upon the right construction of a suitable hive.

The following is a description of a hive I have now in use, sketch of which I enclose. Before commencing the description, I will say that the hive is sufficiently long to hold ten frames and a dummy on either side of the perforated one. The body is $31\frac{3}{4} \times 13\frac{1}{4}$ inches inside, and 33×15 inches outside measurement; it contains on either side of the perforated dummy seven frames and a movable three-sided dummy containing a feeding-bottle accessible from the back of the hive. Over the centre of the double hive is placed either an other ten-frame body $16\frac{1}{2} \times 15$ outside, or a crate of the same size containing twenty-one $4 \times 4\frac{1}{2}$ sections, or ten shallow frames (close-ended) as may be desired, with or without a perforated dummy, and on one of these any further supering takes place. The supers are covered with an ordinary ten-frame zinc covered hive roof, and on either side the twin body is covered with two lean-to zinc-covered roofs, making altogether a very picturesque appearance.

If the hive is made to take the Standard frame (17 ins. top bar), I would recommend that the section crate be 17 ins. wide, and to take twenty-eight $4\frac{1}{4}$ x $4\frac{1}{4}$ sections, with walls of $\frac{3}{4}$ in. wood.

The floor-board is the same in principle as that used in the English hive; the alighting-board runs along the front without any division of the two entrances, which are about ten inches apart; there is an arrangement above to increase the entrances for ventilating purposes, and there is no useless porch.

The perforated dummy is an ordinary $\frac{3}{8}$ in. thick one, with twenty-four (not 300) holes fully $\frac{1}{8}$ in., but two small for a bee to pass through. Whether this dummy will permanently answer or no I cannot say, but so far as my present experience goes, it certainly does. On the 28th April last I allowed two large swarms to run into the hive, one on the one side and one on the other; they soon started working out comb, commencing nearest the perforated dummy. Within about a week, I raised up the quilt and gave the bees some syrup on the top of the dummy, so as to bring bees from both lots together, that I might watch whether they started fighting. I am pleased to say they did not fight, but drank together on the bar in the most friendly way. The other day I changed a frame with about three hundred bees on it from one lot to the other; the latter received them without the slightest sign of hostility. The bees are frequently to be seen running along the alighting-board from one entrance to the other, crossing antennas, and back again. These bees get on far better than any of my others; the frames are almost filled with brood, and are ready to super, so that so far both dummy and system are a perfect success. I may say that my colonies here killed off the drones about the first week in May, and became as spiteful as in August, but a little honey seems now to be coming in (June 7th), and some of the hives have a few drones flying again. —AT Wilmot, St. Albans.

(June 22, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:243. Wells Hives. No.6. — Redshaw's Wells Hive. (a) The stand and legs are framed together. The floor is made in one or two parts as preferred, and each one will fall two inches in front, or slide out for cleaning, &c. Porch runs full width of hive front, and is raised or lowered to suit floor; with simple slides that will admit of forming entrances of various sizes, and in different positions as required. (b) Is an outer case containing an inner body-box with eighteen standard frames having WBC ends. A perforated dummy of the orthodox size, thickness, and number of holes, well clamped, to prevent warping; two ordinary dummies, two squares of approved queen-excluding zinc, (c) A deep lift, which with the roof will cover two tiers of section racks or shallow-frame boxes. (d) One shallow frame box of ten frames, and (e) one WBC hanging-frame section box is included, (f) The roof is thoroughly well made and waterproof; with a view to lightness, has a drip strip along front to carry wet off at ends. The gables project under eaves, as in WBC hive, to protect edges of the roof boards, and every joint is put together with paint.



(June 22, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:247-248. [Query 806]. A lady bee-keeper's queries.—

1. Must all entrances be on a level with floorboard or would it be injurious to ventilation to have an entrance at back of hive, two inches higher than floorboard? Front entrance is level. This for a Wells hive.
2. Would a dead rat, found under the hive, be the cause of many bees dying in winter? The stock is now very strong'.
3. Is brood foundation at 3*d.* a sheet too cheap? I have found tin cans very handy feeders. I make two or three tiny holes with the point of a darning needle in the bottom of can, place above hole in quilt, lift off the lid of can and fill as often as wanted.
4. Is there any objection to tin?—JB, Renfrewshire.

Reply—

1. Yes; entrances should be level with hive floors. We don't see how an entrance could well be provided as proposed, but it would do no harm in hot weather if practicable.
2. Any foul decaying matter is of course unwholesome, but the death of the bees cannot be safely attributed to the rat.
3. Cheap it certainly is; but we should not like to say too cheap.
4. No.

(June 22, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:248. [Query 809]. Preserving fruit in honey.—

1. In the BBJ of May 4th, p.179, there is a recipe for preserving fruit with honey, which I carefully followed on Tuesday, using the Climax bottles, with air-tight glass tops, and fresh-picked strawberries; but fermentation set in, and yesterday (Thursday) the bottle burst. I managed to save the fruit, but lost all the honey. Can you tell me the cause of it fermenting? I bottled some last July in syrup, and they are as good today as when put in. I would rather have the honey if it would keep. Will you kindly let me know, through your *Journal*, what I ought to do?
2. I would like to know, if a communication were made through the perforated dummy of a Wells hive to the other side (which passage could be stopped at will),

and opened when the bees are in a hiving mood, would it answer for the queen in all conditions?—MQS, Saintfield, June 15th. Reply.—

1. We think there must have been some tendency to fermentation in the honey used, or the fruit may not have been in good condition.

2. We do not quite follow your meaning in this query, or what the idea is of having a communication through the perforated dummy.

(June 22, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:248. [Query 812]. Admitting queens to supers in Wells hives.— If a separate super is put on a Wells hive (one compartment) because the bees in the other compartment are not ready for a super, and the queen lays in the super, is it right when the other compartment is ready for a super to put on the queen-excluder, and over it the super common to both compartments, inserting the brood and unfilled sections already put by the first lot of bees in the separate single super? — ATF, Leeds.

Reply.—The super should be placed above both compartments, with a queen-excluder between it and the brood chambers below. You upset the system altogether by allowing the queens to enter supers.

(June 29, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:257. The Wells System in Scotland. [Letter 1479]. As this seems to me to be an extraordinary season, I may as well tell you the state of two of my hives at the present moment. They are on the Wells plan. You would call them one hive. The double hive has thirty standard frames, fifteen in each division. There are sections all along the top holding eighty pounds of honey when full. The Wells bees have an entrance at each end, and enter by means of a porch; but at the end, as it were, of the porch they mostly fly right in. Another hive has its entrance fifteen inches away, also entering by a porch. These two porches form what I may call two entrance chambers, having an opening in the division. The two hives face one another. The bees of each end of the Wells hive have appropriated the hives facing their respective entrances. I have thought the old queens might have gone across, but the bees are simply depositing honey. These two hives have each nine standard frames. All are filling rapidly. Each division has therefore twenty-four standard frames and section capacity for forty pounds. I shall probably in a day or two give each outside hive more sections, holding twenty-four to twenty-eight pounds each. The hives are in a bee-house. The bees have not yet swarmed. There are not many drones. The four entrance chambers have crowds of bees in them, and are covered with glass, so I can see all that goes on. I do not know that this is anything out of the way, but I give it, hoping that other bee-keepers may tell their experience. —T McC, Ecclefechan, N.B., June 17th.

(June 29, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:258. [Query 820]. Driven bees and Wells hives.— I anticipate driving the bees from two straw skeps at Michaelmas. Would they take to a Wells hive and winter satisfactorily if fed up?—EHH, Microgroove.

Reply.—Bees driven so late as Michaelmas will not be likely to do well unless put on ready built combs and fed up rapidly. In any case it is not the best start to make with a Wells hive.

(July 6, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:262. The Wells perforated dummy.— In kindly response to the request made in Hints on p.231 of BBJ for June 15th, our correspondent TI has forwarded the dummy there referred to for our inspection. Sure enough it is well propolised, almost every perforation being filled up. But—and herein lies the pith of the matter—it is not a correctly made Wells dummy. In the first place it has a wide top bar, which, if ordinary metal ends are used on the frames, will keep the faces of the combs on each side of the dummy more than double the proper distance from the perforation. Then the wood instead of not exceeding $\frac{1}{2}$ in. in thickness is in parts a full $\frac{1}{8}$ in. We advise our correspondent to try again, to discard the top bar altogether, use thinner wood, and add about one-third more to the number of perforations.

(July 6, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:265. Establishing two queens in a Wells hive [Letter 1482]. Can you advise me as to the best means of getting two queens in a Wells hive before winter sets in? I have failed in two attempts. First, I introduced two stocks in the spring, but only one got on well, as the other dwindled away. The second attempt was a stock to which I tried to introduce a Carniolan queen, but failed, so left them to raise a queen. They did so, and before she hatched I transferred the whole into the empty half of Wells hive. I looked at them when I thought the queen should be out, but found her hatching [sic emerging], so I closed all up warm again until a fortnight after, when I failed to find any queen or eggs, and the bees considerably less in number; so I concluded my attempts this season had failed. I find now that the bees from both halves of the hive are working back and fore from both entrances quite comfortably, the queenWG Gowertown, less part gradually filling with honey, the other being crammed with both bees and honey, well capped, and forty-eight sections on the top filling. — June 23rd.

[Before venturing an opinion as to why the second attempt at establishing the two queens in the Wells hive failed, we should be told how it is that the bees of both compartments are able to mix together and fill the queenless portion with honey. If this mixing was possible all along, it was no wonder the second queen was killed! If the Wells hive consists of two distinct divisions, there should be no difficulty in establishing two lots of bees in it.—Eds.]

(July 6, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:265-266. My experience with hives worked on the Wells Plan [Letter 1483]. I have modified four of my combination hives (each of which held fourteen or fifteen frames) by cutting two entrances in the fronts, stopping the end entrance, and putting a slight partition between the two entrances, and I got some perforated wood dummies from friend Howard, not having time to make any. These are made from about three-eighths to half an inch thick, with holes about an eighth, and countersunk from each side to about one eighth. Of course I made no alteration to floor-boards, only adapting them so that they were wide enough for bees to land at front. As I got each hive altered I put two small stocks into the first, such as in an ordinary season would scarcely have built themselves up. When they were full enough I put on excluder zinc and a box holding shallow frames of worked-out comb, eight to a box, and as my frames are an inch and a half thick, when the combs are filled out they hold much more honey than standard shallow

frames. In this first-mentioned case I have already taken two boxes of fully sealed frames off, some of the frames weighing over six pounds each; in the second case I put a crate of twenty-one two-pound sections, which are nearly ready to take off; and from another I have taken off one full box only. In the third case I had two stocks standing at right angles to each other, one facing north, the other east, and as they did not appear to fill up to my mind, either for supering or for putting on extracting frames, I thought I would move them into one of these double hives, which I did just before dark one Saturday night, standing the hive diagonally across so as to make as little difference to the entrances as possible. Of course one lot had to come one way and one the other. I put on a set of standard frames of comb, but one and a half inch thick and eight to the box. The bees appeared a little confused the next day, but did not fight or disagree that I could see. After the first day there was no confusion, but they went to work, and I have taken off that box with combs fully sealed right to the bottom of the frames. I found, as others have done, that the bees propolised the holes in the dummies. In this last-mentioned case, I burnt the holes slightly larger, but have not yet examined to see if they have been stopped or not; but in the other cases it does not appear to make any difference, as the partition between two of the hives had come away, being fastened very slightly. The bees seem on quite friendly terms and do not quarrel in the least. As there has been no disposition to swarm, I cannot say how I might alter my opinion if such were the case, because years ago, when I had hives on the same principle, I gave them up because of their starting to swarm. If one lot began, the other followed suit. However, where I failed was in not placing a super common to both hives, as they only worked like ordinary stocks. — John Walton, Honey Cott, Weston, Leamington, July 1st, 1893.

(July 6, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:266. Bees fraternising in Wells Hives. [Letter 1484]. The following might perhaps be of interest to your readers: —About a fortnight since I inserted in a hive holding twelve frames and a dummy a Wells division-board, and transferred to it two weak colonies of bees, which I will call A and B, colony A being the stronger of the two, B being very weak indeed. The hive has a window at each end, and a strip of glass at the back, about 2½ ins. wide, running the whole length of the hive, with movable shutters. Noticing this morning that A was fast filling the outer side of its end comb with honey, I thought I might, perhaps, with advantage to myself, give them a super for storage. Accordingly I placed over the two lots of bees a sheet of excluder zinc and twelve shallow frames. Upon my having a peep at them through the back window this evening, I noticed that A's bees had diminished considerably in number, while B had gained, having five seams of bees huddled pretty thickly together, instead of, as formerly, e.g. last night, only three seams, and the temperature of each just about the same, instead of, as before, A much higher than B. The bees were perfectly quiet, and there was no robbing going on of B by A. Do not these facts point to the conclusion that in the Wells hives bees intermingle not only in the supers, but in the brood nests also? —FWK, Basketry.

(July 20, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:287-288. [Query 845]. Working two colonies in one hive. I have a hive constructed for working two colonies on the Wells system, with one alighting-board and two entrances about two and a half inches separate, having a small projection two

inches deep between them.

1. What I wish to know is whether it would be possible to work two colonies independently in the hive? Would the nearness of the two« entrances, though painted different colours, lead to confusion and fighting?
2. Is there any advantage, beyond economy of time and material in making, in hives to hold two colonies working independently?
3. In such hives, where are the best positions for the entrances—one in the end, and the other in the side close to the opposite end? We have had a good season here, but it has come to a close early. Drones are being killed off, and work seems at an end.
4. I would be obliged by your repeating the recipe for washing coverings, so as to remove propolis and wax.— Hugh F Kirker, Co Down, July 12th.

Reply.—

1. If the porch is divided as described, there will be no more difficulty than in working two hives close together on one shelf of a bee-house.
2. There is no advantage we know of in working two colonies in one hive beyond what is claimed by Mr Wells in allowing the progeny of both queens to work in a super common to both. Twin hives, made to hold two colonies working independently have been proved to be rather disadvantageous than otherwise compared with single colonies in separate hives and on separate stands.
3. We should prefer the entrances at opposite ends unless working on the Wells system.
4. We do not know the recipe referred to, but methylated spirit will dissolve propolis.

(July 27, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:296. Moving bees and queen excluder zinc. [Letter 1503]. I observe Enthusiast's difficulty (Letter 822, p.267), in removing bees. I also notice that he inverted the skep. Why that should be necessary I don't know, but I think it a mistake. One reason, it inverts the cells too, causing the honey when the skep is shaken to drop out, as cells in their natural position incline upwards. Another reason: often we find a quantity of brood on the lower part of the comb which makes it rather heavy, and when the hive is inverted or knocked about causes it to break and fall out, and sometimes a queer mess is the result.

About the middle of last May I had to remove a stock of bees in straw skep which had cast first swarm about a week previously. After placing a piece of hoarding underneath and tying it round the bottom, it was carried into a spring-cart the normal way up, placed upon two bits of wood to raise it from the cart bottom to allow air for the bees, with a piece of sacking packed between the cart side and hive. It travelled without any further trouble over country roads a distance of five miles, some parts very rough, with no breaking of comb whatever. At night I could hear the queens piping. The few days following being rather dull, and having a Wells hive near, I determined to drive them, which I did successfully, securing both queens, and placing about half of the bees on each side of the division-board, each with a queen, both sides doing fairly well, one side working in the super. Just a word respecting queen-excluder zinc. Bee-keepers here don't use it and I am informed that the queen with it never deposits eggs in the super. My bees take to the super in as many days without zinc excluder as they do in weeks with it. I have not yet extracted the supers, so cannot say from own experience

whether they will contain eggs or brood. Bees about here have done exceptionally well and from what I hear with about the usual number of swarms, one farmer with three or four box hives three weeks ago having taken about seventy pounds of honey and probably more; and another from two hives about forty pounds—which is considered very fair about here, I but have no doubt that with care and attention this could have been doubled...

(August 10, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:315-316. Queen raised in super. [Letter 1512]. Visiting an apiary in Galway some days ago, I was pleased to see a Wells hive at work. In giving the history of the stocks put into it, the bee-keeper told me that one of them was headed by a queen raised and brought to maturity under very curious circumstances. To induce the bees to go up in the super, and to give a fresh laying impulse to the queen, a comb containing drone and worker brood in all stages, but no queen-cells, was put up, the adapting-board replaced, and the super put on. This was on the 30th of May. I, to quote the words of my informant, on the 16th of June, took off the super, in which there was a great quantity of honey, and what was my surprise when I found two empty queen-cells raised on the comb in a conspicuous part of the brood comb which I had put in. The queen had been brushed off with the bees, not expecting to find one there, but the bees found her on the ground, flying over her with a note peculiar to a swarm. I caged her there for safety till I had a hive prepared for her reception. Now, that is not the most wonderful part of it; hut, when I tell you that the queen proved herself a fertile one—though, of course, she could not get out of the super—you will, I fear, say there is a mistake somewhere. The time, too—seventeen days—is an anomaly for a queen to be hatched and fertilised; but Ligurians are precocious, and these are the offspring of imported queens. I would have dismissed it as impossible but that my informant is one of the most successful as well as the most observant bee-keepers I have met with in Ireland. The apiary is a very old one. Seven hives are kept in a bee-house, which has many inconveniences. Three more are kept in combination hives, and two are in this Wells. The return of honey from one of the hives was very great indeed. The first super was taken on the 8th of June and replaced by another, and on the first being extracted it was returned, and all were full by the 30th, the whole amounting to 215 pounds. I should mention the whole apiary is run for extracted honey. Frames are all the same size—top bar, 19½ frame, 16¾ x 10½ inches—and, contrary to my expectation, I found all the honey sealed over, and the brood also. Perhaps there is this advantage in a bee-house—that the heat is so uniform as to prevent centering. From other stocks 140 to 150 pounds of honey were taken, but these stocks, as well as the big one, have given swarms since. I was delighted with the beauty of the pure Ligurian queens, and remembered some very pretty small bees which seemed to attend her. I was informed where a hive was queenless, or had only a virgin queen, these were to be seen with the drones on the front board. I send you two, though they are quite different from when alive. The abdomen was in two distinct colours, the thorax side a bright orange, almost yellow, the pointed end glossy black. I should be glad to know what part they perform in the community. Next week I shall send you some echoes from some fresh apiaries.—A District Hon Secretary, Balkey, Dublin, July 29th, 1893. [It is not unusual for queens to be reared where brood is in supers separated by excluder zinc—in fact, this habit is taken advantage of in queen-rearing. Nor is

there anything astonishing in the queen proving herself fertile if she was able to pass the excluder zinc. A great deal of the excluder zinc used is faulty in this respect, and we have ourselves verified that queens pass through it. If bees construct queen cells for larvae three days old, which they do if left to themselves, queens may become fertilised and lay in sixteen days from the time they begin rearing cells. To suppose it possible that the queens could have got fertilised without leaving the hives is quite contrary to established facts. The two bees sent arrived perfectly flat, and are not recognisable. From your description we should think they must be robber-bees that had lost their hairs through poking into other hives. — Eds.]

(August 24, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:335-336. The Wells System. [Letter 1523]. The Wells system, when put on trial, loses much of its gloss in my hands, but, unfortunately, we have had a very peculiar and bad season to try it in. After a small surplus in the beginning of May, there was a break until the first week in June. By the way, the honey gathered in May very quickly granulated, and tasted as though it had been mixed with pepper; it quite burnt your mouth. Although it had a very peculiar taste when extracted, it had nothing peppery about it. When the clover put in an appearance the crop was very light, and soon burnt up for the want of rain. The limes bloomed much earlier than usual, and only lasted a few days. The season then was over. The bees began in earnest by July 16th to kill off what few drones they troubled to raise; a grand time of it followed with robbers; they started with a queenless lot of Carniolans, a this-year swarm which arrived with a dead queen. A new one was kindly sent by the vendor, and duly caged in the hive, but was killed. A virgin queen was then tried by direct introduction; she was turned out dead next morning. The rate at which these bees decreased was surprising; in four weeks there were only enough bees to cover as many frames, although the swarm weighed four pounds when hived. Another lot of blacks, existing under the same circumstances, scarcely seemed to decrease at all—they refused to fight, so the robbers had it all their own way until I discovered their little trick. No more Carniolans for me; if this is a fair sample of them, I have had enough and to spare. No sooner was the entrance enlarged and covered with perforated zinc than the robbers turned their attention to the next colony, which was sharing the Wells' with the Carniolan; they were very strong, but the robbers came in such numbers that I was forced to pad the entrance, and used carbolic acid. The worst part of this plan is that acid used strong enough to stop a determined robber also stops the lawful occupants, and the next sight which meets you is to see hundreds of bees clustering about the hive. When the acid evaporates a bit, in go the robbers again as orderly as you please! I soon got sick of this acid business, and on the second day closed the hive, and put a wet cloth all over it. Whatever you do you lose some of the flying bees. After this things quieted down. I have come to the conclusion that the best method of stopping robbing is to open the entrance to the full extent, tack perforated zinc over it, then spray with carbolic acid to keep the inmates of the hive from causing confusion round the entrance, and cover the hive over with a wet sheet. Late in the evening every comb which is not crammed with bees must be removed. It is best to close the hive for two days, for although you may stop robbing entirely one day, the robbers will open the attack early next morning. The perforated zinc must be sprayed two or three

times a day to keep the inmates away from the entrance; the refuse which collects can be removed in the evening. Although there is a saving of timber in making a Wells hive as against two single hives, the benefit is entirely swallowed up by making the perforated dummy. If you have not made one you cannot realise the lively time you have boring and burning; the worst of it is that you have not done with the holes then. I have seven in use, made according to the letter, every one having the holes propolised more or less. Has Mr Wells ever stated that his dummies are not propolised? If they do not become propolised, all I can say is that his bees are anti-propolisers. I suppose that between now and next spring these holes will have to be cleaned out with a piece of wire. Another difficulty which confronts you is to get the bees and queen to consider the outside comb nearest the dummy (perforated) the centre of the brood nest. The bees must be stopped from storing pollen and honey to any extent in this comb. How hard it is to get bees to violate their instincts every bee-keeper knows, and it is for this reason that a Wells hive has no advantage for a second rate queen, for she will allow the bees to crowd her into the centre. It has already been recommended that weak stocks should be put together on either side of a Wells', one gentleman recommending this process before having tried it himself; but if a person follows this advice just before the glut, and thinks he will do as well as on the old lines, he is mistaken—at least, so I have found it. I think another disadvantage is using queen-excluder between the brood nest and the super. The bees do not take so readily to the super as when it is not used. Especially is this the case early in the spring, when it is most important that the little surplus which is often gathered then should be taken out of the way of the queen. One colony cannot be manipulated without disturbing the other. Although the dummy has nearly all the perforations stopped, there seems to be some sort of communication; for instance, there was a virgin queen on one side, the other being queenless. By mistake the virgin queen was put into the queenless lot after they were covered up, &c. The majority of those in the part formerly having the virgin queen marched into the part of the hive which she now occupies. I think much of the splendid results obtained by Mr Wells is due to his careful management, the district, and his strain of bees. — Leonard Smith, Beds.

[That much of the success achieved under any system of bee-management is attributable to the bee-keeper himself none will dispute, but it is very curious to those who have had the opportunity of seeing Mr Wells' method of working on the spot to hear of disadvantages which are non-existent in his hands, and yet seemingly cause trouble to others. Anyway, it tends to lessen one's appreciation of the disadvantages complained of when the use of excluder zinc is included among them. Why, we thought it was generally admitted that the excluder was indispensable in working—as Mr Wells does— chiefly for extracted honey, and that there is practically no disadvantage at all in its use. Then, as to the perforated dummy, if we could see one used by our correspondent, it might enable us to explain away his complaint in that particular. — Eds.]

(August 24, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:337. Queries and Replies. [Query 870]. Working a Wells hive.—

I. I have made a combination into a Wells hive, and put into it two weak stocks to winter, one on six, the other seven frames. Would one feeder put midway, so as to be got at by both colonies, lead to mischief, or would it be better to feed up each

one at a separate hole? I want to stimulate and to give both lots sufficient for wintering.

2. I have one stock on five frames empty of comb, but they are strong enough for eight. I have just turned them out of a hive not standard framed. If I were to feed them every night for a month, would they not draw out the three sheets of foundation I want to add?

3. Should the two colonies in the Wells hive winter safely, would it be better to find each one a separate hive in the spring, as I cannot enlarge it beyond thirteen frames, except above, which I do not desire for breeding purposes? The hive is high and unwieldy. This hive serves well for wintering, I should imagine, but awkward for supering purposes. — Enthusiast, Stonehouse.

Reply.—

1. We should use separate feeders for each lot, placing them as near the perforated divider as convenient in order to keep the two clusters of bees near each other.

2. Bees so placed do not draw out foundation at all nicely in autumn. We have known them extend the already-built combs to two inches in thickness before capping over the food, while leaving the foundation almost untouched. It would, of course, be different if the foundation were inserted between sealed combs.

3. We should certainly work the hive on the Wells system after wintering them so. Why not add a box of shallow combs above each in spring — just as Mr Wells does—in order to enlarge the brood nests?

(August 24, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:337. Queries and Replies. [Query 871]. Introducing queens—

1. Can you tell me whether the queen and worker-bees enclosed are pure blacks, and their approximate age?

2. A few days ago I was transferring some bees from an old to a new hive, and during the manipulation the queen (enclosed) escaped. Shortly afterwards I discovered her attempting to enter a neighbouring hive, and a cluster of bees surrounding her. I rescued her at once and returned her to her proper hive, and, for safety's sake, caged her in an American pipe cage pressed on to the honey-comb, and allowed her to remain for two days. At the end of this time I found her dead. Can you tell me whether she was suffocated by the heat or injured by the bees before I caged her?

3. Are these cages quite safe for introducing queens? I have three Italian queens I wish to introduce shortly; would three days be long enough to cage them before freeing them?

4. Would these queens (being fertile) have brood this year?

5. I have some old comb with pollen. Can I give this to the bees to store in their new frames of comb? If so, what would be the best way to proceed? —JJK, Herts.

Reply.—

1. Bees are not pure blacks, but as nearly so as the general run of natives. Queen is probably in her second year, but we can only guess by her appearance.

2. It is probable the queen has been injured in handling and caging. The body is too dry and hard for microscopic examination, but it was a mistake to use a cage on returning her to her own bees.

3. Why not try direct introduction? No caging, or indeed any other method, is quite safe, but, intelligently carried out, the direct method is as safe as any we

know of.

4. Yes.

5. Bees will not remove pollen from old combs to store it in the new.

(August 24, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:338. [Query 873].

1. I intend putting a couple of driven stocks taken three weeks ago into a Wells hive. When would be the best time to transfer them?

2. Is it necessary to put on excluder now, or wait till spring, using only quilts now?

3. Would it not be preferable to use excluder in two parts, so as to be able to manipulate one side without disturbing the other?—*A Beginner, Malmesbury*, August 14th.

Reply.—

1. The sooner the better.

2. A moment's reflection should show that quilts only must be used till supering-time comes round. The excluder, if used, would render the frames inaccessible without its removal.

3. Yes; it should be in two parts, but the first surplus box put on partly covers both excluders. You should, however, study the Wells system before practising it, as it is not quite adapted for beginners.

(August 31, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:348-349. Some bee-notes from Scotland. [Letter 1540]. The following particulars may be interesting to your readers: —I transferred in the spring two stocks of bees to a double hive in some respects on the principle so successfully carried out by Mr Wells. The hive was a large one holding in each division fifteen frames about the standard size. The bees were very strong. The entrances were at each end, eleven inches long, which could be contracted by means of slides. Immediately opposite each end, at seventeen inches away, I placed in May two empty hives, so as to be ready for swarms. The two divisions of the main hive I will call Nos. 1 and 2, and the empty hives opposite I will call Nos. 1a and 2a. There was a wooden board between No. 1 and No. 1a, also between No. 2 and No. 2a, across which the bees could walk. As the spring advanced, so did the bees in numbers. No. 1 was the stronger hive. Neither hive has swarmed, but bees began to walk across from No. 1 to No. 1a and from No. 2 to No. 2a. The numbers of bees going across seemed to increase, and they soon began to bring in pollen and honey. As regards No. 1, a great deal was stored. The bees alighted at No. 1 entrance, but many of them without hesitation at once walked across to No. 1a. They also walked backwards and forwards. I occasionally put a slide across the entrance to No. 1a, and the bees after running along the slide for a bit, at last gave it up, and walked across to No. 1 and entered. No. 2 and No. 2a went through the same process. No. 1a seemed so strong that I put a small super on it. I began to think No. 1 queen had walked across also, so I examined No. 1. She had not, however, done so, but there was a considerable quantity of honey and pollen. On June 19th I gave No. 1a a frame of worker comb with a few eggs in it, and a week later I gave No. 2a a similar frame. About ten or eleven days later I examined No. 1a. I found a queen's cell, where I had seen the eggs. In order to see the comb properly, I gave it a shake in order to knock off some of the bees. I think I loosened the grub from its

position, as when I next looked there was no sign of the cell—all had disappeared. A few days later, I inspected No.2a. There were two queens' cells. I examined the comb from day to day almost, as I was anxious to see the result. These two cells did not hatch, but remained untouched by the bees, except that one of them had the mark of a cell-bottom on its side. I, however, left them as they were till about the 19th of July. The comb had come out of No. 2 hive, and from certain signs of the bees belonging to No.2, I suspected a queen was wanted. The wasps were very severe, however, on No.2a, and I decided to remove it on the morning of July 19th. I shook the bees off on to the floor-board, feeling sure the bees would join No.2. I examined No.2, and to quieten the bees I put a carbolised cloth over it. The result was that a crowd of bees came outside. I found plenty of brood, however, which satisfied me that the hive had a queen. I left it for half an hour, expecting to see the bees all settle down. On my return I found on the floor-board where No.2a had been a large number of bees, and I pushed my gloved finger into a small cluster of them, and set free a queen, which was apparently being balled. She was lively, and I got her near to the entrance of No.1 hive, and went for a queen's cage and a man to help me. On my return she had not moved from the spot where I left her, and I secured her: she was again being balled. She was a small-looking queen, and her wings were all tattered, and I doubt if she could fly. I however brought back No.2a hive, and caged the queen on a honey-comb, and close to the two cells. I left her thirty hours and set her free; she was very lively. I left home in a day or so for Edinburgh, where I remained for a part of the show week. The clover at that time had begun to fail, and the heather had not fairly set in, but before I left home there were signs of fighting at the entrances, and the wasps were very severe on the two hives Nos.1a and 2a, but when I again got home, I found matters much worse. As regards No.1a, I simply shook off the bees from the frames opposite No.1 entrance, removed No.1a hive, and put a slide in so that the bees could not get to the position where it had been. I examined every corner of No.2a hive. There was no queen and the queens' cells were torn open at the side, and the contents removed; hut the wasps and robber-bees had made sad havoc with the honey, and the bees in these two hives were sadly weakened. There was one peculiarity about the two hives Nos.1a and 2a: the bees outside never fanned, while on the strong hive entrances opposite, there were generally thirty to forty. I can in no way account for this. It is possible the caged queen set free before I left home had been balled and killed, and the dead queens in the cells had also been pulled out in order to eat up the honey or queen's food inside them. The grubs, which I supposed were queens, must have been in the cells for a month before being torn out. Though it is now nearly three weeks since I did away with the two hives, Nos.1a and 2a, wasps and robber-bees come to the old entrances, now shut up with slides, and are attacked by bees belonging to Nos. 1 and 2 respectively. I have secured about one hundredweight of section honey from No. 1 hive, and about ninety pounds from No.2, and shall shortly remove what honey I think can be spared for extracting. Not a bad season, Messrs Editors, but I dare say others have done more. —T McC Ecclefechan, August 18th, 1893.

(September 7, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:354-355. A visit to a cottage apiary at Over Tabley. It was a fine summer evening last month, and after a long walk I stood for a time, on my homeward

journey, to admire the pretty little church and churchyard of St Paul's, Over Tabley... As I looked round the room, I thought what a veritable Paradise it would prove were a score or so of youngsters turned loose into it. Mr Houlden informed me that he is not content to leave well alone, but still hopes to improve his honey harvest year by year. He is about to adopt the Wells system, that of keeping two queens in each hive, and is very sanguine as to the results. After sampling the honey, and, like Oliver Twist, asking for more, I bid good-bye to my obliging friend and his very successful cottage apiary. — Knutsford Guardian.

(September 7, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:357-358. Among the bees in Ireland. [Letter 1544]. I have just returned from a round of visits to apiaries in the south-west of Cork, and am sorry to report that the season has not been a good one in that district. Accompanied by a member of the Irish BKA, we drove through the pretty village of Leap, at the head of one of the inlets on the southern coast. I would gladly pause to pay a tribute to the beauties of the drive through Myrnswood—a Glengarriff in miniature—but this is to be an echo from the hives, not the woods. The complaint of the fair proprietress of this the first apiary inspected was that though she had three or four swarms, she had not secured much honey, none of her hives yielding so much as twenty pounds, partly owing, no doubt, to the fact that, in supering, a warm quilt, with but a small square hole in centre, was placed between the frame tops and the supers. She showed us a stock in a into which she had introduced a Carniolan queen, and is convinced that a bad queen was at the time in the hive, as she found what she believed to be the old queen next day outside the hive. In transferring this stock into a Wells' hive, I found the comb quite covered with brood, which I tied into frames. In doing so I noticed two, and in some cells three and four eggs, together. Is this usual with queens of that tribe? [Not more so than with others. — Eds.] She was the first I had seen, and I should not have distinguished her from a native, save that the ventral plates of the abdomen were something brighter. And here let me ask, Will a Carniolan and a native stock do well in a Wells hive? [Yes. — Eds.]—for that is how they stand at present. That love of novelty in human kind is remarkable, was a conviction that was forced on me when shown a hive just received from England. It was a square hive outside, but the inside was octagonal, containing about four frames (not standard size), and two top bars or laths without sides or bottom; the corners were boarded off, and in one was a feeding-bottle. I did not ask the price, for it would not suit me at any figure. Why will appliance-makers turn out hives that will not carry standard frames? The spaces between the frames and the hive edges (about three and a half inches) on either side were intended, I suppose, to gratify the bees' desire to build eccentric combs in...

We next visited a parson's bees, and if care and skill could command success, he should have it; but honey was not plentiful here either. I fancy his stocks were so run down in condition last winter that they could not be got into form in time for what honey-flow there was. Here, too, was a Wells hive, but no swarms to stock it. I noted how very warmly his crates were wrapped in thick felt, which had the good effect of making the bees draw out and fill the outside sections as well as the centre ones. We were next taken to see a stock he was transferring from a skep into a bar-frame hive on the plan of setting the skep on top of the frames, as so often described in your *Journal*. The queen being down on the frames, an

adapting-board was placed on the hive, and the skep laid on its the corners being closely packed with willow clay; round the skep was a lift, and over all a well-fitting roof. After a hospitable repast and a pleasant bee-chat, we took an Irish short cut home, so as to take in some other bee-yard. In one we found a goodly lot of bar-frame hives, with a Wells as a citadel in the centre. The bee-keeper might be justly styled an elder in the craft, but he differed with Mr Wells on the matter of entrances, of which he had only a narrow pair in front, and his dummy was a substantial half-inch one with broad top bar. He was also fortunate in the knowledge of how to extirpate foul brood out of his apiary. Two more visits to cottagers, one of whom evidently had not that care, and whose bees had unmistakable evidence of foul brood, brought a very pleasant drive to a close. Generally speaking, the country seems well adapted for bee-culture, having both white clover and heather, the latter in great abundance and growing in high altitudes. Apologising for this overgrown echo (which might be more correctly called Notes by the Way). —A member of the IBKA, August 22nd.

(September 14, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:365-366. Queen zinc [Letter 1549]. Referring again to my communication (Letter 1523, p.335) and your foot-note thereto, I beg to quote Mr S Simmins, who says: — I am prepared to assert that better results are to be obtained without its use.

(1) It is news to me, indeed, to hear that queen-excluder zinc is indispensable in working for extracted honey, or that it was generally admitted to be, and I have always connected it with comb honey. When using it the brood and surplus chambers are more divided.

(2) It helps to destroy the idea which the bees should get, that their comb is are not attached to the roof of their home.

(3) It also gives the bees occupying the surplus chambers the idea of queenlessness, which is proved by their building queen-cells above it, and it is not likely that bees will go into a chamber where they feel queenless unless they can no longer stop below for want of room. The less the surplus chambers and brood chamber are divided the better. Honey-boards are worse than a sheet of zinc covering the whole of the frames; the so-called improved zinc is worse than the old.

(4) I do not think that a little brood in the surplus chamber is such an awful thing when running for extracted honey.

(5) This dummy, which I send in accordance with your request on p.336, was tacked to another, and then perforated in order to save time; but I do not find it a good plan—it makes the wood more brittle. The holes of the upper one are apt to be burnt larger than the under one. It scorches the under surface of the wood. — Leonard Smith, Beds.

[The opinion of, perhaps, nineteen out of twenty of those who work extensively for extracted honey is now so strongly in favour of the use of excluder zinc below extracting combs that we think it hardly needs discussion, except to reply to the propositions put forth by our correspondent, which we have numbered for convenience of reply to him as under:—

1. Many experienced bee-keepers use no excluder zinc below sections, contending that the very nature of sectioning is against the probability of the queen depositing eggs in them. But they admit that the case is entirely different when

working for extracted honey, and we think a little experience in this branch of honey-production would convert our correspondent to the same view.

2. We do not quite catch on to the idea of this sentence.

3. There is no analogy between bees occasionally starting queen-cells in surplus chambers and the idea of queenlessness, which it is said to convey. Bees not queenless raise queen-cells in brood chambers, and why not in those intended for surplus?

4. Combs kept for extracting purposes should never have had brood in them; but the further mischief which arises is that in many seasons when once queens begin to breed in surplus boxes, they stop there till the combs are filled with brood instead of honey. Queens should be rigidly excluded from extracting combs.

5. Finally, we are glad to have an opportunity of inspecting the Wells dummy, referred to on p.336, and kindly sent by our correspondent, but it is not a true Wells dummy, as he would admit if he saw an original. — Eds.]

(September 14, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:366-367. Late honey-gathering. [Letter 1552]. I send you herewith a section of honey, as I should like to know what flowers it has been gathered from. After the clover was finished, my bees ceased getting honey, so I took the supers off; but, on going into the garden on August 12th, I saw a quantity of bees lying out of the mouth of a hive, and I was sure I smelt honey, so I opened a hive, and found bees was storing honey quickly in the brood nest. I put on a crate of sections, with full sheets of foundation. I had a peep in on the 14th, and found a number drawn out from a quarter to over half an inch on each side containing honey. They continued to fill rapidly for a few days; but, finding that the flow was about over, I took the crate off today. Some of the sections are nicely finished, and others well forward. I send you one of the latter, with part sealed, so that you can see it both sealed and unsealed. My bees have never gathered honey at home in August before, and I am at a loss to know where they have got it. I watched them closely, but could not find them working on any flowers in the neighbourhood. I told a bee-keeper that bees were gathering honey, thinking that he might benefit by it, as he had some bees, but he only smiled, as much as to say, I know better than that, and afterwards told me it was nonsense. But today I let him see and taste one of the sections, and he remarked, Man, but it's good! I have three nucleus hives, and they are also well stocked with honey. I converted a large hive into a Wells, getting a perforated dummy from Mr Howard, and have taken it to the heather. If you care to have results after the season is over, I will give you particulars. — Station Master, August 26th, 1893.

[The section reached us in a state of pulp, and as for the honey, there was not so much left as allowed us to get a taste of it, so that we can form no opinion as to what it was from. In justice to the postal authorities—who, no doubt, got the honey where they did not want it—we must say it is not fair to send unfinished and unsealed sections by post, as they are certain to be broken in transit. — Eds.]

(September 14, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:368. Working a Wells hive. [Letter 1555]. I have a Wells hive stocked as follows: —On June 7th two of my swarms came off and settled together; they were

hived about sunset, the queens and bees being divided in two lots, and hived in a Wells hive that I had in readiness. These swarms did very well, and in about three weeks I supered them, but as no honey was to be had in July, nothing was done in supers. On examining them in mid-August I found the combs on each side of the dummy full of pollen, and all the perforations in the latter stopped up. The pollen-filled combs were removed, and replaced by two frames of empty comb, while the holes in the dummy were burnt out with hot wires. The bees were then fed with a slow feeder. In four days, however, the holes in dummy were again stopped. Should they be opened again, or left as they are? The dummy is one-eighth of an inch thick, with one-eighth-of-an-inch holes half an inch apart. There was no propolis of the holes till the bees had got rid of the drones. It has been a bad honey season in this part; very little in June and none in July. August has been the best month for honey-gathering. — Geo Head, Winkfield, September 4th. [We should certainly clear the propolis from the perforations when the bees have ceased gathering propolis for the season. It is evident that, from some cause or other, the bees have not clustered on the perforated dummy in true Wells fashion.—Eds.]

(September 14, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:369. Queries and Replies. [Query 883]. The Wells dummy.

1. I have made a hive on the Wells principle, and fitted a wood dummy like enclosed sample, but somewhat thinner, having 188 perforations. Is this enough?
2. Would a dummy of common perforated zinc answer the same purpose (not queen-excluder zinc)?
3. How soon can bees be put in a hive after it has been painted?
4. If I bought two lots of driven bees—say, about four or five pounds in each lot—and put them in a Wells hive, are they likely to do well if fed?
5. Is it necessary to remove combs from hives for wintering? — Castel Cane East Dulwich, September 4th.

Reply.—

1. The wood should not exceed one-eighth of an inch in thickness, and be of best pine, well seasoned. The perforations in pattern are rather too large, and much too far apart. They should also be burnt with a hot wire, after boring, to remove the burr. You should, if possible, get a genuine Wells dummy as a pattern.
2. No; zinc is not suitable for the purpose.
3. Just as soon as the strong smell of the paint has gone—say, three or four days.
4. If you have ready-built combs to put the bees on, they would do well enough, but it is more or less trying to compel them to build new combs and store them for wintering on.
5. Not absolutely necessary; in fact, many bee-keepers do not contract their hives at all for wintering.

(September 14, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:370. [Query 866]. Making a Wells Hive—I intend to try the Wells system next season, and am going to put two driven stocks into a double hive, but I want to know what kind of a division to put between the two parts of the brood chamber.

1. Would perforated zinc do, or has it to be wood, and if so, what thickness is best, and what size ought the holes to be?

2. Was the 160 pounds of honey reported to be taken by Mr Wells, extracted or comb honey? I suppose it would be last year that he got it? If you would tell me the numbers of BBJ or Record that have a full account of the Wells hive I should like to have them, in order that I may get all the information possible. I know of several bee-keepers who have taken one hundred pounds of extracted honey from a single-queen hive this year, and another has taken upwards of seventy sections of clover honey, and forty-two of heather honey from one hive, making 112 sections from a single-queen hive. In my Wells hive I intend to have the entrances at the opposite ends of hive and also from centre of hive to each end, painted different colours, and the bottom board of each half-hinged at the centre, in order to drop it and give large entrance and more ventilation when required.

3. Is there any known way of separating heather honey from wax when gathered in frames instead of sections? — Thos Hartley.

Reply.—

1 and 2. *Bee Journals* for April 20th, May 19th, and Nov. 3rd, 1892, give the desired information.

3. Heather honey can be removed from the combs by means of strong presses made for the purpose. The old method followed was to cut up the combs into slices and hang them in a coarse woollen bag in front of the fire. This is called dropped honey; but pressure is required to force it through the bag.

(September 14, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:370. [Query 887]. Bees refusing to enter a Wells hive.—I have a Wells hive which I wanted to fill, and got four stocks for the purpose. When I put the first two of them to their quarters, they went in readily; the other two refused distinctly to be forced into theirs. I tried them three successive times, but was thoroughly beaten by them. They always clustered on the outside of the house, and went back into the straw hive readily when brushed down, but would not enter the Wells. I may say that I had the hives in boxes of two hives each, and also that I had foundation on the bars and a frame of honey for their use. I shall be glad to have your views on the matter, as I cannot understand it. — James McLeod, Dalbeattie, September 7th.

Reply.—We do not quite understand your having the hives in boxes of two hives each. Nor do you state how the entrances were arranged. If we had experienced any difficulty in getting a swarm to enter a hive by the entrance, we would remove a frame or two and throw them in at the top. On the other hand, a Wells hive made as Mr Wells uses them can have the floorboard lowered three inches, so that if a swarm was thrown down in front of an entrance like that, the bees could not help but pass in.

(September 21, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:378. Working a Wells hive. [Letter 1558]. I assist a gentleman in the management of his bees, and he has asked me to write and get your opinion on the following plan, which I proposed. He is going to start a Wells hive with only one stock next spring, and I proposed that, instead of letting the bees swarm in order to stock the other side, that he should work the brood chamber up to twenty frames as quickly as possible by inserting frames of foundation in the middle of brood nest as often as the bees will work them out; and when he has got twenty full frames in brood chamber put in the Wells dummy. Would the bees

raise another queen on the queenless side, and would this plan be as good, better, or worse, than letting one side swarm, and returning the swarm to the other side of dummy?—RG Peacock.

[Without admitting that you are going to improve on the original Wells method, and for reasons which it would take too much space to make clear, we would propose, as an alternative plan to both those suggested, that the bees should be worked up to fill, say, twelve frames well with brood by the time the honey-flow began, and then be supered in the ordinary way with, say, one box of ten shallow frames. Give no more surplus room, but let the bees swarm. Then remove the surplus chamber, insert the Wells dummy, and hive the swarm on the other side of it on full sheets of foundation (wired), and replace the surplus box. When the second swarm issues, hive it in a skep, and next morning return to where it came from. If swarm does not reissue, let the bees have access to the same supers as the first swarm are at work in. — Eds.]

(September 21, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:378. My experience with bees and a Wells hive in Derbyshire. [Letter 1559]. May I crave a corner to give my experience of bee-keeping since I commenced? In August, 1890, I bought a frame hive and stock of bees. In 1891 I took thirty pounds of honey from it and had a good swarm. Both wintered well. In 1892 I took sixty pounds of honey and got two swarms. All lived through the winter. In early spring, 1893, I placed all in clean hives, putting the weakest two in a Wells hive. On April 21st I supered all three hives, and, not wanting much increase in stocks, I took two frames of brood from each hive and formed an artificial swarm with them, giving them the ripest queen-cell I had. I replaced the frames of brood taken away with sheets of foundation to each hive, thinking it would check swarming. In July I noticed one side of the double hive was working much more than the other, so on the 17th, when taking the full super off, I opened the brood nest, and found one side weak and queenless. I put the queen into the weak side, replaced the excluders (exact this time, as I found it was through these not fitting that the queens had got together), thinking the strong side would raise another queen from the eggs left, but they have not done so. I have, therefore, partly failed this year with the Wells System, for, practically, it has been a very strong single-queened stock since April. The artificial swarm has increased to eleven frames. I never supered it. On September 4th I found it very strong with bees, but no eggs, and the last of the brood hatching out. It is queenless, I think, so, unless I can buy another queen, I shall unite it to one of the other stocks. How the queen got lost I don't know, as it has not been opened since the beginning of June. However, 1893 has not been a failure with me for all that. I have had no natural swarms. I have three strong stocks to go into winter with, have taken 350 pounds of extracted honey and eighteen sections, ten filled and eight partly, weighing in all fifteen pounds, and I think that very good for an amateur. I may say my bees are a quarter of a mile from where I live. I make all my own hives, but buy the frames. I hope all other bee-keepers are as as contented as — Harry Walker, Killmarsh.

(September 21, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:379. Queries and Replies. [Query 888]. Stocking a Wells Hive— I have a stock of bees in one division of a Wells hive.

1. Would it be advisable to transfer a stock from another hive to fill up the other division, or wait till next spring for a swarm?
2. The hives are twenty yards apart, and if I transfer, should I have to move the hive? I want to transfer towards the other gradually, or would it do to transfer them straight off?
3. Would not the bees in the Wells hive winter better if both divisions were full? — JE Brown.

Reply.—

1. We should transfer the second stock as soon as convenient.
2. It would be safest to bring the two hives together before transferring.
3. Yes, decidedly.

(September 21, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:379. [Query 890]. Age of queens — Making Wells dummy.—

1. Could you tell me what an old queen of two or three seasons looks like? Would her wings be in perfect condition, as in young bees, or would they be ragged and worn, as in an old worker-bee? I ask this because, when I went to depose a queen that I supposed was three seasons old, I was surprised to find that her wings looked so fresh and perfect that I came to the conclusion that the bees had requeened themselves, and so I have let the queen stand over for another season. Do you think I did right?

2. I have a hive that was quite empty of honey, comparatively speaking, at the end of July last; but now the combs are almost nearly all full of sealed honey, except a little space at the bottom of each. Will this hive do as it is, or shall I have to put in an empty comb for the queen to lay in, and would it in this case be as well to do without any candy during the winter with such a hive as this?

3. My Wells hive's dummy is, like everybody else's, propolised up; but I have now discovered that it is not of the right kind. It is a great pity that directions were not given to amateurs on such an important point. — Syrup.

Reply.—

1. As a general rule, the age of a queen may be guessed fairly accurately by experienced bee-keepers; but it sometimes happens that an old queen will have her wings in good preservation. There is no fixed rule to guide amateurs. If the queen's laying powers are satisfactory, no doubt you did well to keep her.

2. No need to provide an empty comb for queen to lay in, and no candy is required if there is plenty of natural food.

3. Very full instructions for making the Wells dummy have appeared in our pages, and if amateurs go wrong in making, the fault is surely not ours.

(September 21 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:379-380. Echoes from the Hives. Honey Cott, Weston, Leamington, September 16th.— At present the drought continues, although the bees are much on the wing, in consequence of the fine weather. I have seen a few at times loaded with pollen. Wasps are beginning to trouble the bees, entering the hives in the cool of the morning to steal. For nearly three weeks the wasp nuisance abated, but previous to that it was difficult to take a look inside a hive. They also found their way into my honey-house, where the bees could not. I destroyed over forty nests within half a mile of my apiary, and lately there have been many queens about; I found a lot hidden away among some timber. For a change I have got five stocks

in straw skeps, having cleared out the apiary of a lady friend who got rather afraid of bees. The bees in one division of a Wells hive lost their queen, so I shook them off the comb, where a few remained to keep possession. and they went into the stock on other side of dummy. I found the latter entirely propolised up: it was the one that I burnt the holes larger. I ought, however, to say it was not a real Wells dummy, because it is three-eighths of an inch thick, and the holes are countersunk on each side. About a month back I made up five stocks with driven bees, which have bred and done well. I also gave them some sealed frames of honey on the outside of the brood nest. I do not think I ever saw bees lay out so much in August before as mine did this year. One day the heat was 90° in the shade, but unfortunately there was no honey to gather. Referring to what appeared in the *Journal* (p.365) about excluder zinc, I should not like to do without it; either for comb or extracted honey, I think it is invaluable. — John Walton.

(September 21, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21:380**. Leonard Smith. — Wells dummy. — We thought our opinion of the dummy sent was conveyed by the concluding remarks in our -footnote. It is infinitely better than many we have seen, but if you would take our hint, and get a dummy from Mr Wells, it would help you to understand the difference.

(September 28, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21:384**. Notes by the Way. [Letter 1564]. Mr Hooker's report of the British honey exhibit at Chicago must be very gratifying to the contributors to that exhibit. That only one or two bottles were fermenting is most satisfactory, and speaks well for the selection by the many bee-keepers who responded to the request of the BBKA last year to enable them to make a representative exhibit from Great Britain of extracted honey. I am sorry the risk and expense of sending an exhibit of comb honey was so great, otherwise I feel sure we should have surprised our American brethren in the craft with the excellence of our product in sectional super honey, and our patriotic designs in honey-comb. I run two considerable apiaries principally for comb honey, and I can assure Mr L Smith that I have no use for excluder zinc, and although I often super on nine frames (standard size), I do not have one per cent, of broody sections, not even this season when the brood combs were more or less clogged by the influx of early honey. I know my friend Mr J Walton uses it throughout his large apiary, and I believe the principal reason he uses it under section crates is to prevent brace combs being built between the tops of frames and bottoms of sections. I myself always use it under the few boxes of shallow frames, and I would commend its use to Mr Smith notwithstanding Mr Simmins' contention that more honey would be stored by the bees without than with the excluder zinc. A few extra pounds of honey at the end of a season will not compensate for the knowledge to the bee-keeper through the whole honey harvest that his supers are free from brood, and that so soon as they are sealed the box of honey can be removed and stored or extracted at will without the bother of returning two or three, perhaps four or five, of the central combs for the brood to hatch out, only to find in another fortnight the same combs refilled with eggs and larvae, perhaps in a smaller space, yet enough to prevent the removal of them to the honey-room or extractor, as I trust there are now very few bee-keepers who would think of extracting honey from combs that

contain brood in any stage of growth. I quite think there is an opening for some inventive genius to bring out a Wells dummy that the bees will not propolise. I suppose a vegetable ivory or xylonite would be too cold during the winter months to allure the bees of both colonies to cluster for mutual warmth as one united happy family in a round bed, or would the latus felt be too odoriferous if perforated and stretched in a metal or wood frame? Oh, by-the-bye, I remember Mr Abbott, when editor of the BBJ, advocating hair cloth as first quilts next to frames as a material the bees could not gnaw. Would not this hair cloth be just the thing to separate the two colonies in a Wells hive? If that won't do, what of some small tin ferrules inserted in the holes? I have a few passage-ways for winter formed by inserting a small coil of tin in the brood combs, and they have not been filled yet with either wax or propolis, although in use eight or nine years. Is this propolis in the holes in the dividing dummy only a natural instinct of the bee to make the *dulce domum* taut and draught-proof, or must we take it that they wish to boycott the bees on the other side, i.e. hold no communication with them?

(September 28, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:385-386. My experience with a Wells Hive. [Letter 1566]. Being a constant reader of your *Journal*, I have perused with much interest the notes appearing therein as to the successful season, the working of the Wells hive system, &c, and take the liberty of sending a cutting from this day's Scotsman, which gives a general idea of the favourable season in the south of Scotland, and will add a few remarks as to the season, &c, in the north-eastern part. Of the season generally, I may say it has been the best since 1887, particularly so as regards heather honey, and bee-keepers are invariably well pleased with their harvest. Some have been signally successful for instance, I heard of a bee-keeper who was late in sending his hives (about twenty) to the hills, and who only got six working days, having taken off over three hundredweight of heather honey, leaving sufficient winter store. I had this at the heather, and brought them home loaded—with supers all full and brood nest also—filled from side to side. Like many others, I caught on to the Wells hive system, and, having a double hive, with only one stock in it, I resolved to give the new plan a trial. I prepared a perforated dummy, put on queen-excluder, fitted up the one end of double hive with full foundation and a few good combs, and wrought up the stock. On the 3rd July I got a splendid swarm, and had it carefully hived in the other end, specially prepared, and concluded all was right. At the end of four days, however, I discovered that the bees had returned to the mother hive, and were all working from one port (both ports were in front, with division between on the flight-board), and on the sixth day it swarmed again, the swarm being joined by a cast from another hive. I again carefully hived them in the empty end of double hive, but with the same result. At the end of five days it swarmed a third time—an extra-sized one. Seeing I had made two unsuccessful attempts to form a Wells hive, I resolved to work the hive as one, and accordingly withdrew the dummy. Before putting back the swarm I removed the supers and took up every frame, carefully examining them for queen-cells. I found three empty ones and nine full ones. I removed them all, and, while doing so, five of the queens burst the caps and came out. They were strong and healthy, but made no attempt to fly. Two, however, met, and instantly at-tacked each other, and fought desperately until they were almost dead. Having

made sure that all the queens and cells were removed, I put back the swarm, and had no more trouble; the hive afterwards did splendidly. Such was the result of my first attempt to work a Wells'. I am going to act upon your advice to JE Brown (Letter 888, p.379) in the last issue, in order to gain my desire. I attribute my failure to transferring the swarm from the one end of the hive to the other, and regret I did not take a swarm from another hive. The only annoyance we have had this season is the general one—namely, from wasps. They have killed outright some weak hives, and have been very troublesome to others. Natural swarming added very much to our labours in the beginning of July. — Amateur, Kincardineshire. The cutting referred to by our correspondent reads as follows: — Not for many years has there been such a favourable season for honey as the one now closing. The warm spring gave special facilities for breeding, with the result that the hives became strong and healthy. The fine summer has led to flower honey being pretty plentiful, while the return of heather honey is particularly heavy, the weather during the past month, when the hives were put to the heather, being exceptionably favourable for the bees. Generally, both kinds of honey are selling well. Bee-keeping is yearly gaining in favour among the agricultural communities of the West of Scotland. In Lanarkshire, it is true, there is no ideal honey-raising district, save in the high-lying regions in the upper reaches of the Clyde. On the other hand, Kenfrewshire possesses in the Bridge of Weir and Kilmalcolm neighbourhood a splendid field for the apiarist, and some of the best clover honey is secured in this region. Again, in Ayrshire, the bee-keeper has a rich clover district, while across the water in Arran there is heather in profusion for the stronger-flavoured honey. The past season has been, on the whole, a favourable one, although scarcely so much so as might have been expected. In the Leadhills district the long drought to a great extent spoiled the heather, and while the honey has been above the average, it might with a less arid season have been still better. As to the quantity of honey secured, some Lanarkshire keepers report for one hive as much as sixty pounds. The harvest in Renfrewshire is the best for many years, and from Ayrshire there comes similar reports. Retailers, taking advantage of the rumours of an exceptional harvest, have been endeavouring to keep down the prices, but the bee-keepers rather than sell at the reduced rates prefer to store the honey, in the knowledge that they will easily command better prices later in the season. As a general rule bee-keepers refuse to sell to the middleman under 10*d.* per pound, and nearly half as much again can be obtained by selling direct to the consumers.

[September 28, 1893] *British Bee Journal, Bee-Keepers' Record and Adviser* **21:389**. [Query 895]. A beginner's queries— I bought a swarm of bees last June, which I think have done very well from my having obtained twenty one pounds of honey last month. I should be glad to have information on the enclosed points through the columns of your valuable paper.

1. How should I proceed to ensure keeping my bees safe during the winter?
2. What would be the best food to feed on regardless of cost?
3. I want as many stocks from one swarm as possible next year. How shall I do this without swarming? I have made a Wells hive. How shall I make it ready for bees next year?
5. How must I proceed to become a member of the Bee-keepers' Association ?— Durham. Reply.—

1. Read up some reliable book on bees, such as the Guide-book, and prepare the bees according to the instructions contained therein.
2. Pure cane sugar made into syrup.
3. This information will be found in the book referred to.
4. It should require no making ready beyond fitting the frames with either strips of foundation as guides or with full sheets.
5. There is no County Association in Durham. Write Mr Huckle, Sec British Beekeepers' Association, Kings Langley.

(September 28, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21:389**. [Query 896]. Lifting a Wells dummy.— In case of a Wells dummy getting the holes propolised and requiring cleaning, how can it be removed for the purpose—as the moment it is withdrawn will not the bees begin to fight? Or possibly the queen might cross over to the other side. —P Shabp.

Reply.—In cases where the difficulty indicated occurs a dummy of perforated zinc (not queen-excluder zinc) should be inserted temporarily alongside the Wells dummy before the latter is withdrawn.

(September 28, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21:380**. Gardener.—

1. Comb is badly affected with foul brood.
2. The Garstang honey press is especially constructed for extracting heather honey.
3. The Raynor Extractor is a strong one, but there are cheaper machines which will do the work well.
4. Mr Wells is not a manufacturer of bee-appliances.

(September 28, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21:380**. AP Jollye. —Wells dummy.—Referring to dummy now received there must, we think, be some error in your statement that the hive from which the dummy from surplus chamber is taken was made according to Mr Wells direction. That gentleman does not use a dummy in his surplus chambers at all. On his system the bees are not parted in surplus chambers by a fixed dummy, but work in a super common to both lots. Besides, the dummy sent is quite different in many respects from the genuine Wells dummy, as we have seen it.

(October 5, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21:391**. Useful Hints. The Wells System.— No doubt the comparative fewness of the reports to hand concerning the success or failure of this system in the hands of readers is largely due to the bad time for bees in the south. One report, however, forwarded by a well-known bee-keeper, is very favourable. It reads thus:—Mr R Clinton Baker, of Rayfordbury, near Hertford, started a Wells hive in May, and has taken from it a total of 262 pounds of honey. This will be about as good a record as the Wells hive has made in this county!

(October 5, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21:395**. The honey crop in South-West Sussex. [Letter 1576]. This has been the best season that frame-hive keepers have known in this district. I had in May five hives, and their produce has been as follows:

	lb.	oz.
I. (extracted only)	144	13
II. (sections only)	48	7
III. (sections and extracted)	79	10
IV. (chiefly sections)	52	12
V. (extracted only)	125	4
	450	14

Making an average per hive of 90 lb. 2oz., the highest I have had yet, and bringing my yearly average per hive, for the nine years during which I have kept bees, to 42 lb. 9 oz. I think that the most remarkable point about the crop was the large amount gathered in May and August. My bees could not take full advantage of the earliest honey, for my object always is to have them ready for the clover in June, and not before, and consequently, the clover being a month early this year, the hives were only half-full of bees. A friend of mine, five miles off, was ready for the first clover, and his average per hive is 111 lb. I always use queen-excluders for extracted, and never for sections, and have never yet found the queen go into the sections. I had no swarms this year, and in fact there were very few in the neighbourhood. The bees have been remarkably gentle, and there has been practically no robbing; indeed, I have never known a year in which the bees have given less trouble. During the end of June and beginning of July, the honey was just stained with honey-dew, otherwise the colour has been excellent, varying from white in May, to pure golden in August; and the flavour has been superb. I confess to being behind the times in having no Wells hives, and, like no doubt many other of your readers, am looking forward with interest to the report of his take this season—nothing less than an average of 200 lb. per hive will induce me to follow his system; and surely, in such a year as this has been, it is not too much to expect. The sunshine up to date is 360 hours above the average for this district.—LB Birkett, Westbourne Rectory, Sussex.

(October 5, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:397. My experience of the Wells System. [Letter 1581]. I have had a little touch at the popular Wells system of bee-keeping. I could not start in the autumn, so I fitted one of my twin hives holding twenty-four frames in the Wells style—that is, I made it as near like the book instructions of a Wells as I could. My dummy, however, I fixed, as I thought I saw danger ahead in the event of the dummy warping and leaving a (queen) bee-space on one side or the bottom. Whether the dummy is perforated now or solid I cannot say, as I have not been in there since I fixed it; but as early in the spring as I could I put a good stock of bees in each department, and both had young queens, and I consider that hive as it then stood was on a fairly equal footing with the majority of the other single stocks, and it worked away all right, but as to results, I cannot see any difference in this and the other hives. I have had three or four twin hives for some years, and I notice these generally winter well, and give good results in honey—better, I think, on the whole than single hives—but their drawback is they are too bulky to shift about, and not quite so manageable at swarming-time. Wells hives, of course, have these drawbacks. One of my ordinary twin hives I supered with a large super open to both stocks, and the bees worked together in it splendidly, although completely divided until the super was put on. I do not consider mine is

a fair trial with the Wells, but I give the facts for what they are worth, as it is only by reports from bee-keepers in general who have tried the system that we can get at the value of it.— Hy Neve, Sussex.

(October 5, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:397. An active octogenarian beekeeper. [Letter 1582]. I herewith enclose you photograph, showing the result of a severe attack of bee-fever sustained by the gentleman shown, who is eighty-four this year. The house in photograph is built to contain eight Wells hives, is double-walled and roofed, swing window in the roof at the back, with shutter inside, and stands on a block of asphalt 10 feet by 8 feet. I would call your attention to the nucleus hives, as seen, which slide on runners outside, close to hive entrance. He has made and built this house during the present year, and has now two Wells hives in it. The other hives shown are all of his own make, and are constructed on his own system, with the entrances at the top; although not approving of this arrangement for manipulating, I am bound to say that, so far, the bees have wintered well in them. Surely such an example of energy and care for the welfare of his bees, from one who took up bee-keeping at the early age of eighty-one—joining both the BBKA, and our Lincolnshire Association—ought to make some of the younger members of the craft blush and be a bit more energetic.—FJ Cribb, Gainsborough.

(October 19, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:417. Double-queened hives ind Italian bee-keepers. [Letter 1590]. A correspondent sends us the following extract, translated from the Imkerschule, September, 1893, by A von Rauschenfels, Italy:— On the 14th July died at Empoli, in Tuscany, the bee-keeper named Raffaello Dringoli. If the man had not died, nobody would have remembered that in the Apicoltore twenty years ago there was an article by him, with illustrations of a beehive for working with two queens. A short description of what appeared in the December number of 1873 is not without interest now, when the Wells system is attracting so much attention. The double hive has the form of a three story hive, to be opened on both sides. The excluder runs in rabbets, perpendicularly, in the lower hive, which it divides. The hive has two entrances for flight holes, each in the widest side, of which one is for entrance to the brood nest, and the other for the honey store. An additional box for a few frames, and to be opened from the front, in the middle of the front wide side, is attached to the honey store, and is in connexion with the same by communication with the flight-hole. It is for the purpose of receiving one of the queens at the beginning of the honey season, and to keep her there any length of time without estranging her from the bees; or, if it is not intended to restore her to her stock, as being too old to be wintered again, a young queen may be reared in the additional box referred to. The communication of the honey store and the additional box is separated by excluder, allowing only workers to pass, and this queen can therefore only lay in a restricted part. A description in detail is unnecessary. This hive for two queens received this name because it was intended not to swarm, and because two mothers live and breed in it at the same time. Its purpose is to have a very numerous family ready at the beginning of the honey season, double than in a single hive, and to harvest at least as much honey as in two single hives. A giant colony may be raised in a single large hive with one queen, but the colony is not able to fill the large capacity, as there is one

mother laying only. The hive permits the regulation of breeding, so that, during the honey season, the double colony requires for the brood only as much honey as a single hive. This is a saving to the bee-keeper's profit. Thirdly, it should prevent the hive losing too many workers, as happens when the queen is either caged or (as is usual) removed from the hive altogether, which used to be the golden rule formerly. It will be noticed that the working in this double hive is more rational than in the Wells system. In the latter a giant colony is reared as well, but naturally feeds enormously, as the two queens are laying the whole season uninterruptedly, and this is prevented or reduced intentionally by Dringoli, by which means he benefits without weakening the colony too much, and prevents swarming at the same time. An authenticated account accompanies the description from October, 1872, to October, 1873, which states that Dringoli harvested from his best hives twenty-nine, and from his double hives ninety-seven, kilograms of honey. The reader will ask, How is it possible that this hive received so little notice that it could disappear without leaving a shadow behind? Simply in this wise. The man was too much ahead of the times. The knowledge and understanding of a complicated, if a more profitable, way of treatment of bees was wanting. Beekeeping was, twenty years ago, still in its infancy in Italy, and the difficult and intricate description of the discoverer did not improve or assist to bring the hive into general use. The Italians are not fond of studying printed matter, and as M Dringoli never made the slightest attempt to push his hive, it will be easily understood how his double hive has been forgotten.

[We are pleased to have the above to show what has been done in other countries, but we would remind our correspondent that this is not the Wells system, but simply the system used by ourselves and others about the same time that M Dringoli introduced his hive. We have seen what has been said from time to time in the *Apicoltore*, and it is evident that M de Rauschenfels has not grasped the matter. —Eds.]

(October 19, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:418-419. Bees in the Midlands. A big average for 1893. [Letter 1593]. Having read of the many good takes of honey in the North, although rather disappointing to hear of the failure through the drought in the South, I thought probably a short report from the Midlands might also be interesting, so far as the honey yield in this part is concerned. I commenced the season 1893 with four hives, spring count, and have worked one on the Wells system, and three singles. My take of honey is as follows : —

No. of Hive.	Extracted.	Sections.	Total.
1 ("Wells")	90 lbs.	20	110
2 (Single)	8 "	133	141
3 "	10 "	119	129
4 "	62 "	31	93
—	—	—	—
4 hives.	170	303	473

This shows an average of over 118 pounds per hive, each hive being provided with plenty of winter stores, and requiring no feeding. I have also increased my stock to seven by artificial swarms, having no natural ones of my own, and very few in the neighbourhood. Well, Messrs Editors, I think this very good for an amateur. On October 7th myself and a friend overhauled all my stocks, and although the

queens were found in all the hives, there was no brood except in one, and that only a very small patch, but plenty of bees. This is the general rule in this district, so far as I can hear. You will notice my Wells hive has not done so well as the others; the reason I consider to be by having to transfer two stocks into it in April, the bees thus having to establish themselves, also to draw out all surplus combs, as I had none ready built to give them. I hope to test it next season with a better start. With respect to the dummy between the two stocks, I have not read of one success in all respects except Mr Wells' own. We are also told only a true Wells dummy will answer, and that dummies of perforated zinc are of no use. Well, seeing the number of failures, I consulted our expert, who assured me he had used dummies made of wood and perforated zinc with success for many years, and that they would answer for a Well. So I had one made, putting it in in May, and on October 7th both the expert referred to and myself examined the Wells hive and dummy, and not a hole was propolised up, and I think even now that this division-board will answer. —Wm Tustain, Northants, October 10th. [Our correspondent will find that the Wells dummy has been a success in the hands of several who have tried it; the most recent case reported being that on p.420 of this issue, and another on p.136 of our monthly, *The Record* of October. — Eds.]

(October 19, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:419-420. Propolisising Wells dummy boards. [Letter 1596]. Noticing in *Bee Journal* many inquiries respecting propolisising of Wells dummy-boards, I may say my experience has shown that propolisising is not fatal to success. In February last I made a Wells hive from description I saw in *Bee Journal*, and stocked it. Upon examining hive seven or eight days afterwards, I found the dummy completely stopped up—every hole propolised—and removed it, inserting solid dummy. This dummy-board I sent to Mr Wells, asking his advice respecting same. Before receiving reply from that gentleman, I saw in *Bee Journal* your description of making one, and made another. This was quite satisfactory to all appearance, and I did not again examine hive until the honey-flow, when, upon supering the hive, I found this was quite as bad as the former one. Notwithstanding this, the bees were quite as united as one stock, and worked satisfactorily in super. I removed super second week in August, covering up frames on each side. The same dummy is in the hive now, completely stopped up, and there has never been any sign of fighting. Upon lifting the quilts, October 7th, the bees passed freely over dummy from one side to the other. With regard to results, the average was not quite so much as two single hives, reckoning Wells hive as two stocks. But it did not start upon equal conditions with the other hives, the stock I put in Wells hive being a very late swarm and cast united, and two casts united—this last lot being so weak that I did not expect them to survive the winter; but they made by far the stronger lot, and were ready for supers before the other lot. I may say the two casts did not cover three frames; the other lot nearly five frames. —Q Penzeb, Kingswynford, October 9th.

(October 19, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:420. Bee-keeping in Co Wexford. My experience of Wells hives. [Letter 1597]. In accordance with my general custom, I send you a report of my year's bee-keeping as under: — I commenced the year with nineteen stocks, increasing them to

twenty-six by swarming and driven bees. My stock of honey was very bad, only about 380 finished sections (and 200 unfinished ones which I fed back to driven stocks), or about twenty sections per hive, and yet I think my bees were stronger in May than they usually are. Like most bee-keepers, I gave a trial to the Wells system. I made three hives; two I stocked early in April, and the other from swarms about the middle of June. I look upon each Wells hive as two stocks, and even on that calculation each Wells hive turned out more honey than any three of my single-queened hives. I did not find any difficulty in taking off or putting on sections (I work for section honey only) more than in single hives; and the perforated division-board is as free from propolis now as the day I bored it; but I may mention the division-boards I made out of mahogany—whether that had anything to do with it or not I cannot say, and though I work only sections, I would not like to do without excluder zinc. For about three years I had twenty-five per cent, of the sections spoiled by the queen laying in them, and, of course, their appearance quite spoilt; yet, as I read that our more advanced bee-men can manage to do without excluder zinc, I would like to know how it is done. I would like to have Mr Woodley's views in Notes by the Way on that subject.—JD, Wexford, October 9th.

(October 26, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:429. Bees in South Shropshire, Dishonest exhibitors. [Letter 1603]. I send a few notes relating to past season in this district. 1893 has been best in my record, all hives having done well. My best gave me 140 one pound sections, and only fifteen of them not marketable. I also took from same hive five frames of honey weighing over thirty pounds, and given to driven bees, leaving eleven frames for winter, which I judge to have about forty pounds in them. It had sixteen frames in brood nest. Strange to say, all large brood nests gave most surplus on the top. Most of my hives take sixteen frames; they are the first I made. I then adopted the Standard size, but have returned to the old size, only shorter top bar. I now have twenty large frame hives, which suit me much better than Standard size, of which I have now some fifteen. The Wells (of course, I must be in the fashion) I have tried, and bees did very fair, giving me forty shallow frames, 16 x 5. As Mr Woodley says, they are certainly two colonies, and can't be counted any other way, in my opinion. A hive so constructed may suit a few, but never meet the general want of bee-keepers. In the first place, it is too cumbersome and expensive for most, and too complicated for novices. I can't say mine failed at all; but count it two, and I find it no better than the usual run of two single stocks...

(October 26, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:429-430. A lady's bee-keeping experience in 1893. Dealing with Wells hives. [Letter 1605]. This has been the finest honey season with me since I commenced bee-keeping, seven years ago. My bees have given me more honey, better honey, and more swarms than I have ever had in one year before. I began the year with four hives, and close it with six. My great trouble has always been to keep down the number of my stocks, but I never had so much difficulty as this year. My first swarm issued on June 3rd, and my last (a virgin swarm) on July 20th. Between those dates I had no fewer than fourteen swarms to deal with. I tried two Wells hives, but have had poor results from both. A strong stock was put into the one end of each Wells, and the first swarm that came off I put into the other end. The

results in both cases were exactly alike. Each added swarm refused to act as the second, half of a Wells colony, and swarmed out again next day. I was determined not to allow this, and put them back, but they were just as determined, and came off again and again, till at last both lots came off at one time, pouring out of the four entrances, and formed one huge cluster, the like of which I never saw. I then prepared a new hive for them, and thought what grand results I would have from such an enormous swarm, when the bees rose up in a body and disappeared into the distance, and I saw them no more. Would you believe it — one of the Wells hives actually swarmed again, but the bees went back more tamely than before? I think my mistake was in putting the swarm into the other end of the hive they came out of. If I had put swarm from No.1 into No.2, and *vice versa*, the results might have been different. I shall try that plan next year. Those two hives yielded very little honey, but the others made up for it. I got 243 one pound sections of fine honey, including some from heather, which I never had before, besides an abundant supply for winter use. The best results were from two first swarms, hived on seven frames each, and placed on the old stands, removing the supers from the parent hives, and putting them on the swarms. I have never been able to get my bees to work well through excluder zinc. I thought my zinc must be defective, and sent to one of the best appliance-dealers for some, but it made no difference, the supers were filled slowly wherever I had zinc on. I took off a crate of sections to try and discover the hindrance, and, on seeing the poor loaded bees struggling to get through the zinc, I resolved never to use it again. This year not a single section was spoiled, even when the queen had only seven frames underneath. I have also ceased using full sheets of foundation in supers. My bees work better with starters only, and the honey at table is much nicer without the midrib. I never put more than one crate of sections on at a time. Near a smoky town it is of importance "that the honey should not remain long on the hive, and I remove the sections one by one as they are filled, replacing them with empty ones. I go over them once, and sometimes twice, a week, using two carbolic feathers, and the bees are not at all excited. In removing the sections there are always some brace combs broken underneath, and I think this stimulates the bees to work harder. On September 3rd I took off a crate of sections, intending to prepare the hive for winter; but, seeing signs that honey was still coming in, I put on six empty one-pound sections as an experiment. On the 15th I took them off. Three of them were quite rilled, and the others nearly so, with honey of excellent quality—not heather honey. I never remember honey-gathering so late in the season. The secret of success appears to lie in young queens and early swarms, hived on few frames and on the old stands. I have received many valuable hints from the *Journal*, and always read it with the greatest interest. The following extract from a letter from a friend in British East Africa may interest some of your readers: — You may remember speaking about bees in Africa. Well, the natives here go in greatly for bees and honey in this way. They hang hollow cylinders of wood from the branches of high trees, and in a few months the cylinders are filled with honey. The whole country-side shows beehives hanging from trees, and as the landscape shows miles and miles of white and yellow and red flowers, besides farms of Indian corn, &c, the material for the bees is very plentiful. The honey is very good, and we frequently boil some of it with fresh tomatoes, and after this mixture is a day old, we have a splendid jam, with just a touch of a fermentative process going on. I dare say such jam would fetch a big price at home.

Apologising for the length of my notes,— A Lady Bee-keeper, Paisley, October 19th.

(October 26, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:431. Queries and Replies. [Query 905]. Bees in Wells hive. — Candied honey.—In the middle of April last I purchased a new Wells hive, and two strong stocks of hybrid bees for same. All through the summer they have worked hard. The other day, I went to take the honey; to my surprise I found one division of the hive without a bee in it, but there were fifteen frames full of honey, and four or five ditto with some honey in and some brood. The other division is full of honey, and apparently the usual stock of bees. There is no communication from one division to the other; if they have united, they have done it at the entrance.

1. Is this not very strange? Also please say—

2. If honey in frames becomes candied, can it be melted in any way and got out without injuring the comb?

Or—3. If put in the hives for winter, will bees feed on it as well as on sugar syrup?—IF Thoday, October 1st.

Reply.—

1. We cannot quite understand your Wells hive or the way in which it was worked from the particulars detailed above. The twenty frames referred to as the beeless division must include a surplus chamber, as well as that for brood, and to work a Wells hive properly, the bees of both divisions should have access to a surplus chamber overhead common to both lots. In your case, however, it is stated that no communication exists between the two divisions. It would seem as if the queen of one division had got lost, and that her bees had fraternised with those in the other compartment.

2. Granulated honey cannot be got from combs without injuring them. The only way is to melt the combs down and let the wax rise to the surface, when it may be lifted off.

3. Bees cannot winter on granulated honey.

(October 26, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:432. CE Read.—Concerning the Wells system, we can only refer our correspondent to what has appeared in our pages for its success or otherwise. Some have done well with it, others not well, and it will require more acquaintance with the method before its merits or demerits can be generally approved in the hands of the ordinary run of bee-keepers. We must say, however, that the failures, so far as can be judged, are on the part either of the hive to fulfil the conditions or the bee-keeper to carry them out, rather than that of the system itself.

(November 2, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:435-436. Bees in Staffordshire. Some notes on Wells dummy, etc. [Letter 1608].

The season here has been the best in my experience. The extracting and disposal of between five and six hundredweight of honey from fourteen stocks has proved good fun and fair profit during spare time. My little boy swarm-watcher held a sinecure. No emigration; nothing but work. The Wells hive gave me 100 pounds. As I said in the spring, it was the home of two small nucleus lots, put in last autumn. It took some time to increase their frames to twenty—ten each side—before supering, and, therefore, it is scarcely fair to compare them this year with

any other two single-queen lots, well established. But I was grateful for 100 pounds surplus, and for the nearly forty pounds natural stores which they have for winter. But gentlemen, they will propolise the perforated divider. Every one of the 400 eighth-of-an-inch holes was solid. And it is true Wells too. It does not make a bit of difference. It is all very well when you are building up your colonies. They will accept warmth and congratulations from each other through the peep-holes then, just as described by our friend The Heathen in your monthly; but let him wait until after his honey-flow, when the bees are strong, and are beginning to pack up for winter. They feel independent then, and propolis being quite as abundant as nectar, up go the perforations. However, the Wells is worth a little extra trouble. Drop an ordinary dummy between the frames, carefully separating the two queens, put on the quilts for a few minutes, and poke the holes clear with the skewer (in handle) with which you first burned them through. I have had to do this. The bees are now clustering each side the divider, and I don't expect to find it stopped again before next August. What a pleasure to have had no occasion for feeding, either spring or autumn! I don't like sugar-buying, or sugar-boiling. Wish we could always do without it. If a neighbour happens to see you, no matter how honest your design in giving needful sustenance to the brood nest, he will satirically ask if that is your way of making honey. He must be an unconscionable rascal who, knowing anything of the nature of pure honey, would supply sugar to his bees for sale as honey. I know of no bee-keeper who would even dream of it. I attribute most of my success, so far, to young queens. Of my fourteen queens at present, seven are of this year, seven of last. I raise as many young queens as there are queens of two years old, set the nucleus stocks by the sides of those to be re-queened, and, when the honey-flow is over, depose the two-year-old, and unite the two lots with flour. I have never had a queen rejected. I am largely indebted to the excellent correspondents of your *Journal*. May I point out an improvement, which will be useful to man of them? When I first used the WBC end for frames, I was annoyed to find that it fell below the utility of the old leaden end in one particular. It has no spur underneath, when on the frames, to prevent its jamming against the side of the shallow-frame box. The old leaden spur gives a perfect bee-way. The WBC does not. The thing is the more important in the brood nest, where, unless the hive is just seventeen inches wide, for the top bar to accurately fit (and many hives vary), the bee-keeper is in danger of crushing his bees, possibly his queen, between the frames and the hive-side. I make a couple of cuts with the shears into the tin of the WBC, turn up the middle piece, and the difficulty is obviated at once. A perfect bee space is obtained, and regularity of frames in the hive made certain. Do not deem me impertinent if I vent a thought that must have occupied the minds of many of many of your readers. Where is our friend X-Tractor? Why does he not adorn your pages, as he was wont to do? I always read him first, and now I miss him much. He was the very poet of bee-keeping. Dry instructions are all very well, but X-Tractor sang the art. He taught me to build a hut, and woe to those who would speak of it as 'shed or even bee-house. With me, it is always In the Hut. He taught me to paint hives white, and many things beside. He sent me to the poets to corroborate his apt quotations, and now I fear the pleasure is no more. If you can influence him, Messrs Editors, ask him to write again. He must have had a lot of time for reflection lately. With best wishes for a happy season in 1894—HCJ, Horninglow Cross, Staffordshire.

[Having a sort of parental interest in the WBC end, we may be allowed to explain that in properly made hives the length of top bar accurately regulates the distance between the frame and the hive side. But our chief objection to our correspondent's plan of providing a makeshift spur is that by so doing the important advantage of being able to space the frames at one inch and a quarter apart, for preventing drone production, is done away with. — Eds.]

(November 2, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:436-437. Experiments with the Wells dummy. [Letter 1609]. Your correspondent, Mr Tustain (Letter 1593, p.418 of BJ for October 19th) makes a very one-sided statement with respect to the Wells dummy. Of course, only your correspondent himself can tell what he has, or has not read of, but you gave him an opportunity of reading of one success and I am happy to furnish him with another. But surely he does not expect Mr Wells to guarantee unqualified success to all who choose to think they are adopting his methods? That gentleman has not pressed any one to try his system, and certainly he has not desired any one to play tricks therewith. If (Letter) 1593 or any other bee-keeper thinks he knows better than Mr Wells and sees fit to make experiments—be they either improvements or variations of their own—of course no one objects, but don't let them call it the Wells system, because that is just what it is not. Zinc, for instance, is manifestly not a material suitable for a Wells dummy-board, and for the life of me I cannot see why bee-keepers should go out of their way to use such things when a properly made wooden dummy is known to answer perfectly in reasonably competent hand. If a bee-keeper is going to become a Wellsite he must work strictly on Mr Wells' lines, or he may just as well place two skeps of bees side by side and fancy himself the possessor of a Wells hive. On another point: I have wondered how your correspondent accounts for six of his seven stocks being found broodless on the 7th of October? This means that the queens ceased laying in the middle of September—and such a September! On the 16th of October in all my stocks I found at least two combs with patches of brood in all stages. I have now five Wells dummies in use which are a perfect success, the bees on both sides forming one cluster and not a dozen holes closed in the whole five. It may not be out of place here to add a few words as to what I have done in 1893. From two moderate stocks in the middle of May I took a little over eighteen pounds of honey; then fed slowly for about three weeks, and the brood nests were gradually extended until about the middle of June, when the bees covered twenty-two and nineteen frames respectively, with brood in about eleven frame; I next removed the queens and all the young brood and eggs, with the bees covering the frames, to a fresh position, then giving the old stocks one frame of selected eggs each from the best bees (i.e. those that worked the hardest) to raise queens. One raised five and the other six queen-cells. On the 6th of July I divided the two stocks into nine nuclei, placing eight of them into four Wells hives and giving a queen-cell to each. The queens hatched [sic emerged] out on the 9th and 10th of July and I found eggs laid in two of the hives on the 23rd, and by the 28th of July eight of the nine queens were successfully mated and laying. Fortunately I had previously detected queen-cells being raised in the ninth nucleus, and gave them a few eggs from one of the original stocks, so only lost about twelve days, as I see from my diary that by the 14th of August all my queens were laying. I would add I think it advisable to paint these double hives different colours, especially if used for raising queens—

this being the only outside precaution I take to keep the stocks and queens apart. Both entrances are in front and very close together, yet I had no trouble whatever in getting the queens mated. On several occasions I saw them on the alighting-board and flying about the entrances of both hives, and, with one exception, they always found their way back into their proper hives. My perforated dummies are made from wood usually used for backing pictures, and can be bought very cheap and is just the right thickness for the dummy, which should contain from 200 to 300 perforations, not quite large enough for a bee to get through. Although I have taken no honey from these stocks since May yet it must be recorded that the bees of the two original stocks, subsequently divided as above mentioned, built out and partly filled no less than seven dozen frames of foundation. From the above it will be seen that the Wells system is no failure with me, and I am perfectly certain that if my brother bee-keepers will only intelligently carry out the system as described in the columns of your *Journal* by Mr Wells, we shall hear of very few failures (if any) and in my opinion had Letter 1593 adopted a properly made dummy he would not now write that his bees are broodless (that is, of course, provided his queens are worth the keeping). All I know is that my bees show no sign of being broodless for some weeks to come; I stopped fast syrup feeding on the 1st of October and gave them a cake of candy to eat winter passages through, but I found they had within a week played the confidence trick with this, and owing to the mild weather a second supply has gone the same way, and they are today making tracks in a third addition and still seem as far from the *terminus ad quern* as — The Heathen, October 26th.

(November 2, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:437. An artisan's first year with bees. [Letter 1610]. If space allowed I thought that an account of my first year's bee-keeping might interest learners like myself. By trade a painter, I have for nearly two years past been in the insurance line, and about four years back, being away from home, working and lodging with a carpenter who kept bees in frame hives, I turned to and made a hive during my spare evenings from a pattern made by my friend and brought it home, but beyond buying some comb foundation I never got any further until last autumn, when I drove the bees of two straw skeps and united them, giving full sheets of foundation, and after finishing the feeding process I put the hive indoors until the spring, when I put them out in my bit of garden just close to my house, and kept increasing the frames in body of hive until I had ten in, after which I put on a rack containing twenty-one one-pound sections, with excluder under, and acting as some others have done I had the excluder fitted in a wood frame which allowed too much room below, so the bees built comb and stored honey under the excluder. However, I took off forty-two sections, thirty-nine of them being nicely finished, I also took away one frame of honey, which weighed six pounds, and having a chance to get some more driven bees I got another hive and drove two skeps, uniting the bees and giving them a frame of comb and food from my first hive, and in the other frames sheets of foundation. Since that time I have—with the help of a carpenter and sketches in back numbers of *Bee Journal*—made a Wells hive, but I am afraid my dummy-board is not quite as it should be. I made it of yellow pine, quarter inch thick, with a frame of stouter wood outside. I drove five skeps, putting three lots of bees on one side and two on the other; they are very quiet and seem to be clustered pretty thick on each side of the dummy. I also

took four frames of honey from my first hive, and put two of these on each side of the dummy (as I see the idea is to get the bees to take to clustering on to the latter), I then gave them comb foundation and some drawn-out comb. I did not put the bees in both divisions at the same time, there being about nine days between, and I had unfortunately left the frames spaced wider apart than usual, there being a good space between each comb directly under the feeder, so the bees began building comb in that space, and there was brood in it when I came to set them in order before putting the bees in the other half of the hive, so I fixed this comb and brood into another frame and gave it to the second lot of bees. I am now feeding up, allowing say five pounds for each of the frames of honey given to the driven bees. I have taken about seventy-five pounds of good honey of good colour, and visitors who brought some have praised its quality very much. Not so bad for a beginner, but bee-keeping is not gone into much here, so I do not know whether the districts is a good one for honey or not. We are about two miles from the moor, where there is plenty of heather. I must conclude by asking:

1. Is excluder zinc required in a Wells hive when working for sections? Would not the queens be liable to get together without it?

2. Should all drones be disposed of by this time? —W Allen, Okehampton.

[Referring to the Wells dummy, the fault of putting a frame of stouter wood round it lies in the increased space it affords between the face of the comb and that of the dummy. If the space exceeds five-eighths of an inch the same mischief may follow as resulted from your allowing too much space below excluder zinc mentioned above. In reply to other questions asked—

1. Queen-excluder is indispensable below surplus chambers in Wells hives.

2. Yes, if normal drones are still alive it is an almost sure sign the hive is queenless. — Eds.]

(November 2, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:440. Carrying bees on bicycles. [Letter 1616]. As I inquired earlier in the season whether you considered that bees might safely be carried in boxes on bicycles after being driven, I thought it might be of interest to hear the result of my trial. About the first week in September I rode over on my machine to where the bees were kept (about ten miles) and arrived there at 6.30 pm I drove two skeps into a couple of boxes, but suppose I failed to secure the queen of the second lot as darkness intervened before I had finished. Finding it impossible to carry both boxes on my back (as the lower one got jarred against the saddle) I carried one under my chin, and a lively but fortunately uneventful ride I had coming home. It was pitch dark and I could see nothing of the road except a small patch in front which my lamp showed, I was also half afraid lest one of the boxes should get loose or open, and I should get a second edition of what I had had whilst driving them. However, I arrived home safely, and next day hived the bees on frames of sealed honey and foundation, one stock each side of a Wells hive, but united them a few days after finding that there was only one queen. When examining them later I found two frames covered with hatching brood, and the foundation had been drawn out, syrup stored and sealed over. This I consider satisfactory for a beginner this year.— D'Ards.

(November 9, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:448. Notes by the Way. [Letter 1618]. In the month of November comment on the

weather seems needless in relation to outdoor apiarian work; therefore we will turn our thoughts to the indoor part of the business and the general success of the craft...

...Perhaps others will discuss the question, and let us, if possible, find some deterrent to the wrong-doer. I am convinced that some strains of bees use a great deal more propolis than others, and that the same strains of bees located in different places collect and use more propolis in one place than in others. Possibly this may explain why some Wells dummies are propolised and others not...

(November 9, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:449-450. Bees in North Devon. [Letter 1620]. It may, perhaps, interest some readers if I relate the results of four years' bee-keeping in this county, and show how cottagers and others may add to their earnings by keeping bees on the humane and economical plan instead of the cruel method handed down from generations and still very generally adopted in this neighbourhood. I should have shown a better balance-sheet had I made my own hives or had them made locally, as I find I can get them made here on the Wells principle at about the price London makers charge for a single hive. My first year I bought two swarms and put them in Neighbour's cottage hives; these both swarmed, increasing my stock to four hives. I took about fifty pounds of honey, which had I sold would have gone far towards paying for my outlay. My second year (1891) was a very wet year, and the hives were set down in a bad place facing west. Consequently, getting no morning sun, and being under the drip of trees, I was unlucky in losing swarms. However, I had about fifty pounds of honey and increased by one stock. This was a most unfavourable year, though had I managed them better no doubt better results would have followed. In 1892 I first had the Wells hive and had two made. I moved my hives to another place facing south-east, fairly sheltered from wind and with no overhanging trees. The Wells hives did fairly well but the two swarms were hived about a week apart and there was a great deal of fighting, the second swarm being nearly destroyed. This year I took 170 pounds of honey, most of which I sold. I began the season 1893 with four stocks in Neighbour's cottage hives, and two Wells hives equal to four single-queen stocks. I was anxious to compare the double hives with the single ones, and the result is slightly in favour of single hives. All my honey is in one-pound sections and I only count those that are thoroughly sealed and saleable. The figures from hive (1) single, 30 pounds; (2) single, 79 pounds; (3) single, 35 pounds; (4) single, 89 pounds; total, 233 pounds. From Wells hive (1), 97 pounds; (2), 128 pounds; total, 225 pounds; showing an average of 57 pounds per stock. I had also two swarms this year which gave 64 pounds, so that my total for the year was 522 pounds of honey in sections. My expenses up to date, i.e., cost of swarms, hives, sections, and all my bee-plant amounts to 17*l.* 7*s.* 0*d.* My takings in honey have been—in 1890, 50 pounds; 1891, 50 pounds; 1892, 170 pounds; 1893, 522 pounds. Total, 792 pounds. The majority of the honey is heather and commands 1*s.* a pound, but even taking it at 10*d.* a pound it gives the satisfactory return of 331., or deducting the cost of plant, 17*l.* 7*s.* 0*d.*, a net profit of 15*l.* 12*s.* 0*d.* in cash, besides all my bees, hives, and appliances, which are worth at least 12*l.* I do not expect again to have quite so favourable a year at 1893, but with apiary of ten stocks four years' experience and ordinary luck, I trust next year to be able to show a fair balance

in my favour, and now all the principal outlay is paid for the net profits should be considerably increased.—CS

(November 9, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:451. The Wells hive. [Letter 1627].

I find that the Wells hive answers well with me. I have worked one this season and it has given me 130 pounds of honey, and I have taken two swarms. My twenty others, on the combination system, give thirty-five pounds each on the average, without any increase of stock. The yield this year is below the average in this district.—H0 Huntley, Worcester, October 30th.

(November 16, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:461. Queries and Replies. [Query 914]. Stocking Wells hives—

Coming from a thickly populated parish to this rural one, I started bees four years ago without any experience—one frame hive. I have now three, one of which yielded forty sections this year, besides the frames (which I never touch), and a swarm unfortunately lost in my absence. No honey was stored in the sections after August, though there are quantities of limes about. I have got a Wells hive, and about two months ago put a stock into it, strong and vigorous, in one half. The other half is empty, and I have packed up all my hives for winter today. I am thinking of dividing this stock, putting half of it in one side with its own queen, the other half with a purchased queen into the other half of the hive early in spring—say, February—and thenceforward feeding both sides till the flowers come. Of course I should fill up the body of the hive on both sides with frames of foundation, and not put on the excluder and super till I took off the feeders.

1. Would you kindly advise me about this? No one hereabouts knows anything of the Wells hive. Also

2. Where can I get a queen most reliably? The other two hives are (a) a good stock with a young queen (this hive swarmed this year), and (b) a new and very strong swarm of last May, which has well filled its frames, but gave me no surplus honey. I propose to move the Wells hive to another site during its dormancy, about fifty yards away.

3. Would it be wise to make (a) and (b) into three hives, and buy a fresh queen for the third hive thus formed? Though but a novice in my old age, I am very keen as to the advantage of bee-keeping to the rural cottager, and anxious to make bee-keeping as common as gardening in the villages. — Richard K Boltun, Fenny Bentley Rectory, Ashbourne.

Reply.—

1. It is questionable whether you would succeed in getting a portion of the stock in Wells hive to accept a second queen as proposed. We should advise adding a swarm on the other side or dummy instead.

2. You would have considerable difficulty in buying a queen in February.

3. Three hives may be made from two by the ordinary method of artificial swarming without the need of buying a queen.

(November 23, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:469. The Wells hive. [Letter 1644]. I have myself tried the Wells system, with a carefully constructed hive, and it proved quite a success, having given me 160 pounds surplus, besides a number of ready-built combs. The bees propolised the

perforated dummy during the honey-flow, but I did not see that it interfered at all with their working in the upper chamber. Thank you, Mr Wells! I intend trying three hives on your system next year. I have been looking for Mr Wells' report week after week. The season in this district has been the best since 1887.—WGK, Chiseldon, Swindon, November 18th.

[Mr Wells has promised to forward his report-for this season shortly. — Eds.]

(November 23, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:469. A Cheshire report. [Letter 1645]. I have seen no news about Cheshire bee-keeping in your *Journal*, so I thought I would send a line to show what my bees have done this year. I had seven hives, and from them got 400 pounds of extracted honey and fifty good sections, besides increasing my stocks to ten by artificial swarms. The honey is all from white clover, and being of splendid quality, I have found a good sale for it. In fact, I may say that, after keeping bees a good many years, I have never yet had a better season. Would it be best to put two of my single stocks at once into a Wells hive I have just had made, or wait till next year and stock it with a couple of casts from skeps?—WGK, Chiseldon, Swindon, November 18th.

[Mr Wells has promised to forward his report for this season shortly. — Eds.]

(November 30, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:478. Failures with the Wells dummy. [Letter 1652]. Your correspondent, The Heathen (Letter 1609, p.436), states that I made a very one-sided statement re the Wells dummy. I fail, however to see that such is the case. When making my report, I simply drew attention to the fact of so many failures with it, which appear weekly in the BBJ, also the monthly Record. And, although the Editors kindly drew my attention to two cases of success—and one of them had not appeared in print at the time of my writing—I also note your correspondent's success. I simply wished to record my own success with a perforated zinc dummy, and I think you must agree that it has answered its purpose well. Neither do I expect Mr Wells to guarantee success to all who try his method; but surely your correspondent does not wish to draw a hard and fast fine, which no one shall go beyond, with respect to the kind of dummy that shall be used in a Wells hive, which mine certainly is, as laid down from time to time in the BBJ? It simply differs in the dummy, and this The Heathen very strongly objects to. Your correspondent also, while carefully pointing out his own success, does not consider it necessary to allude to the failures; perhaps he considers the BBJ is doing that sufficiently well, seeing that, roughly speaking, the failures are about three to one success. Surely, also, he does not call his own case a success? —for, according to his own statements, he has worked only nuclei, and no stocks can be called a success unless they have been working in surplus chambers, which is the real test. Now, sirs, comparing your correspondent's success—such as it is—and the few others recorded against the large percentage of failures already reported, it does not at present say much for the wooden dummy, and until better reports come forward, I must still adhere to the zinc dummy, which I know will answer. The Heathen also wonders how I account for my stocks being broodless on October 7th? In that there is no mystery to me. I am told that bees stop breeding earlier when the hives are full of honey, which was the case this season. If I had been feeding nuclei, as your correspondent has, I should certainly have

been disappointed at not finding brood, seeing that he only stopped feeding on October 1st. Beekeepers tell me that eight out of every ten stocks in this district were broodless on or before October 7th, thus proving it is no fault of the zinc dummy. Friend Heathen also says: Had Letter 1573 adopted a properly made dummy, his bees would not have been broodless. This shot fails of its mark, because the zinc dummy was only used in one of my hives, and it certainly could not affect the whole of the others, which were alike broodless. As to my queens being worth the keeping, my take of honey (118 pounds per hive average) answers that question, and my bees have not been fed since March last. I can recommend the system I have adopted to any one who wants bees to pay, for I have safely increased my stocks by three, and sold 8*l.* worth of honey; so that, after buying an extractor, new frames, foundation, &c, at a cost of 4*l.* 3*s.*, I have a profit of 3*l.* 17*s.*, and plenty of honey left for our own consumption. — Wm Tustain, Northants, November 22nd, 1893.

(December 7, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:485-487. Mr Wells' report for 1893. [Letter 1656]. I take this the first opportunity of forwarding the result of my bee-doings for the season of 1893. I dare say it is pretty generally known that my stock consists of ten hives, and that it was my intention to work all of them through the season with two queens in each. Unfortunately, however, I found, early in May, that one division of one of the ten hives had lost its queen. I was not very much surprised at this, as I had a great many visitors, and, of course, was anxious to show all of them the interior of at least two hives; so that my bees were lifted out of their hives and pulled about a deal more than was good for them. I was quite aware of all this at the time, but had made up my mind to sacrifice their well-doing thus far until all had been supered, the brood nests not being disturbed afterwards. I explained to our numerous visitors, to the best of my ability, the way in which the system of two queens in one hive is worked. But, to return to the hive which had lost one of its queens, the queenless bees had nearly all deserted their portion of the hive and passed over into the other side of the division-board, where the one queen still remained; and I quite believe that every bee would have followed suit had there been room for them; but there was not, and, knowing that the remaining queen was one of superior quality, I decided to crowd the bees up to try and make them prepare for swarming. This they did at once, and in ten days there were seven queen-cells all sealed over, one comb having two queen-cells so close together that they could not be parted with safety. On the thirteenth day from the commencement of these queen-cells I divided the combs into five nuclei of two combs each, one with brood and one with honey, and placed four of them side by side in one hive. After removing these four lots, there remained one comb with one queen cell and one with two queen cells in the old hive. I next removed the old queen, with a few bees, on one comb, into a small hive, and gave them two other combs, setting it on the old stand to catch the flying bees, the old hive being shifted to a new stand and the bees crowded close up to the perforated division-board. The lot with but one queen cell had only one comb, the others which had the two queen-cells having three combs. Of course, the bees were very much crowded, my object being to make them swarm as soon as one of these two queen-cells should hatch [sic emerge]. It turned out just as I expected, though, of course, it was a small swarm; but my object was to save all the young queens.

Unfortunately, however, I have not been very successful in rearing nucleus stocks this year, though all the above seven queens hatched [sic emerged], and six out of the seven started to lay, and reared a nice lot of brood; but, by some means or other, four of them disappeared, which left me with but two young queens, whereas I required ten, as I like to have all my hives stocked with one queen in her first and one in her second season. In so doing there need be no fear about numbers of workers to collect the honey when there is any to be got; and, although all my other nine hives were crowded with bees, not one of them swarmed. Consequently, I removed several queens in August, my object being to start the bees building queen cells. Some of them did start a few, and other stocks appeared as though they would rather remain queenless than rear young queens. At the end of about one week from the time I removed the queens, I gave them a fresh comb, containing eggs and young brood; but no queen-cells were started. Thus I was compelled to return the old queens, and with those few that did build queen-cells I only succeeded in getting four queens successfully mated. I have thus, after all, only six young queens, instead of ten which I required. In consequence of these mishaps, I have decided to run the four best old queens for a third season. The honey season in this neighbourhood has been a poor one, and, although my bees gathered wonderfully well from plum, cherry, pear, and apple bloom, they did not do much afterwards, as the little sainfoin we had was grown about one mile away, and cut before it got properly into bloom. Of white clover, there is none of that grown about here to speak of, and the little surplus the bees collected after the sainfoin was cut was from all sorts of flowers. It also included some honey-dew, I judge, as it was darker in colour than usual; but the early surplus was very good. The bees have acted very curiously this year, hives being so completely crowded with bees that, although there was not much honey in the surplus chambers, I had to add crate after crate to give them room. Those partly filled were raised to the top, and putting the boxes of empty combs next to the queen-excluder zinc above brood nests, in nearly every case the bees started to store their surplus honey in the empty combs of lower boxes, rather than carry it to the top and finish off the combs partly filled. My surplus has therefore been scattered over a large number of combs, and I think that not more than half of them were very nicely filled. But towards the latter part of the season a great change ensued, and I never knew bees to store so much honey in the brood nest when they had plenty of room in the surplus boxes overhead. I do not try to get many sections filled, not having much sale for comb honey. I only put on four crates, each containing twenty-seven one-pound sections. These were nicely filled in the early part of the season. I have not had to buy any sugar for feeding, because for such hives as require extra food for wintering I had plenty of heavy combs of natural sealed stores. I have still a good number left ready to slip into the hives in the spring should they be needed. I remember that some of your correspondents last year considered that I put too high a price on my honey and wax, but I did not value it at a higher price than it fetched. Anyway, I propose to place a less value this year on it, although I have no fear of it not bringing a higher figure than the price I put upon it. The price shown below does not, therefore, mean that I am prepared to sell at the prices given, but merely to strike a kind of balance for the year. In this way I set my results as under:—

108 one-pound sections at 9*d.* each £4 1*l.* 0*d.*
 15 lbs. extracted honey at 6*d.* per lb. £27 17*l.* 6*d.*

19 lbs. beeswax at 1s. 6d. per lb.	£1 8s. 6d.
Total	£38 7l. 0d.
Less total expenditure	£1 0l. 9d.
Balance for labour	£32 6l. 3d.

Now, bearing in mind that I did not get any surplus at all from the hive which, after losing one queen in the spring, was afterwards broken up into nuclei, the amount shown was from the nine remaining hives, showing an average of nearly 136 pounds per hive. This is very satisfactory to me when compared with what others have done in my immediate neighbourhood, for I find, after making inquiries, the most that has been taken from one hive in my neighbourhood with but one queen in a hive is forty pounds, and this same hive had very little stores in brood nest, and had to be fed up for the winter. Taking into consideration that I have not had to give my bees any sugar at all, it becomes conclusive to my mind that it is impossible for single-queen stocks to hold their own against those stocks with two queens. If any of your readers insist on counting my harvest as coming from ten stocks, it would amount to a little over 122 pounds each hive; but, as I have said, the tenth hive gave no surplus. —G Wells, Aylesford, Kent, November 24th, 1893.

(December 7, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:488-489. Result from my Wells hive. [Letter 1661]. I have tried the Wells system, and found it a great success. I made a Wells hive myself last year, from reading the BBJ? and got it in working order with two swarms, the first of which came off on the 1st of June, and the second on the 9th. The hive was got to the heather in the first week of July, and when it came home on the 2nd September the gross weight was two hundredweight. I have the body hive left, well provided for winter, and in good order for 1894, while the surplus boxes, when taken off, had in them 116 pounds of heather honey. I am going to make other two hives on the same plan for 1894. Reading Mr Tustain's report (Letter 1652, p.478), and remarks about the dummy, I simply wish to record my own success. The wood one is best, as it does not draw damp, and I think it answers its purpose well. This year was the best since I started with bees, seven years ago. Many thanks to Mr Wells. — Andrew Archibald, Cambuslang, December 2nd, 1893.

(December 7, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:489. Bee-remembrances of the past. [Letter 1662]. Another year has been added to the record of the world's history, and we bee-keepers are that period nearer to the great end of things terrestrial; it therefore behoves us all to look around and see what advancement has been made during the past year. Among the improvements, the Wells System is a notable one. Among those we are awaiting may be enumerated a standard honey bottle, a perfect swarm catcher, a non-swarmer bee, and a total absence of dishonest practices on the part of bee-keepers!...

(December 7, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:493. Northumberland And Durham Bee-Keepers' Association. In order that local bee-keepers may have an opportunity of learning from Mr Wells himself full particulars of his system of working with two queen in each hive, this Association has arranged for addresses by Mr Wells at the following places: —December 11th,

1893, Newcastle; 12th, Consett; 13th, Whittingham. Mr Wells will also be present at meetings under the auspices of the Northumberland County Council as follows:—December 14th, Cambo; 15th, Bedlington; 16th, Riding Mill.—JN Kidd, Hon Secretary.

(December 7, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:492. R Bayley (Godalming).— Varnishing Wells dummy.— We do not think that varnishing will help to prevent bees from propolising the perforations in dummy, if they are so disposed, though Mr Wells—in making his own dummies—carefully burns the holes with a hot wire after boring to remove the roughness left by the bradawl. He also smooths the surface of dummy on both sides with sandpaper.

(December 14, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:497. Notes by the Way. [Letter 1664]. I trust that the recent effort of the British Bee-keepers' Association to introduce British honey to the notice of the Lord Mayor, and, through the introduction, to boom the industry by the aid of the public press, will be attended with success to our craft, and that an extended use will be made of honey as food. The extension of producers, without a corresponding increase of consumers, will only reduce the market value of our product. Then we have an ever-increasing quantity of foreign honey to compete with. Even the advertisement of Messrs Abbott points to the increased consignments of fairly good honey to this country; and if the foreigner can send palatable stuff, we shall have a keen competition, especially in extracted honey, and there are plenty of enterprising firms ready to handle the foreign honey and put it on the market forthwith, if there is a wider margin of profit on it than on the English. The English bee-keeper will have to face a closer competition in the near future than he has had in the past, when our pioneers in bee-craft get settled in the various countries of the world and extend their apiaries to large concerns, which, in an extended honey-flow, will produce large quantities. Mr Wells' report is good, again; even reckoning his nine double colonies as eighteen single colonies, the average is within a fraction of sixty-eight pounds per hive, and one pound of beeswax per hive. This seems a large return in wax, and I must congratulate Mr Wells on his modest expenditure. Truly the old adage is right, that it is not what a man earns or receives, but what he spends, that makes him rich. It is gratifying to know that we, as bee-keepers [vide 1657, p.487], are above suspicion, and I myself am inclined to endorse Mr Birkett's contention; but, beyond the ranks of bee-keepers pure and simple—whose bees gather the nectar from the flowers of the field—are others, who are prepared to increase their profits by any legitimate or illegitimate means, as Mr Birkett must know if he has read up the earlier volumes of BBJ of some ten years back. Therein he will find facts, proved by analysis, of the adulterated honey then on the market, and I have no doubt that the same nefarious practices exist today, the Food Adulteration Act notwithstanding. Technical education is extending, and I have no doubt in a few years we shall have experimental apiaries run by the various County Councils (if not by the District Councils) on their model farms. This will extend modern bee keeping and place it on a commercial basis alongside dairying and poultry farming. Then the antiquated straw skep will be thrust out of use, and the best systems will be thoroughly tried over a series of years by competent apiarians, and the most economical and profitable system or hive will receive the

recommendation it deserves. The fact that apiculture is as necessary to horticulture and agriculture as rain and sunshine will be believed when the proof is supplied by experimentalists living in the midst of the counties, and the facts are taught in our technical schools of the near future. Our aim must be to increase our output of honey from our apiaries without increasing our expenses. Mr Wells has, during the past year or two, shown the success of his system, and his balance account shows a profit of over 8*l.* per hive with honey at 6*d.* per pound. This is satisfactory, especially when we consider the small outgo. I fear very few can pare their expenses out of pocket to such small dimensions comparatively with the income; but this is no reason why we shall not try to follow in his footsteps and make our secondary product, wax, pay the expenses. Would it be trenching on Mr Wells' good nature to give us an inkling how he extracts his wax? [See George Wells' letter 1685 of December 14, 1893]—if he makes up the spare combs and cappings into wax as he goes along, or leaves all till the end of the season, and, if so, how he keeps out the wax-moth. — W Woodley, World's End, Beedon, Newbury.

(December 14, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:497-498. Successes and failures of the Wells System. [Letter 1665]. I note in your correspondent's letter (Letter 1652, p.478), when referring to the Wells System, he declares that roughly speaking the failures are about three to one success. Of course, so far as he had then read, but perhaps now that he has had a little more time to read, mark, and learn, he has come to a different conclusion. After reading what has appeared in your pages I make the successes out to be five to one failure! —and it must be remembered that the system is not fully appreciated or understood by every one yet; not that it has not been fully explained over and over again, but rather that some of your readers have sweet little notions of their own and strong opinions that such notions are at least improvements on other people's ways. Still, looking at what your correspondent's bees had to put up with, I do not consider his double hive a failure. Mr Wells, at the Chester Show last year, was awarded a bronze medal for what? for a double hive? oh, dear, no! but for his perforated wooden dummy, which, if used in a hive of sufficient capacity and provision made for two entrances, would make it a Wells hive, and proves it to be the aforesaid perforated wooden dummy which is the one thing above all others that goes to make a hive on Mr Wells' system. Of course, I cannot object to people using any fancy article they like for this purpose, but don't — pray don't, my young friends—call it names, such, as a Wells hive all except the dummy board. I also note that friend Tustain, after a little pleasant wandering about, comes down upon me with a regular clincher when he makes me say, Had 1593 adopted a properly made dummy his bees would not have been broodless; but I would ask is it fair to quote part only of a sentence, and if our friend Mr Tustain will read a little more attentively he will see I continued without any stop —not even a comma—that is, of course, provided his queens are worth the keeping. On looking through the correspondence again, I am more than ever of opinion that what I said was right, especially as he tells us that the bees that gave him his successes this season are the progeny of the queens in question. I have known queens to wear themselves entirely out in one season, and no queen should be tolerated longer than the second season in the apiary of an advanced bee-keeper. It is too late to remedy this now, friend Tustain, but make a notch on

the hives containing them and note, and let us know the result in the good time coming, when winter's storms have passed away together with the nervous twitchings in the head-feathers of. — The Heathen.

(December 14, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:498-499. Does bee-keeping pay? [Letter 1667]. Thinking the following account might have some interest for readers of your valuable paper, I send it on:—I commenced the season with five stocks, three of which were fairly-strong, the other two only just pulled through the winter. Not having time to look to them as I wished, when fruit-trees were in bloom, the queens had not sufficient room to deposit eggs to increase the populations for the honey-flow later on, which may account for my not having so heavy a return in honey per stock as some I read of in the BBJ. My five stocks gave me 240 pounds of honey, which, if sold at 8*d.* per pound, and the amount added to value of three stocks, which I made up from driven bees, with extra appliances, would amount to 10*l.* after paying all expenses. I am glad the Wells hive answers well in the hands of some I may give it a trial next season.—M Wood, Swindon, December 9th, 1803.

(December 14, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:499-500. A year's bee-work. My Wells hive. [Letter 1669]. Having derived all my knowledge in bee-keeping from your valuable *Journal*, which I take weekly, and being greatly taken with the Wells hive, I made one last winter holding twenty frames, or nineteen with dummy, including the perforated division board. On April 3rd this year, I stocked it with two stocks, one queen 1891 and the other 1892. Of course, you will consider this was not a favourable start, either as regards time or the age of the queen; but I made the best out of a bad start, as I could not unite these at the back end of last year, on account of having the hive to make in the winter. I might say this season stole a march over me, and the bees advanced so fast that I could not keep time with them, nor could I get foundation and frames made fast enough for them. This placed them at a great disadvantage in the brood nest, the same having to be used for honey instead of brood. The shallow frames I did not get on till May 13th, and between this date and June 10th, when they swarmed, they nearly completed two crates of shallow frames containing forty frames. I might say I tried with success Mr Jeffrey's device given in your *Journal*, February 9th, 1803, p.51. The result was I returned the bees one on each side in the hive they swarmed from, taking away the combs holding queen-cells with hanging bees and placed these in separate hive to hatch their queens, to replace old worn-out queens this autumn; their place being filled with frames of foundation to the required number. Not having yet got an extractor, I replaced the two sheets of queen-excluding zinc, and the two lifts containing the forty shallow frames, in the old position, to take their luck until I received my extractor from Mr Meadows, which arrived on or about July 13th, and then started and extracted the lot, which yielded seventy-five pounds. This, no doubt, you will consider not a very favourable return, but taking into consideration the unfavourable start and not having my extractor in time to relieve the honey-flow and the bees having swarmed, it was not so bad for a novice. The single hive, No.4, was treated just the same as the Wells hive, which you will see did not give the same result at home, but pulled to the front when at the moors. This hive was a cast last year, consequently weak to commence with

this spring. After taking the two lifts from the Wells hive for extracting, I replaced the same with four crates of sections, placing in the centre of each crate one section drawn out, which on the return from the moors were the only sections completed. This greatly surprised me considering the crowded state of this hive, but the brood nest had perfect slabs of honey, each comb averaging about seven-and-a-half pounds. I might say I examined this hive when it returned from the moor, and caught both the queens in order to make two small nucleus stocks, to run through next season. I hope next season to work two Wells hives and intend making two more this winter. I might say the hives worked for extracted honey had all their combs to work out from the foundation. In reference to the perforated division-board, I found it very free from the holes being propolised, only a few round the sides and bottom being filled. Honey—especially my heather sections and clover ditto—I have found a good sale for; only in a few cases have I sold any honey at less than 1s. per pound. Average for 1891, two hives, sixteen pounds; average 1892, for three hives, five-and-a-half pounds. I enclose a table of my result of different hives, and the age of queens for this season, 1893.

British Bee Journal, Bee-Keepers' Record and Adviser **21**:504. [December 21, 1893]. Northumberland and Durham Bee-Keepers' Association. Proposed visit of Mr G Wells. Referring to the announcement made in our issue of December 7th (p.490), the Hon Sec of the N and DBKA writes:— Owing to a pressing business engagement, Mr Wells was not able to come to the north in order to explain his system to local bee-keepers as arranged. A great deal of interest was taken in the proposed visit, and I have received numerous expressions of regret at not being afforded the opportunity of hearing him. In many instances bee-keepers had made arrangements to travel considerable distances to the meetings. It is hoped, however, that Mr Wells will be in a position to fulfil the engagement at an early date.

(December 21, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:508. Bee-keeping in Sussex. [Letter 1680]. This has been a very successful year with me, so far as a honey harvest is concerned. I have only had one swarm, but my bees produced an average of eighty three well-filled sections for each hive, calculating a Wells hive as being equivalent to two hives. My best single hive produced 107 sections, and the Wells hive 167 sections, so that the single hive proportionately beat the double hive; but I think that the excluder zinc was somewhat of an impediment to the former; I only used it on that hive. My situation is by no means very favourable for honey-gathering, so that I think that the foregoing result is the more satisfactory. I may mention that I have left the brood nests almost untouched for the winter, amply supplied with sealed stores, and so full of bees that I found it almost impossible to reduce the number of frames. Each hive has an inner and an outer case, the intermediate space being filled with cork-dust. —A Sussex Rector.

(December 24, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:518. Echoes from the Hive. Soham, Cambs— My bees are going along well for the present; they have been out every fine, warm day this last week or so, and worked on the ivy-bloom in large numbers, which is close at hand. One lot, which I drove from a skep and placed on frame?, I am afraid I must take indoors to save

them if the weather comes sharp. I shall put them in the attic with my Wells Hive I have there, which has two holes cut through the brickwork for them to enter by. It has done well this year, but they have propolised all the holes up in dummy, which does not seem to make any difference; they agree just the same.—JL, S Gambs.

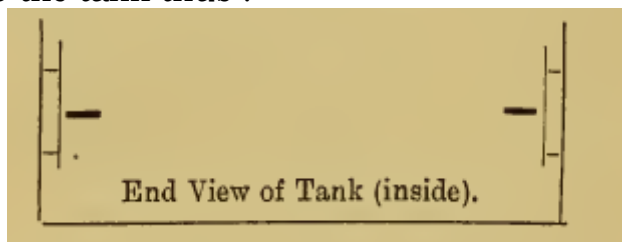
(December 28, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:513-514. Hive roofs. [Letter1683]. Instead of being Christians, let us suppose for a few minutes that we—each one of us—is a bee, scientifically labouring under the name of *Apis mellifica*. The specific name is a pleasing one; it suggests honey and brings to mind the mellifluous odour of a charlock field, or a lime with a thousand thousand blossoms. If the atmosphere is quite favourable nothing secretes honey with so lavish a hand as the lime. Once in a while it almost spots from the flowers—that would be real honey-dew! —and the bees return to the hives not only with a bursting honey -bag, but sticky all over as though they had rolled in it. When the limes are in bloom, entomologists know full well that it is no use sugaring at night, for here is a banquet not to be compared to a mess of rum, beer, and treacle. Imagine yourself a bee, then, headforemost in a dark cell trying to get warm. You cannot clap your arms round your shoulders like a cabman because you have no arms to clap, only legs to kick backwards. You are ordered to take your turn on the outside of the cluster, to sit on the other bees to hatch a little warmth as it were. Perhaps you have been commissioned (it is the fashion lately) to fetch a little honey—clover honey, it is for the queen — from the cold slab of comb above, or, what is worse, go right round the end of the frame, there being no winter passages, to convey a message to the next seam of bees. On this journey you make discoveries. The edge of the comb is covered with a blue mould, the hive side is wet, among the damp debris on the floor is a damp, naked worm! It is Christmas-time. Mistletoe, holly with coral berries, ivy whose berries are not yet ripe, darkest yew, encircle, not the heads of the artists, but the pictures which they have painted. There is the brightest of fires on the hearth, round it the brightest of faces, for a thousand thousand stockings will be suspended to-night ready to be filled by Santa Claus. But the bees in the damp, mouldy hive are dying one by one, till there is a noisome heap, and only a few remain clustered round the queen this merry Christmas Day! We will mercifully suppose that the above is an overdrawn picture; we will hope that every hive to-night is plentifully supplied with sweet food, that a sweet odour of honey —no, not honey, but naphthaline —pervades it; the bees covered with quilt, pad, and sack, which my late friend Pettigrew so heartily detested, and that winter passages have been cut, and a coat of paint to the roof, at least, given. We will suppose, too, that he smiles when the storm without dashes the rain in great sheets against the panes, as if it were angry at being kept out against its will, because he knows the hives are taut and sound and standing on four splayed legs. Thus did I smile, many long years ago, to my cost, for I found that not one of my roofs were watertight except those covered with zinc. Many of them were by the best makers, and included all the shapes that I have ever seen, barring the Anglo-Cyprian; also several covered with stout calico and painted. But they were, one and all, unsound. Water will get in through the most minute of cracks — through the puttied hole which covers a nail-head frequently—and often by capillary attraction runs upwards where one would least expect it. However enthusiastic we may be, there is bound to come a

time when other things besides bees—wasps, perhaps! — engage our attention. One of you will be getting married; another will have bought a yoke of oxen; a third is selling his honey, pleased, not so much at his own gain thereby, but at the treat his customers will have from the eating of it. Yes, the day will come, my young friends, hard as it is to believe, when you will not care if you do not see the *Journal* for a month, or maybe six months, and yet your hives will be in the garden letting water in just the same as ever!

Wood will warp, and paint will blister, so let me urge you strongly to use nothing but tin or zinc, well painted both sides, and four inches wider and longer than the hive, to shed the rain well off. Then it will not matter much if your enthusiasm does wane—nay, it may be a blessing for the bees, because there would be a rest from that unceasing, worrying manipulation I read so much about, and, alas! used to practise so much myself in days gone by. Never so cruel though—even in those days—as to put naphthaline under the frames; never so unjust to the bees either as to have two laying queens in one hive. Nothing has surprised me more than this Wells system. Perhaps my bees are abnormal bees—perhaps they still have some Cyprian blood in their veins, for I had a queen once. Anyhow I never wish to have the management of stronger hives. I have seen in Pettigrew's garden at Bowden, in Cheshire, and also in a garden at Knutsford, eighteen-inch skeps, with a huge glass super over, bursting with bees—stronger, my friends, than any of yours worked on any other system. And did I not have a swarm from one of these, which completely filled one of these huge skeps? (A delightful memory!) My hive of the future will be one with a tin or zinc roof, that will stand ten or twenty years; it will have frames parallel with the entrance, one dummy behind. The said frames must have a thicker—not wider—top bar than the present Association standard, and metal ends will be discarded. As bottled (extracted if you will) honey will be the order of the day, although some comb honey will always be produced, the hive must be made to take tiers of frames, each one containing ready-built drone comb, faultlessly worked out from foundation for preference. The queen will be kept from these by an excluder. The bee—the wondrous insect which solely occupies the pages of a weekly journal through many years—will not be of the proud Ligurian race, neither will it be the bright Cyprian or Syrian, or the soft-banded Carniolan, nor yet the patent Punic; but it will be the vigorous offspring of the old English bee with the blood of many a race in its veins. For it on breezy downs the pasque-flower will hang a shaggy bell, for it the heather will burn, as it were, the mountain tops, the eye-bright show a pleasant face, the bramble hold out a welcome hand; for it the wild thyme will creep about, some on the mounds in the kirkyard (for so I have seen it). Some may yet blossom on yours and mine. — Lordswood.

(December 28, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:515-516. How Mr Wells extracts his beeswax. [Letter 1685]. I see in BBJ for December 14th (Letter 1664, p.497) our friend Mr Woodley would like me to say how I manage with my wax. I really did not expect that I was any way in advance of Mr Woodley in that respect, and most likely I am not, but, as he has asked the question, it affords me great pleasure to answer the same. In the first place, perhaps you will allow me to explain the construction of my wax extractor. It is a kind of tank made from stout tinned sheet iron, about nineteen gauge. It is 27 inches long, 17¼ inches wide, and 15 inches deep (inside measure). It has a f

inch brass tap in the centre of one of the long sides about 1 inch from the bottom, and 9 inches from the bottom inside there is a T-shaped piece of sheet iron (made of the same material as the tank itself) riveted all round the tank, the flat side of the T being riveted to the tank thus :—



When I have old combs to melt down, the frames containing them are placed on the bottom of the tank and under the T piece; then a wood frame, just the size of the inside of tank, covered with cheesecloth, is laid on top of the T band, and is fastened down with four buttons fixed on the under side of wood frame, which are turned from the top side so as to grip under the T-shape band. The tank is then placed on the top of kitchener, and water poured in until it comes about three inches above the strainer or cheesecloth. As the water gets hot the wax leaves the frames of comb and rises up through the cheesecloth to the surface of the water, from whence it can be skimmed off, or it can remain to cool, and all the refused with the now empty frames, is left in the bottom of tank. The frames are now thoroughly cleansed, and are fit for further use as new ones, but in some cases the wire in the frames becomes slack, and requires tightening before fixing fresh foundation. It may be said that the frames are not worth all this trouble but mine being well made are worth five times the amount of trouble. In uncapping combs when extracting honey we always let the capping fall into the top of the honey-ripenner, and the little honey cut off along with the cappings runs through the strainer. The dry cappings are then thrown into the wax-extractor until it gets full. A small quantity of water is then added to wash all the honey out of the cappings, and some mead is made from this. The tank with the cappings has the strainer fixed, placed on the kitchener, and the wax is dealt with just the same as the old combs are done, only, of course, there are no frames in this instance, and this is the brightest wax. The tap in the tank is for drawing off the water, as it is too heavy to lift about with the water in it. As regards wax-moth, I never fear that. When a number of old combs are condemned they are placed in a box, with plenty of naphthaline in the box with the combs, and I never find any of them touched with moth, although I never extract wax until everything else is done.—G Wells, Aylesford, Kent, December 21st, 1893.

(December 28, 1893). *British Bee Journal, Bee-Keepers' Record and Adviser* **21**:516. Northumberland and Durham Bee-Keepers' Association. At a meeting of the Committee of this Association, held the other day, a letter was read from Mr G Wells, Kent, explaining why he was unable to come to the district to deliver addresses on his double-queen system as arranged, and the explanation was considered to be satisfactory. It was decided to arrange for Mr Wells to come down in the early part of February; and if he should find it impossible to renew the engagement, the Committee will endeavour to arrange a course of lectures by a well-known expert, who is familiar with Mr Wells' system.

(Jan. 11, 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22:17**. Brood-hatching [sic emerging] on New Year's day. [Letter 1703]. Having made a Wells hive, I moved two stocks of bees into it this morning, and found, to my surprise, that one of them had brood in at least two combs; there were a good many young bees, and I saw one emerging from its cell. I think this may be interesting to your readers.

The stock in question was worked in an ordinary double hive last season, and was very strong; it is now on eight combs, which are crowded with bees. They are Ligurians, and the queen is two years old.—Haggis, Croydon, January 1, 1894.

(Jan. 11, 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22:19**. Echoes from the Hives. Soham, Cambs, December 24, 1893. —My bees are going along well for the present; they have been out every fine, warm day this last week or so, and worked on the ivy-bloom in large numbers, which is close at hand. One lot, which I drove from a skep and placed on frame?, I am afraid I must take indoors to save them if the weather comes sharp. I shall put them in the attic with my Wells Hive I have there, which has two holes cut through the brickwork for them to enter by. It has done well this year, but they have propolised all the holes up in dummy, which does not seem to make any difference ; they agree just the same.—JL S Cambs,

(Jan. 18, 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22:22-23**. Notes by the Way. [Letter 1709]. We have had a very great change in the weather last week... I beg to thank Mr Wells for his method of wax-extracting last month. I thought probably he had some special method as his wax returns are very large compared to the size of his apiary, and I felt I am not careful enough to extract all the wax from the combs, as my quantity of wax yearly bears no comparison to Mr Wells's when the sizes of our apiaries are considered.—W Woodley, Beedon, Newbury.

(18 January 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22:27**. Queries and Replies. [Query 930]. Adopting the Wells hive.— My outdoor factotum, a young man of nineteen, who is rather expert at carpentry, has just put together a very nice beehive, copying the hive known as the Economic. His only experience of bees has been in helping me with mine last summer, when my four hives made £5, besides using and giving freely of honey, and this appears to him a royal road to wealth. He already aspires to a Wells hive, and, as the *British Bee Journal* appears to think this kind of hive likely to be most used in the near future, I would willingly give him the makings of one if I knew how to instruct him as to the measurements, and in what respects the Wells differs from other hives.

1. I have one of Abbott's Combination hives. Is this convertible into a Wells, and how? I am not clear where the two entrances should be at the side, or one at each end, or the two side by side at end or front—i.e. making one side the front. The latter seems to me the most reasonable. We have never any opportunity of seeing any show or speaking with an expert. Some bees are certainly kept about here in frame hives, but very unscientifically, and I cannot get at them.
2. I use only the divisible crates of sections. Are these the best to advise my neophyte to commence with? If he ever advances to extracting, &c., it will be by slow steps, I am sure, as he will want to use all the money he can get to help in

the bringing up of a swarm of brothers and sisters, and cannot afford to buy things. If I am troubling you too much, take no notice of it; but if, or when, time affords for you to give your kind advice for his benefit, I shall be very glad to have it for him.—Grannie, Cashel, Co. Tipperary, December 22, 1893.

Reply.—

1. We should strongly deprecate the idea of our correspondent's protege adopting the Wells hive without first making himself thoroughly acquainted with the Wells system, which is a far more important factor in making a success than the hive itself. He should read what has appeared from Mr Wells himself on the subject in our pages, and would therein find that the hives used by that gentleman in carrying out his system are ordinary hives, holding fourteen frames in each, so there would not be much difficulty in adapting a Combination hive to it. Our correspondent, however, is mistaken when writing that the *British Bee Journal* appears to think that this kind of hive is likely to be the most used in the near future. We have never gone this length, but have simply given credit to Mr Wells for the remarkable success he has achieved by his plan of working, and by making known to readers what has been accomplished by the double-queen system have given them a chance to do likewise. Besides, we have invariably advised our readers to try the plan on a small scale before adopting it to the exclusion of old and well-tried methods.

2. A simple form of section rack, holding twenty-one 1 lb. sections, would be easier to make, and altogether more useful than those holding only seven sections in each. In working for extracted honey we do not see how a full measure of success could be achieved without some form of extractor being used.

(18 January 1894) *British Bee Journal and Beekeepers Adviser* **22**:27-28. [Letter 931]. Making a Wells hive. Excluding queens from sections. —

1. I am the veriest novice in bee-keeping except in theory. I have three stocks of bees in ordinary bar-frame hives, and for a year or two have been reading up and thinking over the different processes in dealing with them. Four or five months ago I began to take in your most interesting and valuable paper, and I have today started to make a Wells hive. I did not see the number of the *Journal* in which it is described, but I have got a catalogue in which the hive is illustrated. I am thinking of using $\frac{1}{4}$ in. three-ply fretwood for the perforated dummy, and boring it with an eighth of an inch bit. In the illustration I have, the thin sheet of wood seems to be set in a frame which takes up as much room as an ordinary frame. I fancy that there would be less propolisation of the dummy if the sheet of wood were made to run in a groove or between fillets on the side of the hive, thus bringing the frames on each side of the dummy to the regulation distance from it. What do you think?

2. Then as to the sheet of queen excluder zinc between the brood-nests and the sections, would the thin fretwood with holes of the proper size cut in it do instead? I do not like so much metal in the hive. I do not use zinc in my other hives. In filling the section cases I bring the wood separators down low enough to divide the lower opening between each pair of sections into two, so that only the workers get up through. Of course that plan won't work with the Wells. I hope I am not exposing my ignorance in what I am saying. If so, please wink hard at the foolish bit and help a poor Novice.—Lochgilphead, NB, January 10.

Reply.—

1. The difficulty in making what is called a Wells hive from a manufacturers catalogue lies in the fact that in no two of these is the hive made exactly alike; nor do we quite know which maker most nearly follows out Mr Wells's own ideas. We do know, however, that the perforated dummy should not be a thin sheet of wood set in a frame, as described. Mr Wells makes his dummy of best yellow pine an eighth of an inch thick, and it is not framed at all except by binding with tin. Before proceeding farther you should read Mr Wells's letter in the *Bee Journal* for November 10, 1892, and, if possible, some other of his communications in our pages on subsequent dates. The dummy, to be effective, must be capable of lateral movement, also of easy withdrawal, which would be impossible if it slides in a groove or between fillets as you suggest.

2. The thin fretwood with queen-excluding perforations would not answer; besides, there is no valid reason for not using the ordinary queen-excluder, zinc. Nor is it good practice to so arrange the wood separators as to exclude the queen from sections, seeing that of all the methods tried for securing this desideratum, none have been found so generally effective and reliable as the perforated zinc excluder.

(Jan. 18, 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22:28**.

[Letter 934]. Wells hive.—Size of standard frame.—I am much interested in the correspondence about the Wells' hive in the *British Bee Journal*. Will some one be kind enough to give me some practical information on the subject, such as size, division board, &c; also, what is the size of the standard frame?—Aberdeenshire. Reply. —For practical information we must refer our correspondent to what has already appeared in our pages on the subject of Wells' hives, division-boards, &c., including several letters from Mr Wells himself. The Standard frame is 14 in. by 8½ in., outside measure; with top-bar 17 in. long, 19/20 in, wide, and 3/8 in. thick.

(22 Jan. 25, 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22:39**.

[Letter 939]. Carniolan bees. — The Wells System.—I should be much obliged if some one would give me their experience of Carniolan bees. I have only the ordinary black bees at present, and I have nothing much to say against them, and would not like to mix the breed with any other kind of bees.

1. Would this occur if I procured some Carniolan bees and kept them near my other bees?

2. Can the Carniolan bee be easily distinguished from the other kind when out flying or on the alighting board? I suppose that it is the same with Carniolan bees as with others, viz that there are good and bad strains, but I should be better pleased if some one who has found them a success would tell me something about them?

3. Now that my bees are going to swarm in March and April I am building a few Wells hives, and I should like to know how many holes are considered sufficient to make in the dividing dummy?

4. I find it very awkward moving the large, heavy racks of sections from the Wells hives; would it make a very great difference to the system if I worked two small crates instead of one large one?

5. Also I do not approve of queen excluder zinc placed in the ordinary way, and to keep the queens separate I used last year a piece of queen-excluder zinc placed in

a dummy frame, and fitted into the crate so as to divide it in two, and the bottom of this dummy to lie just on the top of the perforated dummy below. Is there any objection to this—Early Swarmer, Northampton, January 19.

Reply.—

1. Yes. If Carniolan bees were introduced you would be almost certain to have a mixed breed of bees after the first season.
2. The Carniolan is easily distinguished when on the alighting board by the light-coloured bands on each segment of the abdomen. For information regarding them refer to *Bee Journal* for December 14 last (p.491).
3. Full particulars for making the Wells dummy are given in *Bee Journal* for April 20, p.153, and May 4, p.171, of last year.
4. It is a perversion of the Wells system to use large section racks; one of the most important advantages being the securing of the combined forces of both brood-nests into an ordinary-sized surplus chamber or section rack, in this way work begins earlier, and is carried on more rapidly than if the progeny of one queen only was relied on.
5. Personally we object to any deviation from Mr Wells' own plan of working, which we do not think can be improved upon in carrying out his system.

(Jan. 25, 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22**:40.

Echoes from the Hive. Daventry, January 12, 1894.—

I thought possibly it may interest readers to hear an echo from my hives. Today the bees are all alive and kicking, in reality, as one was resting on my neck, and, getting underneath my collar, I experienced the first pleasure of the season in the form of a kick. Last year I had a very few swarms, only two from eighteen stocks, and I naturally feel a little uneasy as to what the effect will be on the coming season, as there is a danger of spring dwindling owing to the queen's age. Up to the present, however, all my stocks seem to be strong and hearty to judge from the way they are flying today. I put my two swarms — they were late both of them — into a Wells hive in the first week in July. I got 37 lb, honey from it in shallow-frames, and left plenty for them to winter on, but, owing to the queens being worn out (I suppose from having such a long spell of brood raising in the spring), they dwindled away, and while I was away from home in September, the other colonies started robbing, and when I returned home they were quite cleared out. Still I have faith in the Wells hive, and thank Mr Wells for making known to his brother bee-keepers this system, instead of keeping his successes to himself as he might have done. —WL Bird.

(Feb. 1, 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22**:45-46.

Notes from North Hants. [Letter 1732]. The past year in this part has been a poor one for bee-keepers, and the honey crop was below the average. Bees were very strong in April, and swarms were expected early in May, but, contrary to expectation, they were very scarce—skeppists who depend on swarms for their honey were in the same plight, and so there were few driven bees to be had. I drove fourteen lots that would have been brimstoned, and the best only weighed 33 lb. Two were queenless; had no honey and few bees, and the average weight of the lot was 16 lb. per hive, hives and combs included, proving that bees in skeps have done badly, and I am afraid that many of those left will not last till spring. Frame-hives have done better than skep?, for my average is 26 lb. per hive. The

honey gathered in May and the beginning of June was of good colour and quality, but after the second week in June it was nothing but honey-dew, and nearly as black as ink, but it sold at 6d. per lb. notwithstanding.

My Wells hive was a failure. I stocked it early in spring with two strong lots on ten frames each, but I only got four sections from them. I shall, however, give the system a fair trial with three hives this year.

Sandwich Island honey at 4½d. per lb., no charge for tins or case?. Not much chance for us there, for I am sure no British bee-keeper will attempt to compete with such a price as that, and it sets us wondering what price per lb. could have been paid to the producer of the honey in the first place. — H Rowell, Hook, Winchfield, Hants.

(Feb. 8, 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22:52**. The Northumberland and Durham Bee-Keepers' Association. The Committee of this Association regret that, owing to pressure of business, Mr G Wells could not fulfil his engagement to deliver addresses in Northumberland and Durham last December. Reports from local correspondents showed that his visit was awaited with extraordinary interest, and they therefore renewed their negotiations with him, and now have pleasure in announcing that, having made special arrangements, he will address meetings as follow: —

February 12, 1894, Newcastle, in the Mining Institute, Neville-street, at 7.30 pm

February 13, Consett Assembly Rooms, at 6.45 pm

February 14, Whittingham schoolroom, at 7.30 pm

February 15, *Cambo.

February 16, *Bedlington (Station).

February 17, *Riding Mill.

*These meetings are under the auspices of the Northumberland County Council. JN Kidd, Hon. Sec. N and DBKA.

(Feb. 8, 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22:52**.

Hives for Wells System. [Letter 1740]. I beg to offer a few remarks regarding the hive referred to on p.196 of *Bee Journal* for May 18 of last year. The bees put into the hive were two stocks on thick and crookedly-built combs, which could not be placed close to dummy, and, consequently, in a few weeks I had to cut off' each side of the dummy large slabs of comb; but since that, so far as I can see, the dummy is not built on or propolised. I find that, owing to the length of the hive (4 ft.), the wood is inclined to warp seriously; but this, of course, could be avoided by nailing strips of wood across. The hive is too long and heavy; moving it without assistance being out of the question. The plan of having the roof in three parts answers well. I shall not make another, at least not yet, although this has suited my purpose admirably this last season. In the super the bees hatched brood out of several very awkward frames and also brood out of three skeps. I made an exit direct from super so that the drones could get clear, and had no trouble with it; but I noticed a good deal of pollen taken in that way. Besides hatching all this brood, they worked out several standard frames of foundation, and stored honey in them. On March 31 I put them in; nine frames in all. By July they covered thirty-eight standard frames, and one skep. I cannot speak comparatively respecting the quantity of honey they gathered; 1893 was my first year, and all my stocks were being worked from skeps and crooked frames of comb on to good

wired foundation. The end entrances I eventually closed, but only to open them again in the autumn. I drove the bees from each end towards the middle, clearing twelve combs. Then into each end I turned driven bees with young queens, first inserting dummies to keep them from the original occupants. Now I have four queens in the hive, and when the spring is well advanced I intend taking out the two queens in the middle (the old ones) and letting the young ones have the run of the hive, FF, Clapham, Feb. 1.

(Feb. 8, 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22**:53. How I got on with my double queen hive. [Letter 1741]. About a year ago I described in your pages how I had made up a double-queened stock of bees, I will not say on the Wells system, or some of your readers will be down on my presumption as a novice. However, as I promised to report on the result, I may say the bees came out in spring much stronger than my single-queen stocks. and when the gathering season arrived, the first-named was the only one ready to take full advantage of it. Though the inflow lasted only a short time, I extracted 55 lb. of beautiful honey from it. It was afterwards taken to the moors, along with my other hives, and when brought back, the double-queen lot gave me 65 lb. of heather surplus, with fully 40 lb. of the same left with the bees for winter stores. The best of my single-queen hives only gave me 30 lb. from all sources, and the others less. You will, therefore, not wonder that I have now made up two other double-queen stocks in like manner for the coming season. I have not gone to the expense of providing double hives, but simply work my ordinary single ones by giving a perforated dummy in centre and placing a queen and bees on each side. I give an entrance front and back with the frames of course placed parallel to same. Like Mr Wells, I give a set of shallow frames (parted with dummy) over each brood nest, to which the queens have access for breeding. When supering time arrives, I cover carefully with excluder zinc and supply the shallow-frame surplus-chambers with clean combs or sheets of foundation. I have carefully noticed that the worker bees do not, as a rule, enter the hive at the opposite end to the queen whose progeny they are, though when in the supers they work in common. The fact of one of your correspondents thinking otherwise made me observe very closely, and I am positive in my conclusions. When packing for winter I do not disturb the standard frames in lower body, but in the shallow-frame brood-chamber I arrange frames of sealed honey over each cluster of bees extending into the lower brood-chamber, and cover up warmly with abundance of porous coverings. I am careful to allow no draught in winter, giving only a 1 in. entrance. All my other stocks are managed much in the same way. — Wm Barker, Hutton Rudby.

(5 Feb, 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22**:54-55. Carpin' creetics. [Letter 1749]. I'm awfu' muckle obleeged to ye for the picter and explanation of the WBC hive. I've juist been wantin' that informashun for a lang time. 'Od, but ye're guid at it when ye stert! It's a peety sae muckle space is ta'en up wae tliae havers aboot lecterers' errors and sic' like in the *Journal*; if the cuifs that want tae daet wad only write what wad be helpfu to a buddy like me, some guid wad be dune; but, as far as I am concerned, muckle that they write is doon richt balderdash, no ornamental to the writer, nor yusefu to the unfortunats reader, an' I hope they winna be lang till they get the Yeditors' snub some o'

them. A guid auld beuk talks about the mote and the beam, and faigs! if they wad tak the prenciple o' that tae hert, we'ed hear nae mair about errors. Noo, Misters Yeditors, dinna loss patience wi' me. I'm unco' anxious tae hae a Wells hive, and I juist want to speer ye if ye wad be sae guid as tae yoke tae and gees as gu'd discreption and picter o' it as ye've dune o' the WBO 'Od, but I wad be gled if ye'el da'et! I'm juist fidgen tae hae yin, and I'm ower puir to buy it, sae aiblens next week ye could set yere pow thinkin', and gees a' the perteeclers o't afloof, and I'll promise no' to bodder ye aoain—weel, no' till the next time. *Thenkin' ye in anteec'patioD*, — Cheadle Hulme.

(Feb. 8, 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22**:58.

Painting stocked hives.—[Query 946]. Being quite a novice with bees, and having no one to go to who knows any better than myself, I should be extremely obliged if you would answer me in your valuable paper the enclosed questions. There are several bee-keepers in our village, but all of them have until last summer sulphured their bees. I have persuaded two or three of them to work on the humane system, and hope to have the others do likewise.

1. I had a Wells' hive last season, one side lost its queen, so I took out six frames (leaving in fourteen) and the perforated division board, thus throwing the bees all together. No honey had been extracted, would there be sufficient to keep them
2. I kept the six frames with the honey in; when and how should I feed it back?
3. Do hives require painting every year? and can it be done with the bees in?

—A Beginner, Yorkshire.

Reply.

1. All depends on the amount of honey in the frames left behind. If as many as six of the fourteen frames left are fairly well filled, there will be ample food for the bees.
2. If food is needed it will be only necessary to replace a frame in the hive close to the bees.
3. Every second year is usually sufficient. By painting the fronts after the bees have given up flying for the day, and using plenty of drier! there is no difficulty in painting hives with bees in them.

(Feb. 15, 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22**:67.

The BrThe Wells dummy. [Letter 1759]. In taking a peep into my three Wells hives, I am pleased to notice in each case the bees are clustering on the dummies in true Wells fashion. I hope to work five of these hives this season. I hope we may have another fine season this year, and a prosperous one.—WGK

(Feb. 15, 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22**:67-68.

Echoes from the Hives. Morton, Gainsboro', February 5. Bees are almost too forward here; had a grand fly Saturday and yesterday. Wells hive to the front; pollen going in in plenty; nearly a month sooner than last year.—FJ Cribb Aylesford, Kent, February 8.—

I am glad to say all my bees appear to be very strong and healthy, and haven't they sported in the crocus-blooms today! The corks in the water trough have been nearly covered with bees, showing that breeding is going on within the hives.

—G Wells.

(Feb. 15, 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22:68**. [Letter 951]. Transferring to Wells hive.—

1. I am much interested in the correspondence about the Wells hive in the *British Bee Journal*, and very anxious for information on the following, as I wish to experiment with two of my colonies, now standing side by side, in bar-frame hives. I want to transfer them into a Wells hive. Would this be practicable for this year's honey flow?

2. About what date would be most suitable for me to move them into their new, quarters?

Or, 3. Should I wait for swarms?

4. In clipping queens, would there not be risk in losing the queen when she came out for an airing?

5. Concerning that something like an early swarm, which issued on January 11, 1894 (Letter 1731, p.45), would not the stock from which it came be left queenless? — D Logan, Beechwood, February 5.

Reply.—

1 and 2. If the two stocks are at present in fairly good condition, there is no reason for not hoping for the best results this season if weather is favourable. If the Wells hive can be so arranged that new entrances will occupy the same positions as the present ones, there should be little or no confusion consequent on the transfer, which may be made about end of March in fine weather.

3. The above course is preferable to waiting for swarms.

4. Clipping the wings of queens is supposed to prevent swarms from decamping; no account need be taken of queens coming out for an airing”.

5. As we look upon the swarm(?) referred to as an altogether unnatural one, it is most likely that few, if any, bees would be left in the hive from which it issued.

(Feb. 15, 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22:68**.

[Query 952]. Framing perforated Wells dummies.— As I am making new hives for own use, I should be glad to know.

1. Why it is considered wrong to *frame* perforated wooden dummies in double-queened hives, after the manner of a school slate, providing the frame projects only $\frac{1}{4}$ in. each side? Also

2. Whether I violate any principle in making my frames (though of standard size) with ends only projecting $\frac{1}{2}$ in., instead of as usual $1\frac{1}{2}$ in., as I have always done? This suits all my hives, which I am thereby able to make flush on the outside, allowing my outer cases to come closer to the body hive?

3. While writing, may I say without offence that I dislike the improved(?) front page of the *Journal*? Bee-keeping is so essentially a rural pursuit, that while it is so treated it is a real rest to busy men to indulge in it; but if it is all to be ruled down to mere business much of the restful pleasure will be eliminated. I should prefer a design that harmonised with country scenes and rural relaxations. FVH, Buxted. Reply.—

1. It is considered wrong to frame the perforated Wells dummy, because that operation increases the space between the face of the combs next the dummy, and thus lessens the chance of the bees of both brood chambers crowding close up on both sides of the perforated divider. The forming of one continuous cluster, extending through both brood-chambers, is one of the most important features of the Wells system, and to increase the space between the outer faces of the combs

on each side the divider to $\frac{1}{2}$ in. (as the $\frac{1}{4}$ -in. framing would do) will make it more than probable that no brood would be reared in the cells next to the divider; as so often happens in the outer combs of an ordinary hive.

2. There is no reason why you should not use a $15\frac{1}{2}$ in. top-bar if preferred, except the important fact of your frames not being Standard size, and consequently of less value commercially.

3. We are sorry you disapprove of the change in our front page, especially when it has been approved by so large a majority who have expressed an opinion thereon.

(Feb. 15, 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22**:68-69. [Query 953]. Using full sheets of foundation in sections.—

1. Would you advise me using full sheets of foundation in sections? Would it not be detected by the consumer?

2. Kindly say if you think the Wells hive the most profitable hive in the market. — Decoy, Pickering.

Reply.—

1. If only the thinnest make of super-foundation is used, it will not be detected or found objectionable to consumers.

2. By some bee-keepers the Wells hive has been found to yield far more profitable returns than those managed on the single-queen system. Much, however, depends on the bee-keeper himself, and, except in the hands of suitable persons, we should not like to say it is the most profitable hive on the market.

(Feb. 15, 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22**:69.

[Query 954]. — Material for dividers. I have not had much experience with bees, but seeing so many accounts of the Wells hive, I have constructed one myself.

1. I have two stocks I wish to transfer to the Wells hive—how soon may I venture to do this?

2. What is the best material for dividers for section honey — wood or metal? I have an idea that wood is the best, but should like to have your opinion. — A Blake, Westerham Hill, February 6.

Reply.—

1. See reply to D Logan.

2. Wood is generally believed to be a more suitable material for dividers than metal; but very good results are supposed to follow the use of finely-perforated zinc for the purpose.

(Feb. 22, 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22**:74-75.

The past season in Hunts. [Letter 1762]. Not having seen a report from Hunts in the *British Bee Journal* for some time, I thought it might interest some readers to know what the bees have been doing here last season. ...I made two artificial swarms, and started them in a Well?, but find the bees have nearly all got into one compartment. I don't think the Wells' system will come into general use. Now, Messrs Editors, as we are going to have the Royal show at Cambridge, about twelve miles from here...—Richard Few, Needingworth, Hunts.

(Feb. 22, 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22**:77. The Wells dummy. Taming vicious bees. [Letter 1771]. I see great stress is laid upon having the right dummy for the Wells hive. Many have a dummy which is not the

Wells dummy, through no fault of their own, but because such was sent as the genuine article by their dealer. I sent for one at the beginning of last bee season, and received a dummy which is three-eighths of an inch thick and the holes countersunk on each side. Has any bee-keeper succeeded with one of this description? Mr John Walton is the only one who has given his experience so far, I believe. Having had no swarms, I have not been able to test mine.

Does Mr Wells supply his particular dummy?— We believe he does.—Eds. Now that a great effort is made to raise the minor industry of bee-keeping to a higher level, it behoves all votaries to assist the impulse. I was very fortunate to get a good start. A kind gentleman in the neighbourhood, I suppose thinking me a promising subject, at first interested me in bees and then offered to procure a stock at a reasonable price. He not only did this, but carted it to my garden, put everything all right, and promised to give me the first swarm from his apiary. And such a swarm!—nine pounds in weight. We cannot expect all to act so generously as this, but each one can look out somebody and peg away at him till he gets the fever, when all will be plain sailing. Here are two methods for subduing bees. I give them for the benefit(?) of bee-keepers. When you want to look at the bees just give 'em a plenty of carbolic, they will lie quiet as lamb —so said number one as he sprinkled (?) them from a pint bottle with his finger partly over the mouth. Poor things, what could they do when they and their combs were dripping wet? Number two, while keeping up a fusillade of smoke, addressed his exhortation to the bees, Now, whose to be master, me or you? Us always fight for't, but I beant gwain to stop till you gives in. Well, I came away with the conviction that in this case vicious bees were not good honey producers. Would it not be well for the BBKA to approach the Education Department with the view of getting bee-keeping recognised as a class or specific subject in Great Britain?— Tyro, N Devon. [Efforts have been made in this direction already, and will be continued whenever an opportunity occurs. — Eds.]

(Feb. 22, 1894). *British Bee Journal and Beekeepers Adviser* **22**:78. Bees and early wild flowers.— [Query 957]. I moved my bees to a field in close proximity to several hundred acres of woodland, in which grows an abundance of primroses, violets, and other wild flowers in the early spring.

1. Do you think there is sufficient honey to be gathered from such flowers as to make it worth my while to try the new method of swarms in March and April for the purpose of securing a harvest thereby?
2. The gamekeeper in the wood referred to above always gets early swarms, and yet he never stimulates his bees in any way; but he loses many swarms by their decamping to hollow trees about. I am afraid I shall lose swarms in the same way, and so ask if you would advise me to clip the queen's wings?
3. My hives each hold ten frames and a dummy. Could I work them on the Wells system by allowing each queen five standard and five shallow frames for brood-rearing, and giving plenty of super room above?
4. Where can I get instruction for queen-rearing?— K Chapman, Newton.

Reply.—

1. Bees do gather a little from some wild flowers, but not in sufficient quantity to make it worth while preparing for a harvest from that source. The only real early harvest is that got from fruit-bloom and such early flowering trees as sycamore and occasionally hawthorn.

2. No doubt the shelter and consequent warmer temperature of the woods may cause early swarms, but the size of the skeps used will also probably have some influence in the same direction. As a means of preventing swarms decamping, clipping the wings of queens is effective enough, but it will require someone at hand to secure such swarms as come off and discover the mutilated queen on the ground as they sometimes do. Personally, we not like queen clipping at all, and should only tolerate it in cases of real necessity.
3. A hive of ten frames is too small for dividing into a double-queen colony, and would not give the Wells system a fair chance, even if worked as proposed.
4. Instructions for queen-rearing are given in the Bee-Keepers' *Guide Book*.

(22 February 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22**:78-79. The Wells System for beginners. A correspondent, under the initials GFD, asks some questions intended for reply in our query column. The substance of his letter, however, is so analogous to many others reaching us on the same subject that we give more prominence than usual to our reply for the benefit of other beginners, the bent of whose inclinations tend in the same direction. GFD writes:— Will you kindly reply to following queries:—

1. Is it necessary to enlarge the brood nest of a Wells hive by allowing the respective queens to breed in a shallow-frame surplus-box placed overhead, of course dividing the latter by a perforated dummy?
 2. How many supers are necessary for this?
 3. Would not sheet-lead, perforated as the wooden one is, answer for a 'Wells dummy,' seeing that it would not warp?
 4. How are nuclei formed? I think I understand how to make them up, but want to know how to prevent the bees flying back.
 5. How many supers are needed for a bar-frame hive; i.e., how many do you use?
- Now, the general tenor of the above queries leads irresistibly to the conclusion that our correspondent has not yet gone through even the elementary stage of bee-craft, and seeing that the Wells system is essentially a system suited only for the experienced beekeeper, it is almost hopeless to expect success with it in the hands of a novice. He would at times be confronted with difficulties from which—with his limited knowledge—he could scarcely hope to escape without disaster of some sort. We, therefore, recommend our correspondent, and, indeed, all similarly placed, to procure and read up a reliable book on bees in order to obtain some grasp of the main principles which must guide those who take in hand to control and manage the busy bee. We are very glad to render such advice as the limited space in our reply column affords room for to all who are in want of help or such counsel as we can offer, but it is quite obvious that only a complete work on bees can give such full details of bee-operations as will enable the bee-keeper to know the why and wherefore of what he does; and without this knowledge he is less than half informed of what he should know if he is to make a success of what he is endeavouring to accomplish. A complete work of some kind on the subject is, therefore, indispensable to everyone who aspires to become a successful bee-keeper on the modern method. Finally, and not to pass over our correspondent's queries altogether without definite reply, we may say that No.1 for answer only requires reference to what has appeared in our pages repeatedly—viz that Mr Wells is perforce obliged to enlarge the brood chambers of his hives by the addition of shallow frames overhead, and to which the queen has access, because

of the hives he had in possession before starting his new system only holding seven standard frames in each compartment of the lower brood chamber. Were it otherwise, or if his hives had held so many frames as experience shows to be necessary for the brood compartment, no shallow frames would be required for brood purposes. The second query we do not quite understand. Regarding the third, it may be said that a worse material than sheet-lead could hardly be conceived for a dummy on which the bees are supposed to cluster in winter for mutual warmth. Nos.4 and 5 will be far better answered and understood by reference to a good book on bee management.

(22 February 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22:79**. The Wells System. Lecture by Mr Wells. Under the auspices of the Northumberland and Durham Beekeepers' Association Mr Wells, of Aylesford, Kent, delivered a lecture on Bee-keeping, in the Mining Institute, Newcastle, on the 12th inst, to a large and interested audience. Mr Wells' system of double-queen hives has been regarded with keen interest by bee-keepers in all parts of the country. Many enthusiasts have been personally to inspect his successful bee-garden in Kent, and have adopted the system. It was thought desirable to have a practical explanation of the system from the inventor himself, and he was invited to come North by the Association for that purpose. Mr Wells brought with him a double-queen hive, which he took to pieces before the audience, and, while describing his arrangements, gave many valuable hints to those interested in bees. In the course of his remarks he intimated that he had experimented for results with five single-queen hives *v* five double-queen hives, and found that the single hives gave 205 lb. of honey, or an average of 41 lb. each, while the double hives gave 789 lb., or an average of 157 lb. each. The financial results obtained during the last three years had averaged over £40 per annum from about ten hives erected on his principle. The Durham County Council has also secured the services of Mr Wells to lecture at Consett and other places.

(22 February 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22:79-80**. An old school bee-man. (Concluded from p.70.) As separate races of men naturally associate together in whatever country they adopt, so the races of flowers always gravitate one towards the other... I like to picture him making the bee-food (dandelion wine, ale, and sugar), and taking out the elder troughs, rather than, as it might have been, making artificial swarms in March, worrying himself about metal ends having a spur or not, or trying the Wells system...—Lordswood.

(March 1, 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22:84-85**. Notes by the Way. [Letter 1772]. The weather has been more seasonable the last week—frosty nights and sunny days... The Wells dummy (that received the medal, I think) at Chester was under a $\frac{1}{4}$ in. thick, I should think, and had been used, so that it was a genuine one exhibited by Mr Wells. I had one in use last season made like it, and a large part of the holes were filled with propolis, or bee-glue. I have two of the kind Tyro mentions, countersunk holes each side, and I see no reason why these are not equal to the real Wells make. The holes require to be burnt with a red-hot skewer, possibly this charred surface may prevent propolisation; then, again, the district may have to do with much or little

propolisation, also the strain of bees...—W Woodley, Beedon, Newbury.

(8 March 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22**:100. Northumberland and Durham Bee-Keepers' Association. I have pleasure in reporting that a series of six lectures has just been delivered in this district by Mr G Wells, of Aylesford, Kent. Three of the lectures were held under the auspices of the Northumberland County Council, and the Northumberland and Durham Bee-keepers' Association was responsible for the remainder. The results have been highly satisfactory to all parties concerned. Thanks to the *Bee Journal* and *Record*, north-country bee-keepers are more or less familiar with Mr Wells' system, but the prospect of a personal visit was widely appreciated. The centres chosen were: — Newcastle-on-Tyne, Consett, Whittingham, Cambo, Bedlington, and Riding Mill, and at of all these places the audiences were numerically large and drawn from a wide area, ranging from one to fifteen miles. The first lecture was held at Newcastle, and was reported in your issue of last week.

On the following day the town of Consett was visited, and a very successful meeting was held. J Winter, Esq, of Leadgate, efficiently discharged the duties of the chair, and bee-keepers were present from Durham City, Rowley, Waskerley, Castleside, Medomsley, &c, a good many of whom joined the Association. The proceedings closed with a vote of thanks moved by Mr Calvert, of Medomsley.

A meeting was next held at the pretty village of Whittingham, in the centre of the most fertile vale of Northumberland, which appeared to Mr Wells to be a perfect Eldorado for bee-keeping. The schoolroom was crowded to the doors, and a true Northumbrian welcome was given to the lecturer. At the close the chairman, the Rev William Shield, joined the Association, together with several other gentlemen who were present.

The other three meetings were held at Cambo, Bedlington, and Riding Mill, and were well attended notwithstanding an inclement change in the weather. Mr Wells is to be congratulated upon the complete success of these pioneer meetings.

The addresses were admirably delivered, and embellished with homely wit, which kept the audiences in excellent humour. The hives and appliances used for the lectures have been purchased by the Association, and will be in the hands of Mr McClay, bee appliance dealer, 4 Cloth Market, Newcastle, during the month of March for inspection by members and others. The Committee hope to follow up the success of these meetings with another lecturing tour, and the following have promised to give their services as lecturers should any meetings be arranged, viz: —Rev RE Taylor, Councillor FE Schofield, County Councillor TR Dodd, and Mr Wakinshaw. The Secretary will be glad to receive applications for lectures from any part of the two counties. Mr Wells was much gratified with the success of his visit, and has expressed his hearty acknowledgment of the hospitality received on all hands. In leaving the hives, &c, for a nominal sum, he accompanied the favour with a donation of a guinea to the funds of the Association. He has also, in accordance with promises, sent the Secretary seeds of the Chapman honey plant and Melilot clover, which he grows for his own bees, with which members will be supplied on making application, JA Kidd, Hon Secretary, 1 Havelock-terrace, Gateshead-on-Tyne.

(8 March 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22**:100. Notices to Correspondents and Inquirers. Mr G Wells, of Aylesford, Kent, asks us

to make known his very reasonable request that persons writing him for information on what is called the Wells system of bee-keeping must in all cases enclose a stamped addressed envelope, otherwise he cannot undertake to reply to their inquiries.

(March 15, 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22**:106-107. The weather and the bees. [Letter 1785]. In my opinion, this has been an ideal winter for bees—cold enough to prevent them from flying unduly, and yet with some fine days to give them an opportunity for a good cleansing flight...The other is a young recruit started last year, who has got the bee-fever hot. He devotes every spare minute to hive-making, intends to have fifty hives, and is making what I should call Wells hives upwards, or rather hives three storey high. I am afraid, however, it is a bad speculation, as he is in a neighbourhood in which foul-brood has decimated more than one bee-keeper, and yet the first-named skeppist has lived right through it all without taking any precaution to check it.—Man of Kent.

(March 15, 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22**:109. [Query 968]. Beginners and the Wells System. —As a beginner -with frame hives, I am very- anxious for information on how to start the Wells system.

1. Would it be best to buy two stocks in standard frame hives just now, and transfer them into the Wells, or wait for swarms which would prob-ably not come off before the first week of June?

2. If I buy stocks, which kind of bee would be best, seeing that I have only the evenings to attend to them, and could never watch for swarms ? — DMG, Oban, NB, March 5.

Reply.—As a beginner with frame hives, and unable to attend to the bees during the day, or look out for swarms, you would stand a very small chance indeed of succeeding with hives managed on the Wells plan. Our advice is—gain more experience before courting failure by trial of a system which, of all others, demands not only attention at the proper time, but knowledge of what to do under conditions not within the ken of any but an experienced bee-keeper. We shall do all in our power to dissuade novices in bee-keeping from rashly venturing into the Wells system under such conditions as those in which our correspondent is placed.

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(March 15, 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22**:109. [Query 970.] Novices and hive-making. — I intend working a hive on the Wells system this year, and would be glad if you could give me a few hints on the manufacture of such a hive. I am but a novice with respect to bar frames, having kept ray bees for a number of years in skeps, and latterly in what you would term makeshift hives, and as I am a new subscriber to your paper, I have no back numbers to refer to. I intend to make the hive myself, and would be glad if you could give me the measurements of the hive proper, frames, shallow frames, crates, &c and thickness of wood desirable to use in such a case. I wish to have it made what is known as the standard size. What that size is I do not know, so that in order to make the thing a success, I should be enlightened as to the size to make the frames, &c I wish to make the hive on the doubling system, to hold, say, two crates shallow frames, or three crates sections. A description of the system, and rough sketch of hive through the medium of your paper would be very acceptable. — Forster Lee.

Reply.—We advise our correspondent to obtain a copy of the BBK Guide-Book, price 1s. 8d., post free, wherein will be found details as to frames, hives, section-racks, &c, besides other information indispensable before a novice can understand the making and management of frame-hives on the modern system. It is like groping in the dark to work without the aid of a reliable guide-book, seeing how impossible it is for us to give all the necessary instructions in our query column. By way of illustrating this latter fact, and without desiring to discourage queries on the part of beginners, we may say that the preparation of a full reply to the above queries would entail an expense equal to the amount of five or six years' subscription to the *Journal*. The standard frame is 14 in. by 8½ in., outside measure, and the shallow frame 14 in. by 5½ in., both having a top-bar 17 in. long and 3/8 in. thick. Frames accurately cut by machinery may, however, be bought so cheap as not to be worth making at home. For description of the Wells hive and system we must refer our correspondent to what has already appeared in past numbers of the BJ, which may be had post free for 1½d each.

(March 15, 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22**:110. HOW (Lee Ford). Excluders for Wells hives.— The excluder — covering twenty frames—should be in two parts, but when the single surplus-chamber is set on, in early work, a portion of it extends over both excluders, and the remaining part is quilted down until such time as the whole frame surface of both compartments is used. Personally we set the excluder flat on frame tops.

(March 15, 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22**:110. LB Mildewed pollen in combs. — There is nothing more serious in comb than that the cells are nearly all full of mildewed pollen. The fact of one side of the Wells' hive being deserted or beeless accounts for this condition. If the whole of the

combs are in a similar state we should melt them down; but the bees may be left to remove the mouldy surface if there is not too much of it.

(March 15, 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22**:119. Novices and hive-making. — [Query 970]. I intend working a hive on the Wells system this year, and would be glad if you could give me a few hints on the manufacture of such a hive. I am but a novice with respect to bar frames, having kept ray bees for a number of years in skeps, and latterly in what you would term make-shift hives, and as I am a new subscriber to your paper, I have no back numbers to refer to. I intend to make the hive myself, and would be glad if you could give me the measurements of the hive proper, frames, shallow frames, crates, &c., and thickness of wood desirable to use in such a case. I wish to have it made what is known as the standard size. What that size is I do not know, so that in order to make the thing a success, I should be enlightened as to the size to make the frames, &c. I wish to make the hive on the doubling system, to hold, say, two crates shallow frames, or three crates sections. A description of the system, and rough sketch of hive through the medium of your paper would be very acceptable.—Forster Lee.

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(March 22, 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22**:120. Echoes from the Hives. CE Appleby (Leeds). Supering Wells hives.—Mr Wells gives surplus-room in the ordinary way, excepting that the single super first given extends over both compartments of the hive. See reply to HOW on p.110, last week.

(March 29, 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22**:125. The Wells System. Difficulties with perforated dummies. [Letter 1800]. Today I examined my six stocks in frame hives, and found brood (some more, some less) in all of them. Some were well stocked with honey, and others almost on the verge of want. In the autumn I adjusted a combination hive on the Wells plan, and obtained a perforated divider from a well-known dealer; but I find all the holes tightly propolised, I consider this divider is a failure in view of the purpose intended. Doubtless the divider supplied by MrWells is the sure thing, but I find

that what he supplies does not exactly fit the hives of the best makers. It is difficult to adapt even to an eighth or a quarter of an inch, because of the strips of tin on the sides and bottom corners. These would scarcely stand much filing before you would spoil one. I favour making hives to fit exactly his divider, rather than altering the divider to fit the hives on hand. A little makes a difference that would be awkward, if not fatal.—An Enthusiast, March 17. [Our correspondent must surely be in error in supposing that the Wells divider will not fit any hive made to take standard frames. We are quite sure it will fit any properly constructed hive, whether by the best or any other maker. Will our correspondent kindly measure his Wells divider and say if it is not 14½ in. by 9 in.?—Eds.]

(March 29, 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22**:128. [Query 982]. Working Wells hives.—Raising queens.—

I shall be glad if you will answer the following small batch of queries:—

1. Would there be any advantage for storing more honey in putting two stocks now into a Wells hive than leaving them singly?
2. I want to raise young queens for my stocks. Would you feed with syrup the strongest colony now and on through April, and when a swarm issues kill the three-year-old queen, and then divide up in a nucleus hive ?
3. Is there any remedy for restoring mouldy combs, or is it better to destroy the affected part only?
4. Can you suggest a platform for bell-top skeps on which I might put a box of combs for extracting honey ?—Enthusiast, Glos.

Reply.—

1. This is entirely a matter of opinion. Mr Wells' own reports are printed in our pages, and, strictly speaking, his system should be judged by his own results. On the other hand, some who have tried it declare the advantage of the double-queen system to be less than is claimed, just as there are others who report most favourably of it.
2. If we were trying the double-queen system we should raise queens as recommended by Mr Wells—dividing the brood and bees of the parent stock after swarming into nucleus colonies, and allowing a queen-cell to each.
3. See reply to Letters 976 and 978 on p.119 last week.
4. A light square board of the required size, with a leg at each corner cut to the proper length, is all that is needed, except seeing that the super is well weighted down when put onto steady it. A hole in board cut to correspond with that in crown of skep will admit the bees, and on the upper side of board may be fixed a square of excluder zinc. Care should be taken to pack the junction of board and skep, so as to keep out the cold from super.

(April, 5 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22**:133-134.

A lady's bee experience. [Letter 1805]. I have been asked to send you my experience in bee-keeping, having been fairly successful in the pursuit. On commencing (in 1891) I was a perfect novice, had never seen bees handled nor yet a swarm of bees. There are a few kept in this neighbourhood, but only in skeps; so, having all to learn, I preferred to begin on the modern system. A neighbour promised me his first swarm, but I had no idea where to get wood hives from. Eventually, however, I was enabled to call on a well-known Yorkshire appliance dealer, and not only saw his stock, but received from him

valuable instruction how to proceed and how to get the best results; in fact, I owe much of my success to his practical advice. The season of 1891 being a late one I did not get my promised swarm till the second week in July. I hived them on full sheets of foundation in a new hive and fed for a few days, but the white clover being in full bloom I then left the bees to themselves, and finding in September they had sufficient supplies, packed them well up and did not touch them till the following spring.

Early in April I gave the bees a gill of syrup daily for a week, then put on a box of shallow frames, and later a crate of sections, and although 1892 was such a bad year, I took 42 lb. of honey from that hive, besides a good swarm, which I placed in a frame hive. The second week in May I also got two swarms from a friend—one I placed in a frame hive, the other I left in the skep, and it swarmed in the following July. The summer of 1892 being so windy and wet I got very little honey, but the skep swarmed; and I had also a cast early in August from a neighbour, who did not want to bother with them; these I put in a skep and fed them well. So that in August I had three stocks in wood hives and the three skeps; two of the latter we drove, and, tying the best combs of brood and honey in frames, placed them in a Wells hive, along with four frames of honey taken from my frame-hives.

In September I had two strong lots of driven bees given me, one of which I put in a frame-hive, and gave them four frames of honey and brood and three sheets of foundation. The other bees I joined to the two lots of driven bees in the Wells hive, as they were not very strong. So that I had seven stocks to face the winter with. I fed them up well in September. I packed the hives well with cork dust cushions for the winter. This completed my bee-work for 1892. I did not disturb them till the first warm day in January, 1893, when I glanced into the hives, and found all strong, and well off for stores, but, to make quite safe, gave a little candy to each. I did not disturb them again till early in April, when all got a gill of syrup every other day for a fortnight. A little later I put on the shallow frames. On May 3 I had a swarm from one of the skeps, and hived it on sheets of foundation, and a frame of honey and brood taken from another hive, and from that swarm I took over 45 lb. of honey later on. From the seven stocks I began 1893 with I took 450 lb. of honey and ten swarms, one of which flew away after being hived twenty-four hours, and one I gave my man to put in a frame-hive he had made himself during the winter.

The best results were got from the Wells hives; the one with the driven bees of 1892 giving me over 90 lb. of honey, but no swarm. With some of that honey I took first prize at the Yorkshire Show, second at Goole, and commended at the Dairy Show, London, these being the only times I entered it for exhibition. In another Wells hive (fifteen frames) I placed a swarm on June 16, on full sheets of foundation, and two days later another swarm in the other compartment. As honey was coming in so fast, and I was leaving home, I at once put on the excluder and shallow frames.

When I looked under the quilt on my return a fortnight later to see how the bees were getting on, I was astonished to find the frames full of honey, and all sealed over. Our honey returns were quite a revelation to some of the old bee-keepers here, and when they heard the result of our first day's extracting, asked my man if I would mind their coming to see the operation next time we extracted. Being only too glad to further the bee-keeping cause if I can, of course they came, and

one who had kept bees for thirty years said he could not have not believed it had he not seen it with his own eyes. I tried one or two swarms in bass hives, but shall not do so again—the result in honey is so small, and the mess and dirt of running it out so great. I was fortunate again last autumn in not having to use much sugar in feeding, seven stones being all I used for my thirteen stocks. We looked through my hives ten days ago and found all in splendid condition as to stores and bees, except in one hive, in which the stores are rather low. Some are so full of honey that if the weather continues favourable I shall not have to feed at all this spring. There is a great quantity of fruit grown in the village—stone-fruit, raspberries and strawberries—so that the bees find plenty of forage. My Wells hives did not swarm last year, but I think the reason was we had several days of wet and cloudy weather just at the time they were ready, as the bees were hanging out several days.

I send you a photo of my hives, taken on the last day of extracting last year. We are in our bee-veils and working dress, as you will see.

I sold my honey well, getting 1s. per lb. For most, 1s. 4d. for some, and 10s. per dozen 1 lb. jars for the rest, and could have sold much more if I had had it.

I expect I have written more than you will care to print; but if you find anything of interest readers you might use it. — Helen Lawrence, Clitheroe House, near Leeds, March 28. [A very interesting and satisfactory report, which speaks for itself as to the results obtainable under intelligent management, as evidenced in the above details and in the excellent photograph received, for which we are much obliged.]

(April, 5 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22**:135.

Wells hives after the winter.—Plumping. [Letter 1807]. The last few days we have had here have been really glorious, the sun being nearly as hot as in July. Plum-trees that two days ago scarcely had a blossom are today in full bloom. The bees last winter practised the strictest economy, having used less honey than in any other winter since I have kept them. Those in the Wells hives, after they had apparently settled down for the winter, stored the majority of their food in the combs nearest the perforated divider, in many hives completely emptying the outside comb, although the honey in it was sealed over. Instead of the two colonies forming one winter cluster with the divider in the centre, they each form one in the centre of their own combs; and, what is still more strange, they extended their brood-nest in the usual way, not as I expected they would do—begin breeding on those combs nearest the perforated dummy. Nuclei clustered on either side of the dummy, and began breeding on those combs next to it. This behaviour was not caused by my dummies, as the same thing occurred in the hive containing the dummy Mr Wells was kind enough to send me; by the way, the holes in this dummy are also blocked up. I find it necessary when manipulating to give a glance at the entrances now and again, as those bees being operated on are apt to walk into the adjoining colony. A little carbolic acid placed in the centre of the floor-board soon put a stop to this. March has gone without hearing of any swarms. I hope those who have given Mr S.'s method a trial will give us the benefit of their experience. The colony mentioned in my last (Letter 1766, p.76) was not, as Mr S infers, plumped in a haphazard manner, the quantity of eggs and larvae were taken into careful consideration before they were given more. It will be noticed that in the ordinary way the bees never have an

immense quantity of brood in any one stage, which will be the case in the Simmins method—leaving out of the question the extent of the brood-nest so early as March—which will force upon them a lot of one kind of work at a time. Can they do it? The best affirmative answers will be reports of March and April swarms, and in the negative by reports of chilled brood; the latter we shall scarcely expect, as persons are shy at reporting their failures. If the colony cares for the larvae, what will be the result? The combs containing honey between the larvae will be rapidly emptied, the queen finding abundance of empty cells in the centre of the brood-nest will add at a great rate to the already sufficiently numerous larval population, for if, as I said before, the brood-nest is not touched the queen can measure the nursing capability, and, if a good one, will lay up to it; but when you begin placing combs in its centre she becomes deceived.—Leonard Smith, Elstone, Beds, April 2.

(April, 12 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22**:141-142. Spring examination of hives. As a result, apparently, of some observations we made in this month's issue of our monthly, the welcome, several correspondents have written in terms which fully confirm the necessity for the few words of caution conveyed in the article referred to. Instances are reported wherein queens have been balled during the last four or five weeks, and there can be little doubt that had the hives been left untouched many now queenless colonies would have been prospering stocks today. One correspondent, whose letter appears on p.147, has been particularly unfortunate, and now bewails the loss of queens clearly alive before any disturbance of the respective hives took place, and as clearly balled, or otherwise destroyed, immediately after the said disturbance. We by no means desire it to be taken as our view that no spring manipulation at all should take place, but would merely impress on those who—unaware of the risks involved—take no extra care at all when making these early inspections of their hives. It is not enough to say that experienced bee-keepers seldom or never have these mishaps, because the probability is that the latter are intuitively careful when obliged to examine their colonies in the early spring, and operate in an entirely different style to that necessary later in the season. What old hands have long known, viz that gentleness and care is needed at this time, the reports which have reached us during the last few days further and fully confirm. Another point likely to strike the close observer as showing where the trouble arises is the fact that in the majority of instances where queens have been lost the mischief has occurred in double queened hives. Now we know that if the young bee-keeper has a special anxiety about his bees at all—and who has not in such a spring as this?—it is sure to have reference to his Wells. He does want to know how it, above all others, is getting on, and, in consequence, begins quarrying into brood-chambers, with the unfortunate result sometimes of finding his dual-queened stock perforce turned into a single one. There is just one comfort about the business, and that is the ease with which the bees of the two compartments of the Wells hive may be joined up to make a strong colony, so that the only loss is that of the additional brood which would have been raised had the second queen been preserved. But the lesson to be learnt is an obvious one, and, with the object of forcing it home to readers, we willingly comply with the request of a correspondent to reprint a portion of the article—the publication of which has given rise to the correspondence to which we have referred—and

which reads as follows:—

Balled queens.—The month of March, at no time wintry in character— seeing that bees have been flying almost daily—closes with an Eastertide as charming as could be desired, and the summer-like holiday time will, no doubt, have been taken advantage of by bee-keepers in making an inspection of their hives and the contents thereof. For this it would ill become us to blame them; indeed, it is an essential part of our teaching that no stock of bees should be allowed to suffer from neglect at this season, and wherever the need for a thorough examination really exists, it should be gone through. But, while an inspection of some kind may be considered indispensable in good bee-management, judicious spring examinations are often exceeded or supplemented by such a pulling about of the frames of broodnests as are always injurious, and not seldom fatal, to the future of the colony. It would surprise many who consider themselves fairly well up in bee-matters to know how many queens are balled and killed, entirely through roughly managed and too early spring manipulations; there being no doubt in our mind that it is in a time of summer warmth such as we are now enjoying that the mishaps referred to most frequently occur. Though March is still with us as we write pollen is being gathered in abundance; breeding is getting into full swing, and everything tends to create in the bees what seems to be extreme anxiety for the queen's welfare; but, being subject to modern methods, they show their affection for the mother bee in very extraordinary fashion sometimes when interfered with in the way we have stated. Why this is so we need not stop to enquire, it is enough to know that it does happen, and that a very large percentage of the fatalities to queens every spring may be safely attributed to the habit we have ventured to deprecate. So that, whenever a dead queen is cast out of a hive subsequent to an examination of the frames, or a ball of bees somewhat larger than a walnut—as a correspondent puts it—is seen on the combs or on the floor-board while a hive is being examined, the operator may be sure that the ball will contain the unfortunate queen in process of being hugged to death by her own subjects. To prevent this mishap it is only needful to exercise extra care just at this time—especially when making a first examination—and the avoidance of any more handling of frames than is absolutely necessary. If brood and food are seen to be plentiful the frames should not be lifted out at all, nor even drawn apart more than can be helped, the hive being closed up at once and all coverings carefully readjusted. No balling of queens will follow an examination which goes no further than this, and in course of a fortnight or three weeks the matricidal tendency on the part of the bees will probably have passed away. If, however, a complete overhaul of the combs is found to be really required, all lifting out and replacing should be done as gently as possible; using no excess of smoke, and avoiding anything like jarring or jolting about the hive, such as tends to excite or alarm the bees. There are good reasons for believing that a comparatively trifling slip in handling the frames will sometimes cause balling in spring, and the fact of its often occurring at so early a date that there is no chance of a young queen being raised renders the mischief doubly annoying.

(April, 12 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22**:146. Trouble with Wells dividers [Letter 1813]. In reference to the letter of your correspondent, An Enthusiast, in BJ of March 29 (Letter 1801, p.125), who complains of trouble with a perforated divider supplied by me, I think the hive

must be in fault, and not the divider, as they are all made to fit hives taking the standard frame, unless any special size has been ordered, If your correspondent required a special size divider, and omitted to mention the fact. However, as the divider appears to be a little too long to fit his hive, I may explain that he need not file the tin in order to shorten it; a little gentle pressure will cause the tin to slip off the end quite easily; the wood can then be reduced to any length required, and the tin replaced as before. If the divider is too deep, both ends must be removed, and the tin binding shortened, and the wood in like manner. If Enthusiast' does not care to go to that trouble, I would be very pleased to make him one to fit his hive if he will send me the exact measurement Required.—G Wells, Aylesford, Kent, April 9.

(April, 12 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22**:147-148. [Query 996]. Lots of queens in spring. —Can you explain and advise me concerning the following;—Last autumn I put two stocks, both rather weak but with good young queens, into a Wells hive, where they had everything they could wish for, including a mahogany dummy in, thick and pierced with holes of the proper size. Both stocks wintered well, and both queens began to lay early. On March 8 I gave all my bees some flour-candy to stimulate them. I was so well satisfied with the look of the bees in the Wells hive that I did not make an examination until March 26. Then I looked into the one side only and found lots of sealed brood and everything going on well. I did not look into the other compartment because the bees in it seemed just as strong and brisk. No bees could or did get past the Wells dummy, which was fixed in guides on the sides of the hive to prevent the possibility of warping. The wood had not shrunk and the quilt had not been moved or creased or puckered at the top. On March 28 our Association expert came round and we examined the untouched half of the hive and found no queen, no eggs, all the brood hatched out—some newly hatched bees being seen—and plenty of stores. The holes in the Wells dummy were all propolised up.

1. What had become of the queen? The entrances are close together as in other Wells hives I see advertised for sale. There was plenty of sealed brood next to the Wells dummy in the other stock. I removed the Wells dummy, replacing it with an ordinary one, and opened about 100 holes and put it in again. Two days later, when I thought the bees would have acquired the same scent, united the two lots and put them on one side of the hive. The loss of the queen has not been my only misfortune, however, for as I had determined to try the Wells system I began to move the next hive—a ten-frame single one—towards the Wells hive, in order to put the stock of bees into the empty half of the Wells hive. But, observing that the bees were not working as they ought to have been doing, and were not bringing in much pollen, I yesterday (April 2) examined this stock, which I had not touched before, except to place a cake of candy over the feedhole. Neither queen nor eggs, plenty of stores, a little sealed brood, and one or two unsealed larvae, showing that the queen was there until about a week before—that is, before I had begun to move the hive, and long after I had put the candy in. There is one queen cell sealed over—a very small one—on one of the combs, but I could see no drone cells.

2. What shall I do? Is it any good leaving the bees to themselves on the chance of the queen hatching out and getting fertilised by chance drones from other places.

There are certainly no drones in my apiary yet, and are not likely to be for three weeks, I should say. I think of uniting these queenless bees with those in the Wells hive, and so getting a strong single lot of bees and working them on the single plan, and then I should remove that queen cell.

3. Would this be the best thing to do? My candy was made of cane sugar and lentil flour according to the recipe in the BBK Guidebook, and the bees like it. My other five lots are doing well and increasing; fast.

4. What has become of my No.5 single hive queen ? There has been very little robbing, and that only by single bees.

5. Do single robbers kill the queen? — Aubrey Edwards, Orleton, April 3.

Reply.

1. Excepting for your tell-tale dates we should have judged the loss of queen in the Wells hive to be one of the misfortunes to which all colonies of bees are more or less liable. But when we read of newly hatched bees being seen just twenty days after stimulating was began on the 8th ult, it becomes apparent that the mishap to the queen occurred on that date, and that no eggs were laid subsequently.

2. Here, again, dates seem to point conclusively to the fact that the queen was lost or killed on the day the hive was first moved. Of course, it is not for us to say whether the respective operations referred to were or were not carefully carried out, but it is certain that in early spring bees are extremely sensitive to anything like awkward handling or injudicious interference. We have referred to the matter more fully on another page, to which please refer. As to what should be done in the second case of loss of queen, there does not seem much to hope for in the very small queen cell now in the hive, so we should examine it (the cell) at once—as it will be due for hatching—and if, as we expect, it should prove a barren cell, remove it, give the bees a comb with eggs and brood from another hive, and let them try again. Should they stare queen cells, there will be drones by the time they are due.

(April 12, 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22**:149.

[Query 999]. Bees propolising Wells dummy. —

1. Please say of what variety is the enclosed bee. It is one from a strong colony I have just bought, the description of which was not given at the time. They are fairly quiet to handle, and are working well. Would you advise queen raising from this stock for my other frame-hives?

2. In looking at a new Wells hive I made, I find the dummy supplied by Mr Wells, although put in but a fortnight since, has its holes filled up with propolis. Seeing this is so, does not this seem a fatal defect since the scent can scarcely be general through both compartments of the hive?

3. What would you do with a queenless stock in a skep? The bees are quiet and carry in no pollen. Should I fix up some of the brood-combs in frames and put the skep on the top of a frame-hive? Comparing my stocks now being stimulated with those that are not, there is a marked difference in the ones fed from the others. — Enthusiast. Reply.—

1. Bee sent is, we think, a cross between Ligurians and Carniolan. We should not hurry to requeen all other stocks from the stock it came from, till the merits or otherwise of the bees have been tested for a season.

2. If the bees in both compartments are not crowded on to the perforated dummy

when first put into the hive, it is almost certain that the perforations will be stopped up. The fatal defect lies in not taking care tint both clusters of bees are kept in close proximity to each other.

3. We should examine and see that the bees in skep are free from disease before doing anything by way of utilising them, and, under any circumstances, would do no more than unite them to another stock wanting bees.

(April 19, 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22**:156. [Letter 1004]. Loss of queen in Wells hive. — Upon examining the bees in my Wells hive today (April 10), I found one compartment minus the queen. The frame next the perforated divider had six queen cells on it, four of which were capped. In the same hive was also a small patch of drone brood already capped over.

1. Do you think the drones reared in this hive will fly in time to fertilise the queens?

2. If not, would it answer if I obtained half-a-dozen drones and introduced them to the hive? If you think the latter plan the safer, perhaps one of your numerous readers could let me have a few drones, I would gladly pay postage, &c —HJ Freeman, Norwich, April 10.

Reply.—

1. Yes; there is every chance of the queen being fertilised if weather is favourable.

2. For several reasons, which we need not go into, it is very unlikely that any good would result from the plan proposed.

(April, 19, 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22**:157. [Query 1008]. Early drones in the north.—Putting on supers.—Last Wednesday, the 11th, I transferred the contents of a Wells hive, and, on looking today into the old hive, I found five dead drones in one side.

1. Is not this very early for the north, and does it portend early swarming?

2. When should supers be put on up here?—Cuthbert Bede, Durham, April 15.

Reply.—

1. Other conditions connected with the appearance of drones being normal, April certainly is early, and it betokens forwardness in the stock and preparation for swarms.

2. Do not super until the hives are populous and honey is coming in, which latter point will be shown on raising the quilt and observing the outer edges of the combs being added to with light coloured wax.

(April 26, 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22**:170. The Wells System pamphlet.

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(May 3, 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22**:171.

Editorial Notices &c. Useful Hints. Results from Wells hives.— This being about the time when plans for the coming season are being matured, we venture to ask those of our readers who possess hives being worked on the Wells or double-queen system, to keep a careful account of the results obtained from such hives for publication in our pages in the autumn. It goes without saying how much of interest to members of the bee fraternity such reports would possess, because, while admitting the undoubted success of the plan in Mr Wells' own hands, there seems to be some doubt as to the advantage it possesses for the ordinary bee-keeper, and we think no one will be no more desirous of putting the plan to this test than its introducer himself.

(May 3, 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22**:173. An open letter to Mr Wells. [Letter 1832]. Will Mr Wells kindly answer the following as regards his double queen stocks ? —

1. Do you keep them chiefly in hives that only hold seven frames on each side of the dummy, and tier up on top with a box of shallow frames, continuing the dummy up to the top of this first box, thus giving the queens opportunity to extend the brood nest upwards?
2. At the end of the season what do you usually do with these frames of comb ? As I take it, there will be a lot of pollen and honey in them, for I presume the brood nest is reduced down to the bottom lot of frames.
3. In the case of swarms issuing from these stocks when you take the combs and brood away to form nuclei, do you return the set of shallow frames next to brood nest 1 I ask this supposing the queens may have been up there, and that there will be brood in these shallow combs.
4. Do you keep to these fourteen frame hives entirely, or do you use some holding ten-frames on each side, as several makers are advertising them?
5. When giving surplus chambers —on top of the shallow frames to which the queen has access, and on which excluder is placed—do you tier up with boxes of shallow frames on which the excluder is placed with boxes of shallow frames full length, so as to extend over all the brood frames of both lots of bees ? In giving the first lot of shallow frames to extend the brood nest, do you give worked-out combs or sheets of foundation for preference. — John Walton, Weston, Leamington.

(May 3, 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22**:178. [Letter 1027]. Swarms from Wells hives. — Today (29th) I had a swarm from my Wells hive which settled on a hedge. There were two distinct clusters, and I took them to be two swarms. We hived them easily in separate boxes, soon put them into spare hives, and all went quietly, when about two hours later I found that one of the swarms had disappeared. The other lot is going on well. Do you think they were two swarms? —WR Traviss, Willesden Green, NW.

Reply. — If both compartments of the Wells hive swarmed, there would be two queens, and the probability is that both were hived in one of the clusters named. If this is so, no doubt the bees of the swarm which disappeared either joined the one now doing well, or returned to the parent hive.

(May 10, 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22**:183-184. The Wells System. Reply to Mr Walton's open letter. [Letter 1841]. I see in BBJ,for

May 3, p.173, our friend Mr John Walton addresses a few questions to me, and I have much pleasure in answering them. He says: —

1. Do you keep them (the bees) chiefly in hives that only hold seven frames on each side of the dummy, and tier up on top with a box of shallow frames, continuing the dummy up to the top of this first box, thus giving the queens opportunity to extend the brood-nest upwards? I answer, that is exactly what I do; but I find that the dummy in this second box need not be perforated. A plain piece of board from one-eighth to three-eighths of an inch thick will answer the purpose well, but I would much prefer the hive large enough to hold twenty standard frames, and thus confine each queen to ten frames on each side of the dummy. By this means all tiering up above the brood frames in body-box would be for surplus honey.

2. Mr Walton says:— At the end of the season what do you usually do with these frames of comb, for I presume the brood-nest is reduced down to the bottom lot of frames, I answer, that is so. I proceed as follows — After removing the last surplus box from above the box of shallow brood frames, I take off the queen excluder zinc and drive both queens down into the bottom lot of frames, and then remove the box of shallow brood frames, place the queen excluder zinc over the brood-frames in the lower body, and set the box of shallow brood-frames on top of the zinc. In about three weeks all brood in the latter is hatched out, the box of shallow frames is removed, a super-clearer is then slipped under, and when the box is clear of bees it is taken into the extracting-room and the honey removed, after which the wet combs are cleared by the bees in the usual way.

3. Mr Walton then says: — In the case of swarms issuing from these stocks when you take the combs and brood away to form nuclei, do you return the set of shallow-frames next to the brood-nest? I ask this supposing the queens may have been up there, and that there will be brood in these shallow-frames. That is so in every case. Everything is put back on to the hive as it was before the swarm issued. Of course, the lower brood-nest is filled up either with clean empty combs or full sheets of foundation.

4. He next says: Do you keep to these fourteen-frame hives entirely, or do you use some holding ten frames on each side? I answer, hives holding fourteen-frame hives are used, although I have two taking twenty frames in each with entrance at one end, and in order to adopt these to the two-queen system, another entrance has been cut at the side. But I do not like them so well, as the floor-board cannot be lowered and raised as in the others, being all in one piece, and if lowered at the end as arranged when working with one queen only it would leave a space under dummy, and so allow the two queens to meet. Hence my not favouring these hives. I think a hive to hold twenty standard frames with entrance the whole length of one side and the frames at right angles to it is much to be preferred in the two-queen system.

5. Mr Walton then says: —When giving surplus chambers—on top of the shallow-frames to which the queens have access, and on which excluder is placed—do you tier up with boxes of shallow-frames on which the excluder is placed with boxes of shallow-frames full length, so as to extend over all the brood-frames of both lots of bees? I answer, certainly, and this is one of the main features in the system. He also says: —In giving the first lot of shallow frames to extend the brood-nest, do you give worked-out combs or sheets of foundation for preference? I prefer to use the same combs in shallow frames which have previously been

used for brood again and again, until considered advisable to melt them up into wax. In fact, use them just the same in every way as I do my standard-size frames.

I have endeavoured to make plain to friend Walton what he is not clear about, and if anything is still uncertain I do not mind trying again; but I fear I have taken up too much space, anyway you know how to use the scissors where required. — G Wells, Aylesford, Kent, May 7.

(May 10, 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22**:188-189. The rearing of good queens. [Letter 1047]. Dr Miller seems to think that a young queen emerging from a cell not less than ten days after the bees commence to give it full attention, ought to be all right, according to the observations of Herr Reepen. It is true that they should be all right, since no doubt the queen and worker larvae are fed upon the same kind of food up to the fourth day, and, theoretically, at least, they should be as good, but practically they are not. And here we have again an illustration of the difference between mere theory and practice.

Dr Miller seems to have quite overlooked one very important item, and that is the relative amount of food the worker and queen larvae receive if designed from the moment of hatching. A queen-larva hatching in a queen-cell in a colony making preparations to swarm, is invariably flooded, so to speak, with the royal jelly, while all larvae designed for workers are invariably scantily fed at the start, or for the first four days.

Now my observation shows that the most prolific, and especially long-lived, queens were abundantly fed during the first four days of the life of the queen-larvae, and I think I will be fully sustained in this observation by all experienced queen-breeders.

On the other hand, I never saw a good queen that had not been properly fed for the first four days of her life; and I think I was one of the first, if not the first, to rear queens by transferring small larvae, from eighteen to thirty hours old, to queen-cells well filled with royal jelly after the removal of its occupant. These queens would all hatch [sic emerge] on the tenth day after, and would often be large and fine, to all appearance. Still, I never reared one in this manner that was extra prolific and long-lived, and hence I abandoned this way of rearing fine queens, because in developing a new strain of bees, as I have been doing for the past nine years, it became absolutely necessary. The result has been an improved bee, highly prolific, and great workers.

Out of swarming time it is possible to bring about all the conditions for rearing perfect queens as follows:— Catch and cage the queen of a strong colony full of young bees, and take away all of their brood and give them a comb of honey and empty combs. Place the caged queen upon the frame to keep them quiet. At the end of three days take away the queen in the evening, and the next morning give them a frame of cells with just-hatching [sic emerging] larvae, on the Alley plan. Not more than twenty larvae should be given them. Now feed them well for five days. Eggs may be given in the same way, but they will not quiet the uproar in the colony like the young larvae, and black bees have the singular habit of eating all of the eggs, but will accept the larvae. Should a comb of just hatching eggs be given to the colony instead of the fifteen or twenty cells prepared on the Alley plan, it will be found in a few hours that every larva in the comb will be

swimming in royal jelly, showing that all are fed as if to rear queens, although but fifteen or twenty queen-cells will be completed. Thus reared, I have many times got queens that lived four years, and were highly prolific to the last. With such queens I have obtained the equivalent of two ten-frame Langstroth hives full of brood by June 10, but the ordinary queen would hardly fill eight Langstroth colonies under the same conditions. Of late there has been some talk of having two queens in a hive in the spring to build up large colonies, but from the above it will be seen that one good queen is enough for any colony.—Dr GL Tinker in *American Bee Journal*.

(May 17, 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22**:196 [Letter 1036]. Swarms from Wells hives— Helping beginners.—I thank you for reply to my query (Query 1027, p.178) in *Journal* of 3rd inst, and beg to say that on Saturday last I walked along with a friend on to the allotments where my Wells hive is kept just to see how all was going on, and if the swarm of the previous week was all right —when my attention was called to some bees apparently gathering in the hedge. On my friend and I going up to the spot, to our surprise, we saw a swarm as large as one's head, in the middle of a thick hedge. We got a pail, and after carefully cutting away branch by branch till we could get at them, succeeded in securing the bees in our pail without much trouble, and then hived them in the hive from which they had decamped last week. They settled down very quietly, and all went well. I then thought I would look at my Wells hive, and in the side that had always been the strongest, prior to the swarming, I *Journal* two queen-cells had recently been opened ; but there seemed to be no brood, nor did I see the queen. I then looked into the other compartment of the hive, and *Journal* the ten frames crowded with bees, and plenty of brood in all stages. I was at a loss to know whether it was best to return the swarm we had just hived to the broodless part or to give the latter a comb of young brood. Eventually, I took the latter course. The bees were very excited and evidently meant war, but I could do nothing, so left them for the night. Next day my friend advised me to super the strongest side, as he feared the bees wanted room, I therefore covered the weakest side with American cloth, placed the queen-excluder on the other, and put on the sections, giving access to them only to the bees of the strongest side, and shutting the weakest lot out for a time. I may mention that where the swarm had clustered the bees had commenced to build comb.

1. Do you think it possible for those bee? to have been there for the whole week unnoticed, or had they returned to the hive again and swarmed once more afterwards? In such a case, what would you have done? I am pleased to say that both swarms are now doing well, only, in the part of the Wells hive that swarmed last week, the bees have taken nearly two pints of syrup, yet we do not yet see any signs of brood.

2. Is it too early to expect to see brood yet?—WR Traviss, Willesden Green, NW, May 6. Reply.—

1. We think there is little doubt that the bees removed from the hedge on the 5th inst. constituted the second swarm from the Wells hive. It is also probable that there would be sealed brood and also a young queen in the swarmed portion of the Wells hive, but they have escaped your notice.

2. Seeing that the young queen would only be just hatched when the swarmed hive was examined, there could be no brood from her, but some of the progeny of

the old queen would be still unhatched at the date named in the parent hive. As we have frequently had occasion to remark of late, beginners, who desire to become bee-keepers, cannot expect to make satisfactory progress in their work without the aid of a guide book of some sort on the subject, wherein all such points as are involved in the above queries are made clear, and the reasons why fully explained. It is like groping about in the dark to be ignorant of such elementary details as how long an interval takes place between the laying of the egg to the hatching out the bee, be it queen, drone, or worker; also about the issue of swarms, casts, mating of queens, and such like. Our correspondent seems to possess all the aptness needed to make a bee-keeper if it U guided aright, and for this he needs a book on bees.

(May 24, 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22:204**. Wells hives. [Letter 1860]. As I am constantly receiving letters asking advice re above hives, will you kindly allow me to say, through your columns, that until larger takes of honey are recorded by their use, I fail to see much advantage to the honey producer. It appears to me the manufacturers are the people who benefit most from them at present. The simpler the hives are the better. The Wells hives are cumbersome, and there are many disadvantages in having two colonies under one roof. While I can get from 100 lb. to 162 lb. (without touching the brood-chamber) with very simple hives I shall be quite satisfied with them. This is what they gave me last season, and I hear of similar amounts being taken by others. Much more depends on having a good, young queen than upon the hive. —C Brereton, Pulborough, Sussex.

(May 24, 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22:205**. The double-queen system. Thanks to Mr Wells. [Letter 1862]. I beg to thank Mr Wells for his very courteous reply (Letter 1841, p.183) to my open letter addressed to him. I wanted to ascertain several things, which he has (to my mind) satisfactorily answered. — John Walton, Weston, Leamington, May 21.

p.220 Advertisement

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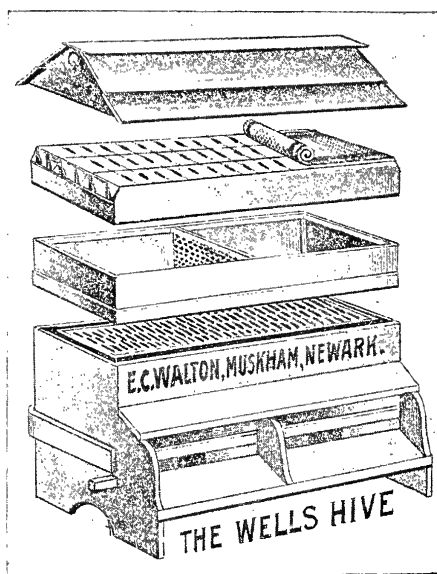
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Is still the Cheapest and Best in the market. Will be sent on approval. Deposit with Editor.

When writing, please say which you want—Bee-Appliance, Poultry-Appliance, or Greenhouse and Portable Building Catalogue, any of which will be sent post-free.



(May 31, 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22**:212. The Wells System [Letter 1863]. I am glad to see in *British Bee Journal* for May 17 (Letter 1855, p.194), that Mr BC Jones has had something to say respecting the two queen system of bee-keeping, as I believe that the views of correspondents who have made trial of the plan will assist in bringing about the end we have in view, namely, to get larger crops of honey with less labour, less expense, and with more certainty. For this reason I also, like your correspondent, desire to see in print what others have to say upon the subject, but we want the experiences of bee-keepers who have tried it strictly upon the lines laid down, or of those who may have turned aside in order to introduce what they have thought to be something better, and have succeeded. It is not right for one to go a little way on the road, and then turn aside to suit his own ideas, and if, by so doing, he does not succeed, to blame anything or any one rather than himself for failure. Your correspondent says his bees did not cluster close up to the perforated dummy; that was not the fault of the system, nor of the bees, nor the originator, but is to be found either in the dummy or the manipulator. Most bee-keepers know that when two lots of bees, strange to each other, are put into one hive, they at once display bitter enmity, and the thin perforated dummy being placed between them does not make them friends. We also know that bitter enemies never pitch their tents as close together as they can, hence your correspondent ought not to have given his bees a choice in this matter; by so doing he lost most of the advantages to be gained during the winter months. There is nothing whatever strange in what has taken place with his bees in this particular hive; all that happened was just as I should have expected, and I affirm confidently that if everything had been done as it ought to have been done, your correspondent's eyes would have been turned another way and his writing had a different tone, for he would have achieved success. He writes now as if he considered that he had given the system a fair trial, whereas it has been no trial at all, and I should judge his failure has been brought about for want of knowledge in a few little but essential points. I wish bee-keepers to clearly understand that I have nothing to gain by their adopting my system. The probability is that I believe I would have been a financial gainer by keeping the system to myself, and I have been blamed by many for not doing so, but I have not desired to try and fill my pockets by emptying others, hence my making it public. I do not ask any one to adopt it, but I merely say what I have done with it, how I have done it, and given the results, and I leave it open for others to follow or leave it alone, just as they choose; but in consideration of your space, I will refrain from saying more here, as I know you cannot allow me room, neither have I time to write details to every one, but if the advertisement columns are consulted, it will be seen where and how a list of instructions from my own pen and practice may be had. When beekeepers have carried out the instructions therein given to the letter and failed, then, and not till then, should they blame the system or its originator for their want of success.—G Wells, Aylesford, Kent, May 22.

(May 31, 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22**:213-214. Early honey in Yorkshire. Double-queened hives. [Letter 1866]. On examining my hives today (May 19) I found four completed sections, and see that there are about thirty more nearly finished. Looking back to dates, you will see that I have beaten my record of May 24, 1890, at which date I asked you about the double

queen system, and, getting no reply from any bee-keepers, I tried the system myself, and found it to answer. I did not. However, try it with the wooden dummy. You will find my letter, headed Cooperation Among Bees, in BJ of June 5, 1890. I had a double hive at the time I wrote, but, as the *Bee Journal* was difficult to get here, I lost all record of what might have been in its pages; but now that I am getting it I see that Mr Wells has adopted the double-queen system. I do not know whether he took my hint or not. If Mr Wells should see this, he might kindly reply in the *Journal* if it was his own idea or if he got it from the letter I refer to. I have a bell glass on one of my hives nearly completed; its weight will be about 28 lb. when finished. I think I do well, as my apiary is two miles from me, and I only see the bees once a week. I seldom get swarms, as my hives hold twelve and fourteen frames, so they have plenty of room. There have been swarms about here last week from straw skeps, and many more have them hanging out. I sometimes wonder how Mr Wood, of Ripon, is getting on, as he has not been writing lately. — Thos Rothery, Tadcaster, Tories, May 19.

(June 7, 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22**:225. Single *v* double queened hives. [Letter 1875]. I see a letter in last week's BBJ from a Mr Rothery (Letter 1886, p.213), asking what has become of me? Well, I am still keeping bees (I have twenty five stocks) with success, although I do not go in for the Wells hives; indeed, I am afraid I can't recommend them to my friends, although I have never given them a trial, as I really do not see where the advantage comes in. Mr Wells has been most kind in making public his system; but I can certainly get larger results from the worst two of my single hives than he seems to get from his two queens, which, of course, are really two hives. Then, again, I know of several cases where stocks were simply put one on the top of the other in spring (of course, with excluder between), and both entrances left open, with the result that neither stock killed their queen, and both worked in the same sections with large results. But, still, they were two stocks the same as the Wells hives. I have given up single walls, and now have forty double-walled hive?. I do not get better results from the double walls, but I was much bothered with rats getting under the roofs past the frame ends and playing havoc with everything. The double walls are also much more convenient to pack for the moors. Last year I had 1454 lb. from twenty-one hives, but I was experimenting with two hives, and one was a weak stock which did not give me much. Bar those three hives, any two of the others would have beaten any double-queen hive that I have yet heard of; and then again about half was comb honey, and I see Mr Wells had only a small proportion of sections. My advice to those who wish to sell their honey well is to send out nothing but what is the best. Let the sections all be clean and well filled. My best customer, who will give me an order for five or six hundred sections, said to me one day, I always prefer dealing with you to anyone else; we never have to open your sections out to see what they are like, but pass them over the counter just as we receive them from you. This is one great secret of making a market. Now about those two hives I was experimenting with. It may or may not, according as the four I am trying this year turn out, make a stir in the bee world. I tried an entirely new way of preventing swarming. The bees were kept on nine frames only, with no sections on (so as to give the system every test), and the queen and drones had free access to the open air. In spite of this, and although every space was filled up with honey, and the bees idle up to June 18,

they had not even commenced building queen cells. I then put a crate of sections on each, which they had just time to complete, so of course the results were not large. They did not swarm. This year I am trying four hives on the same system, but of course have put on section crates, as I only left them without last year to put them to a severe test. If it does not answer, you will probably hear no more about it. The weather here is miserable. Some two or three stocks are casting out drone-brood, and of course I have fed them at once. — Arthur JH Wood, Bellwood, Ripon, June 2.

(June 7, 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22**:225-226. Double-queened hives. Who originated the idea ? [Letter 1876]. On reading the letter of your correspondent, Mr Rothery (Letter 1866, p.213), I at once referred to my BJ for 1890, finding therein the mention of double-queened hives as stated. In reply to his question as to whether I got the idea of the two-queen system from that letter or no? I can only say that to the best of my knowledge I never saw his letter at all till now, and I most certainly did not get the idea of the system from it. I have in the pamphlet lately published stated fully all about the. two-queen system in my hands from the first trial of it until the end of last year. I also observe that another correspondent of yours, in same issue (Letter 1871, p. 215), had a swarm from a Wells hive on April 29, which he did not put back because of wanting some sections from it. Now who would have thought of a bee-keeper making such a mistake? Why, to put the swarm back was the very thing he ought to have done if he wanted his sections filled ! In fact, the swarm should have been dealt with according to my own method, as described in print, and by so doing he would have saved some young queens for future use, and got his sections filled in addition. Reference to back numbers of *Bee Journal*, or to my pamphlet, will clearly show this. — G Wells, Aylesford, Kent, June 4.

(June 7, 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22**:226. Early Yorkshire honey and the claimant of the Wells System. [Letter 1878]. I am pleased to see by your correspondent (Letter 1866, p.213), that we in the West Riding of Yorkshire are not all busy feeding our bees. Seeing that the honey-gathering days so far can be numbered on our fingers, it would be interesting to know if your correspondent's bees are weather-proof. Surely Mr Wells has tried to do his best for bee-keepers, and he deserves their best thanks for his florets, as by his letter (Letter 1863, p.213), he states that he would have been a financial gainer if he had kept his system to himself, and I, for one, fully think that if bee-keepers carry out his instructions and advice, published in the BBJ, they will not be disappointed, seeing that Mr Wells has done so well. I have no doubt that a number of your readers would like to have a whisper from some of our Yorkshire bee-keepers. I think in the majority of cases it will be feeding, not taking sections off. I saw in your *Journal* that a Tadcaster gentleman was going in rather largely for bees; perhaps he will take up his pen and let us know the conditions of honey gathering in his apiary. If Mr Rothery is as open in his intentions as Mr Wells, he will, through your columns, let us know how he worked his double hive. If my memory can run back to four years ago, he said he had not tried the double system; and later than that, I fancy, if he is one and the same gentleman, he has stated that he has not tried it. —Hawk Eye, Tadcaster.

(June 7, 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22**:227. [Query 1061]. Transferring stock to Wells hive: Dividing for queen-raising.—I have a very strong stock in a two-story hive (twenty standard frames), with no excluder between, so that nearly every frame is well filled with brood. There are also several new queen cells formed. The hive is a very old one, and I want to transfer them to a new Wells hive, and divide the stock by putting the bulk of brood and a queen cell in one compartment with about half the bees; and in the other putting the queen, the rest of the bees, and the frames with the least brood. If this plan is not feasible, what had I better do? — Baildon.

Reply.—If the stock is so strong as stated, the transfer may be safely performed without risk. It is not quite certain that the lower chamber will be found so full of brood as imagined; but in any case the combs containing such, from both upper and lower chambers, should be put close together, so that the bees will form a continuous cluster, divided in centre by the thin perforated dummy only. After selecting the best queen cell, the others should be removed if swarms are not desired. A sheet of foundation inserted in the division where queen is left would also tend to lessen the chances of swarming.

(June 14, 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22**:237. [Query 1071]. Sending artificial swarms to heather.—I propose making artificial swarms from my hives after the clover harvest is over, and then sending the old bees to the heather, some 1¼ miles away.

1. Can you suggest any better method? Hitherto I have divided my hives at the end of the honey harvest, and now I don't know much about the ages of the queens.

2. In the case of Wells hives, what would be the best method of making swarms? —NN, Norwich, June 8.

Reply. —

1. We should require further details of the plan proposed before we could give an opinion regarding it. Personally, however, we should never think of conveying old bees to the heather in bare, foodless hives to take the risk of either gathering surplus or starving, according to the weather, during their stay there. Indeed, it seems to us rather a cruel practice to do so, after the bees have gone through the labours of the main honey season. We should let them go in their stocked hives, and take our chance of further surplus being gathered in sections overhead.

Some bee-keepers extract the honey from a few sections, replacing them—dripping wet with honey—along with partly-filled ones for refilling or completion at the heather. Mixed clover and heather honey got in this way makes a delicious blend.

2. Wells hives are not suitable for making artificial swarms from.

(June 14, 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22**:237-238. Honey Cott, Weston, Leamington, June 9. —The dull, cold weather here still continues, making it bad for the bees, and not promising for the bee-keeper, who, to keep bees in good trim, must dip rather deep into his pocket. Although it has been so cold, we have had some few nice days, during which I have had about eighteen swarms at home and four from some stocks I have a mile away. I do not think in all my experience that I have seen my hives more full of bees than they are now, and have been more than a month past; many combs are full of brood from top to bottom. The thermometer has been many times down to 43 deg., and

scarcely ever up to 60 deg.; then the bees can scarcely get in their hives, although I have given them a lot of surplus room. When I look round and see them so, I fancy what will it be if we can really get a change of weather, and the thermometer up to 80 deg. or over; they will need all the ventilating that can possibly be done. When the sun does make his appearance there is such a commotion with bees and drones one has to go right up among them to make sure that they are not swarming. I do not know why there seems to be a lot of objection to the Wells system on the part of some bee-keepers. I have half a dozen double queen stocks that have immense numbers of bees, as they are tiered up and quite full of bees. Perhaps if it came very hot they might tease me a bit by swarming, &c; but I do not suppose I shall be able to keep any separate account of their doings, as I have not time. I was rather surprised myself to see that our friend WH Woods did not put his swarm back to complete his sections. I wondered how he was going to get them filled after the queen and bees were gone, as the young bees hatched out of their cells, the honey would be likely to be deposited there instead of in sections. — John Walton.

(June 21, 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22**:244-245. Wells hives. Do they contain one or two colonies? [Letter 1888]. I hope my too frequent letters will not become tiresome to you or to your readers, but when I continue to see criticism in the BJ more or less adverse to the double-queen plan from bee-keepers who have either not tried the plan at all, or have made an unfair or imperfect trial of it, some little indulgence may be fairly claimed in order to put my critics straight. I refer now to the letter of Mr Arthur JH Wood (Letter 1875, p.225, BJ, June 7) and, while pleased to hear that he is still keeping bees successfully, I would ask. Does he think it would be fair or right for him to either condemn or recommend to his friends a system which he has never tried, and of which he has no practical knowledge whatever? And if he admits the unfairness, why refer to it at all? It is clear he must be very favourably located for honey-getting, but to declare that the results from his worst two stocks beat my average is, to my mind, no comparison at all, and tells neither against nor for the two-queen system. Because he does so well with single- queen stocks is no argument that he would not succeed still better with double-queened ones! Comparison, to be worth anything, must be arrived at by working both plans side by side, with equal attention and care. Mr Wood and others will also persist in calling each of my hives two stocks, while I (and I am very pleased to have the concurrence of well-known and able authorities in this view) maintain that they should be counted as one. Just let me try once more to show that this is the right view. Suppose Mr Wood and I have each a hive of equal strength, the bees covering eight frames well in September next. Well, he keeps his bees on the eight frames and winters them so. While I—working on my system of preserving my surplus queens, instead of allowing them to be killed by the bees—slip in a perforated dummy in the centre of the hive, dividing the combs into two compartments of four frames in each. Thus far I hardly think even Mr Wood will insist that I have united two stocks to make one Wells hive. We now go a little further, and I add a young queen—preserved as already stated—to the queenless compartment of the hive. Does the addition of this single bee make it into two stocks? I say emphatically, it does not. But I go further, and put it in another way—I say most wise bee-men rear young queens every year to replace old ones in autumn. And in

this requeening business many queens are sacrificed to make way for successors not so good as those killed. Well, by my plan I am not off with the old love before I am on with the new, for I assure myself of a young queen every year, and keep the old one alive for another season, often to my manifest advantage, in that I keep up a supply of young queens while getting all the good out of the older ones, instead of killing them. It may be said that I add, not a single bee, but a nucleus colony to my hives in autumn; granted, but I only form the nucleus to preserve the queen, and I am placed at no disadvantage so long as the extra single queen-bee is there, seeing that my stocks are usually so strong at the uniting time that I have bees enough and to spare in each hive. Take another illustration. Suppose a cottager has four skeps, each containing a second swarm of this year of equal strength, and none of which has bees or food enough to stand the winter. Let us further suppose that Mr Wood and myself each buy two of these skeps, and go our respective ways, each to deal with the bees according to his own fashion. Mr W joins his two lots on six frames; allowing the queens to fight it out in the orthodox way, one being killed, of course. On the contrary, I drive my bees, but before hiving I divide the six frames by my perforated dummy, on each side of which I put one lot of the driven bees, and allow no fighting or killing of queens. We work our hives the following season each according to his own plan, and if I chance to get double the quantity of honey to that obtained by Mr Wood, can he fairly retort that my result is from two stocks while his was only from one? If he can, I have no more to say. If he cannot, I think we should hear no more of a Wells hive being counted as two stocks of bees. — Apologising for the length of this letter, George Wells, Aylesford, Kent, June 13.

(June 21, 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22**:246. [Query 1074]. Making artificial swarms. —

1. Adverting to your reply to 1071 (p.237), I wish for some new queens and an increase of stocks about the middle of next month. I propose moving the old hives from their stand and putting new ones in their places to receive the old flying bees; then to find queens and put each with five or six frames in new hives, and leaving bees in old hives to raise new queens.

2. As to the Wells hives, I thought of putting an ordinary hive in place of the old one, and then transferring both old queens into it with sufficient frames. Bees in the Wells, I suppose, will raise a queen on each side of divider, will they not?

3. It was with a wish to save my bees the trouble of travelling to the heather (some two and a half miles there and back), as they did last year after the clover harvest, that I proposed sending the old bees there—not to fill supers but brood frames. As I am only a novice, I should be glad of your further advice. —NN, Norwich, June 14.

Reply.—

1. If the usual precautions are observed in making the artificial swarms, and drones are flying at the time, there is no reason why the plan proposed should not succeed. But the method described in *Guide Book* is more reliable.

2. As before stated, Wells, or double queened hives, are unsuitable for making artificial swarms from for several reasons. Your plan of dealing with the one referred to may succeed, but we cannot say that queens will be raised in both compartments of hive. If tried we shall be glad to hear result.

3. It should not be forgotten that bees are sometimes unable to gather anything

at the heather, and if sent there footless might starve for want.

(June 21, 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22**:247. [Query 1078.]. Bees balling queen in Wells hive.—When supering a Wells hive yesterday I had a look in at the brood-nest, and found the queen being balled. I released her and dispersed the bees with smoke, but last evening, after dark, I found her on the alighting board dying. Will the bees raise another queen, and, if not, what had I better do? I am thinking that being a Wells hive the queen in the other compartment will satisfy the bees. —ECRW, Salisbury, June 15.
Reply.—Only an examination of the combs will decide the point.

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(June 21, 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22**:248. Fairspeir, Ascott-Wychwood, Oxford, June 11. —Up to date very little or no honey has been gathered in this district. Clover, sainfoin, and beans scarcely in blossom yet. Swarms have done badly owing to the bad weather, and robbing has been prevalent. I fear that it will in any case be a poor yield of honey in this district, for our chief source —white clover—has in very many cases had to be ploughed up owing to last year's drought destroying the young plants. I had intended trying the Wells' system, but having to buy suitable hives or to alter one's old ones, makes one pause a little. Added to which, I cannot help thinking that single stocks headed by young queens, and well provided with stores, will give almost as good returns as the double hives. Any way, I have had single stocks in a good season yield from 70 lb. to 130 lb. surplus each. We are, however, much indebted to Mr Wells for giving us the benefit of his experience. I wintered several lots of driven bees on the Wells system, but although in every case I used perforated dividers of the proper thickness, yet every hole was propolised up, and the bees were not clustered next each other as they ought to have been. Some bees I look after for a friend swarmed on April 25. Two more hives also swarmed on May 5. But the swarms have done badly. — Apiarist.

(June 28, 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22**:255-256. Wells hives. Do they contain one or two colonies ? [Letter 1897]. I should much like, with your permission, to reply to Mr Wells' letter 1888 (p.244) in last week's *British Bee Journal*. Mr Wells thinks it unfair I should depreciate his system without having tried it, but he goes on to stoutly maintain that his double-queened hives are only one stock. This I have always demurred to, and

until I had persuaded myself that his two-queen hives are only one stock it was useless experimenting with them. I think this question might, with advantage, have been long since ventilated in our journal, because unless you can call the two-queened hives one stock the system is valueless. Mr Wells says, Does this adding of a single bee make the hive two stocks? I reply, Certainly not, at the time of introduction, but then at that time Mr Wells is getting no advantage from his two queens. In the spring those two queens breed up until they are as strong as any other two stocks in single hives, and then they are certainly two stocks. Where would his other hives be without that single bee? Where would the wasps' nests be without that single queen wasp? There must be a time when your nucleus hives become established stocks whether wintered in double hives or by themselves, and that time most certainly arrives when they have bred up in the spring. Mr Wells makes a point of showing that his system costs nothing extra because he gives his single stocks spare queens, which would otherwise be useless ; but it is not a question of cost of production, or I might add a swarm that was given me to another of my own, and say the honey result was from one stock (or swarm). Again, it is quite possible to divide a strong stock in the late summer into four nucleus hives, which would build up strong in the spring, and if you then made them, which is quite possible, work in one super, does Mr Wells still mean to say they are only one stock? I think we are much indebted to those bee-keepers who make their experiments public in the BBJ, and I always read Mr Wells' letters with interest, although I do not agree with them. Mr Wells is quite right in saying it is impossible to compare different districts. This is only a poor honey district, although occasionally we get large results. After the meadows are cut there is no white clover anywhere near. Of course, I am speaking of my own immediate neighbourhood. There is still very little honey coming in here, but the white clover in the meadows (not the sheep pastures) is not yet out, so that if it keeps warm and fine for the next two or three weeks we may still have a fair harvest. — Arthur JH Wood, Bellwood, Ripon, June 23.

(June 28, 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22**:256. Wells hives. Do they contain one or two colonies? [Letter 1898]. In endeavouring to prove that twice one does not make two, and after explaining a neat way of making two by division, Mr Wells (Letter 1888, p.244) asks the question, Does the addition of a single bee make it into two stocks? I have no doubt that Mr Wood will answer most emphatically, Yes, under the circumstances it does! And, further, if Mr Wood asserts that every queen with more than one brood comb constitutes a colony, he will be in no danger of contradiction by able and well-known authorities. But what, I would ask, has this to do with the success or advantages of the Wells system? We have been waiting patiently for reports of the heavy takes of surplus honey which would entitle Mr Wells to all the credit he deserves; but if the success of the system depends upon counting two stocks as one, and if he is offended because some of us prefer calling a spade a spade, then he is simply courting ridicule instead of gratitude, for no amount of argument will alter plain facts. Suppose the young queen which he introduces after slipping in the perforated dummy is a ligurian, while the other is black, will he have the hardihood to say. Here is a single stock of bees, half of which are foreign and half English? If so, he will have to invent another name, because swarm, stock, and colony cease to convey a definite meaning, and I should like to know what name

Mr Wells would give to the same colony which he describes in his letter referred to, supposing the dummy which separated the two parts were of solid timber instead of being perforated? Is it possible the Wells dummy has this magic power of making what is undoubtedly two separate stocks one stock only, and that, too, for the sake of comparison with other systems? If this is what Mr Wells claims, I ask his able and well-known authorities to declare themselves.—Thos F Ward, Highgate.

(June 28, 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22**:256. Swarms for Wells hives. [Letter 1899]. Oh I that my name were AJH Wood, and that I lived at Ripen! It seems I did not make myself clear when referring to a swarm from Wells hive on April 29 (Letter 1871, p.215). In fact, I did not write for print, but was having a friendly word with the Manager, forgetting that —

A chiel's amang ye, takin' notes,
An faith he'l prent 'em.

The hive was not supered at the time it swarmed, and as honey was coming in from the fruit trees, I tried an experiment with the swarm, risking the loss of a big surplus from the parent stock, and if I do lose it, shall not condemn Mr Wells' system for the result. The said swarm swarmed yesterday (Friday, 15th inst), what is here termed a maiden swarm, and the other compartment of the Wells hive swarmed today, with an abundance of room in the super; both lots were, however, pat back to where they came from. I have a few sections, but riot from a hive after the queen and bees were gone. In the slack season, as friend Walton suggests on p.238, I may, with the editor's permission, give an account of my experience with a double-queen hive, when Mr Wells will be able to point out other mistakes; but perhaps not more clearly than I shall be able to see them myself then. I extracted some honey from shallow frames just a week ago, and it is now granulated, both in the manipulating house and in a warm room.—WH Woods, Hemingford, June 16.

(June 28, 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22**:256. The Wells System. Another advantage of the system. [Letter 2000]. On Thursday last a large swarm was placed in one compartment of a home-made Wells hive upon worked-out comb and stores. In the other compartment there were about twenty bees and a queen also upon worked-out comb and stores. That evening the entrance of the swarm was contracted so as to compel some of the bees to pass out through the chamber containing the small quantity of bees and a queen. Next day the two chambers were occupied by a busy tenantry, and now, on Midsummer's-day, the two queens are laying. In another Wells hive used last year, and this, the perforated division board in which the holes were burnt has not been propolised. —W Poyston, Pembrokeshire.

(July 5, 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22**:264-266. Requeening and buying queens. [Letter 2002]. I observe in your issue of the 21st ult. a letter on this subject (Letter 1889, p.245) signed PS, that he, after making about as big a hash of his bees as was possible, has come to the determination to let well alone in future. ...

Henry W Brice, erstwhile The Heathen, Thornton Heath, July 1.

(July 5, 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22**:266-267. Wells hives. Do they contain one or two stocks of bees? [Letter 2006]. Referring to the letters 1897 and 1898 in your issue of June 28, I feel that no good purpose can be served by prolonging the present controversy concerning the double-queen system, and therefore content myself by saying I have nothing to withdraw from what I have previously written, although I might add much. I think enough has been said to enable bee-keepers to form their own opinions, and I am quite content to leave the matter in their hands, for after all it does not make one iota of difference by whatever name the system is known, or whether a Wells' hive is to be counted as one stock or ten stocks, it will not alter the plain facts of the system. In repeating that I have nothing whatever to gain by it, it is certainly far from my wish to cram the system down the throats of bee-keepers. At the same time I feel greatly indebted to those who have given their time in writing for the benefit of others those things which they have proved to be good for themselves, and I hope the numerous friends who are fast swelling the ranks of bee-keepers will continue to do the same. I shall be very pleased to answer any questions through your columns or otherwise which may be put to me upon the subject, but beyond that I feel there is no need for me to go any further at the present.— G Wells, Aylesford, Kent, June, 30.

(July 5, 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22**:268. [Query 1090]. Transferring stocks in skeps to Wells' hives. —I started bee-keeping last year by the purchase of a single skep of bees in April. I had two swarms from it. The first I put into a frame hive, and the second into another skep. All three stocks wintered well, the frame-hive being especially strong. This year I have transferred the two skeps to a Wells hive, not by cutting out the combs as usually advised, but by placing the skeps above the frames in the Wells, and allowing the bees to work down into the lower part. So far as I can judge, the operation has been successful. The first skep was put on eleven days ago, and the second five days later.

1. What I want to know is, when should I take the skeps off? Shall I remove them twenty- one days after putting them on— that is, after all the brood is hatched [emerged] out above—so as to enable me to get a few sections filled in August from the heather, which is abundance; in this neighbourhood?

Or (2) shall I keep the skeps on till the end of the honey season, and allow the bees to fill the skeps with surplus honey? The clover is just coming into bloom now, and the weather is all that can be desired. We are much later here than up south; but it is to the heather we look for our main crop. — John McInnes, Northrop, Rothbury, June 30.

Reply. —

1. It is far from safe to assume that the queen and bees will have taken possession of the lower hive immediately, so that without examination you cannot say when all the brood will be hatched out from the skeps. If, however, it is made clear that the queens have descended, and are laying in the lower hive, a sheet of excluder may be placed above the frames to keep them below. That done, the skeps may be removed when clear of brood, and by allowing both lots to work in a common super some sections may be secured at the heather, if weather keeps fine.

2. By leaving the skeps to become chambers for surplus storing, a safer result

may be counted on, but on the other hand it is very disadvantageous to have heather honey stored in old brood-combs, such as the skeps would contain.

(July 12, 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22**:274-275. The season in Dumfriesshire. [Letter 2011]. In this neighbourhood —Annandale, Dumfriesshire —we have had a very bad season for bees. My first drones appeared on April 26, and up to May 10 all seemed very promising, and I put supers on two hives. These hives were on the principle of Mr Wells's hives, but different so far that they had five perforated zinc slides between them working in a wooden division. My opinion as to the Wells system is that it very materially helps to keep the bees warm in winter and in early spring, and induces early breeding; but on that account we must take care to keep our bees very warm during such a very changeable spring as we have had, and, in fact, in all springs. On May 10, having put on two supers, and having wrapped them up very warm, I left home for a fortnight. During that time the weather, though bad, was not severely cold. The bees made no progress, and had very sensibly remained below. On my return I removed the supers and fed. I saw signs of the drones being July persecuted. As far as I can hear, most experienced bee-keepers in this neighbourhood have fed, but some inexperienced have been much surprised. They have seen their hives well filled with bees, and they have not considered whether, after the weather we have had, there is any honey in the flowers, and did not think feeding necessary. For some days after my return home we had many very cold nights, and I, in consequence, continued to feed. A change came, we had warmer weather, and as I had young queens in my hives, I had no wish for swarming. I again put on the supers, keeping all warm. I placed a bit of carpet on the top of one half of each excluder sheet, and divided each super by means of a dummy, so as to keep one end of each warm. I put in a feeding box for a night or two. This brought up the bees, and they occupied the remaining sections, and, though they did not get enough syrup to cause them to store any, yet it encouraged them, and they have now, I hope, permanently occupied both supers, but no sign of honey yet in them. The clover is just beginning, and if only the weather would take up, I still hope for the best, as the bees are numerous. — F McC, Ecclefechan, NB.

(July 19, 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22**:283. Wells hives. do they contain one or two stocks of bees? [Letter 2018]. I was not a little surprised to find Mr Wells (Letter 1888, p.244) contending that his hives should be considered as one stock; neither can I see the use of persons telling us what they have obtained from a certain stock in a certain season. What we want is a system that will give us high results on the average both on stocks and a number of years. Far from opposing the idea of a Wells hive containing only one stock, it is charitable of any one to say it consists of two only, for does he not at the end of each year add a nucleus to each hive? —such a nucleus as is fast approaching the condition of a stock. Mr Wells can, if he likes, call it the produce of one hive; so might any one having a hive large enough to hold a dozen stocks. It is not how many cwt. of honey can be produced from the least number of hives, but how many can be produced with the least labour; for what does it matter whether you call the Wells hive a nucleus, a single stock, two, or a dozen stocks if the labour required to produce a certain quantity of honey from it equals that

required by two ordinary stocks in ordinary hives. Does Mr Wells mean that a Wells hive is no more trouble than an ordinary hive? In the letter referred to he argues about dividing a stock in the autumn, and giving a queen to the queenless half. I would remind him that this is not the system that has given him the good results he has published, and which will not do so. From the time the dummy is inserted it is converted into two small stocks requiring in future double labour. Again, as to not being off with the old love, &c —how does he make it fit the case when he kills off his old queen? And if Mr Wood and I purchased a second swarm, &c, in my opinion there would be no chance in it. I am certain that he cannot get double the amount of honey under the circumstances he relates unless he gets two exceptionally good queens, and a very bad one heads the two swarms in the single hive. — Leonard Smith, Elstow, Bedford.

(July 19, 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22**:287 [Query 1107]. Swarm deserting its queen.—On visiting a friend of mine, I found one of his hives had swarmed. Several attempts had been made to hive the swarm, but without success, for when I arrived in the evening I saw that the swarm had returned to the original hive, and were hanging out. On examining the hive I found that the space at back of the dummy (which had been partly filled with paper-packing for warmth) was crowded with bees. As it was getting late I left them, but on passing through the garden I noticed the skep on a table in which the swarm had been hived, but subsequently deserted. It was empty, but on closer examination I noticed a queen and one solitary bee on the outside of the skep. I placed her in the skep, and then brushed in a few bees from the cluster at the hive entrance along with her. I then turned the skep on to a board, raising the entrance, and shook all the bees from the paper at back of the hive ; when these had run in, I lifted the skep, and placed it over the back of the hive and drove those below into skep as well. I then replaced the skep on the board as before, and shook two frames of bees from the parent hive and let them run in. I intend this evening to transfer the bees into a frame hive. 1. What reason would you suggest for the swarm leaving the queen? Also did I act correctly under the circumstances ?

2. Will the bees in the old hive now be likely to settle down and give up the idea of a cast in eight or nine days, if I place a super on top, or give more frames at the back?

My seven stocks, two of which are in Wells hives, seem strong, and are now in the supers, but up to the last week of June the weather has been cold and wet and not, given the bees a chance to work. By giving plenty of room I have not had a single swarm this season. Others round here have had swarms, but in all cases no supers have been on. — Wm Greener, Gowertown. Reply.—

1. We can only suppose that the desertion arose through want of experience on the part of whoever made the attempt at hiving the swarm.

2. If the added bees have stayed with the queen, and formed a swarm, it proves that you acted correctly.

3. We think it probable that a second swarm will issue from the parent hive. Any uncertainty on the point may, however, be removed by listening for the usual queen piping on the evening of the eighth or ninth day after the first swarm issued. If that is heard, a swarm may safely be looked for, even though super room has been given.

(July 26, 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22**:292-293. Wells v WBC hives. A season of over swarming. [Letter 2023]. The season of 1894 has been fraught with disappointments. During my short experience—five years—I have never seen my stocks in such good form as they were in April. Then, alas ! came the change in weather, and feeding-bottles had to take the place of supers. My strongest stocks were those (or that?) in a Wells dummied hive of twenty frames, and one in a WBC wintered on twenty standard frames. I had hoped to have compared the two systems, but the bees have settled it otherwise. During the ungenial weather, the WBC held a slight advantage, as the Wells had to be fed. My first swarm came off at an out apiary on May 6, a mile from home, and clustered on a chimney. The man in charge lit his fire, and off went the bees to be seen no more. On May 13 I saw sainfoin and white clover in bloom, and a farmer told me that he had a field of the latter, well out, about a mile from my hives, but with the exception of an occasional by day, the weather kept the bees at home, and in the meantime most of the sainfoin was cut, but not carried for weeks on account of the weather. On June 3, the Wells hive swarmed and united with a swarm from the next hive, I took half the brood and all queen-cells away, filled up with full sheets, and returned swarm, giving a super of narrow frames with starters, under the WBC section crate. On June 8 the swarm came out again, so I hived on a new stand. On June 9, whilst I was away fishing, the WBO swarmed (a cast, as I found on examination, the top swarm having vamoosed when I was away), and evidently feeling that the Wells bees were in rivalry with it, the swarm entered the hive occupied by the Wells swarm. A battle-royal ensued which lasted till next morning — for I did not reach home till past 10 pm. — when I floured the whole lot, and so restored peace, but not before thousands had been slain, and the stock much weakened. On June 11 the WBC threw another cast, which I returned. On the 16th the cast came out again, and joined a cast from another hive. I put them both into the WBC, using flour to unite, and they have worked well since, filling the standard and two shallow bodies. The Wells swarm threw a maiden, which was lost, and then a cast, which I returned, finding no less than fifteen slain queens thrown out next morning. It cast yet again, this being returned, and eventually it repeated the performance a third time, the cast getting clean away without having stored 20 lb. of super honey. All my hives but three have behaved in much the same way, those swarms hived in May having swarmed again and cast till I was sick of returning the casts, and I don't think I shall gather 500 lb. of honey from fourteen hives, though last year I got 900 lb. from ten, spring count. One consolation is that all the hives but three have young queens. I have tried the shallow frames with 1j in. bottom bars, eight to a ten-frame body, with side slips, and I like them. The combs are more evenly built than in the ordinary shallow frame with wide ends, and are certainly more handsome in appearance. I got five sets of these frames, and only wish that all my extracting bodies were fitted with them. I hoped to have had some for show at Cambridge; but though they were filled the sealing was not completed. I also had the misfortune to have one of these bodies stolen, amongst other things, from my honey room one fine night. As a consolation to a poor young beekeeper, I may say that though a duffer at bee-keeping, I had at the end of last season paid for all my bees and plant, and found myself in possession of fourteen stocks, and had £14 in hand. This is a good neighbourhood to gather honey in, but very bad

for selling, 8d. per lb. being the highest I have ever got for honey in bulk. I am heavily handicapped by the position of my hives. A double row of large elms grow fifteen yards behind them, and the swarms love clustering in the highest branches. (Often they are not seen—I only secured one top swarm from ten hives last season!) My plan is to swarm up the tree myself, taking a long rope and a saw, pass the rope over a higher branch, make it fast to the branch on which the bees are clustered, saw it off, lower bees and all till near the ground, then shake into a skep in the ordinary way.—HCH, Longparish, Hants July 17.

(Aug. 2, 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22**:303-304. Expectation v realisation. [Letter 2036]. We should never prophecy until we know. ... I shall not experiment again with the Wells system. During two seasons my hive has been stocked with two colonies, and in a short time both colonies have shown a decided preference for one compartment (of course, both entrances are in front). Either the position of the hive, the extra activity of one queen over the other (or is it the nearest entrance which attracts their attention); and, no objection raised, the two stocks fraternise, thus reducing the strength of one end at the expense of the other. Both this year and last, after perceiving one colony reduced and the other crowded, I have drawn the dummy and let the bees unite, leaving the queens to settle the matter of the survival of the fittest. ... —F Walker, Derby.

(Aug. 9, 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22**:312-313. Honey and bees at the Yorkshire Show. The fifty-seventh annual show of the Yorkshire Agricultural Society took place this year on August 1 and 2, at Beverley, the capital of the East Eiding. ... The Rev RM Lamb, assisted by Mr AC Jemeison, also had a special glass extracting house erected by the committee, in which they gave interesting exhibitions of the process of uncapping, extracting, and bottling honey, under the public eye, finding a ready sale for their production. One remarkable item at the show which should be noticed was the testimony given by some bee-keepers to their success with the Wells system ; at the same time, the most prominent bee-keepers gave it condemnation because of its weakness at swarming time, two queens and their workers coming forth when only one part of the hive was ready, and again, because they insisted that a Wells hive consisted of two stocks, the workers of which joined their forces in the common attics or storehouses above the separate breeding-houses.

(Aug. 9, 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22**:316-317. Taking bees to heather. [Letter 2045]. May I give a little of my experience in taking bees to the heather in reply to Annone (Letter 2025, p.294)? The sort of zinc named would be more of a hindrance than otherwise. If the bees are strong in numbers they will protect themselves; if weak, reduce the entrance. But always have them as strong in supers is possible. They will take no harm under the farmer's care, but it will be a great mistake to send the hives with entrances covered with zinc of so large a mesh as to let the bees get their heads through; many bees will have no heads left on if this is done. The main point is to have lots of ventilation at the top during the journey, and even with this I have seen a good many breakdowns in my time. I have often thought it would be a great improvement in hives for the heather if ventilation could be given in every story,

with a wood slide to cover it down in cold weather. I notice there has been a lot of talk for and against the Wells hive in your pages, and as my contribution to the subject, I would just say I had the pleasure of looking after a Wells last summer for a gentleman who has now gone to Africa, and it certainly did better in honey returns than any other three he had. It weighed 159 lb. at the end of the heather season last year, and stood far above any out of forty hives at the time.—JBR, West Cumberland, July 30.

(June 7, 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22:330**. Advertisement.



(Aug. 30, 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22:346**. My first experience with a Wells Hive. [Letter 2058]. Last autumn I, like many more, had the Wells craze on, and I thought I should like to try it, so I made a hive to take twenty-two frames in the brood nest, and stocked this from two hives that had queens of '93, besides plenty of bees and stores. I packed them well down for winter, and in the spring of this year stimulated them with syrup and the bees increased very fast—indeed, so fast that, by the middle of May, I was obliged to give them a super of drawn-out combs in standard frames spaced with the new wide ends, eighteen of these tilling the upper chamber. They got well to work in this super, and I was obliged to add another eighteen frames above, and this was very soon filled with bees. The roar in front of stock hive at night was something tremendous, and the hive looked like a gigantic dog kennel with its three tiers of frames and roof. The weight of honey from the first super taken off, when extracted, was 120 lb., and from the second super, 63 lb., making a total of 183 lb. Not having touched the honey in brood-chamber, I call this not a bad take, Messrs Editors, and I think you will say the same, considering this season. I have compared notes with my single hives, and my best hive yielded 73 lb. The Wells has not swarmed, and is at this time in splendid condition. I mean to go in more for Mr Wells' system, and tender him many thanks for introducing it to us bee keepers and the public. It matters not a jot to me whether the hive is called one or two stocks, if (as I have proved) it works well. I think it answers better for extracted than sections, as che bees are less likely to swarm. — A Nicholls, St John's Wood, Hazlemere, Bucks, August 19.

(Sept. 6, 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22:356**. Propolisising Wells dummies. [Letter 2063]. I notice that from time to time your correspondents complain of bees not clustering on the dummy of a hive worked on Mr Wells' method. This in all probability is due to the entrances being in

opposite ends of the hives instead of side by side. When the former is the case the bees naturally elect to cluster near the entrance, and if both stocks are weak the dummy will not be included in the cluster. With regard to propolis of the holes I find it is a question of race. (Carniolans will propolise in large quantities, whilst with Italians the holes are never filled up. As a trifling token of the great amount of help I have gained from your columns I beg to forward you one of my feeders, illustrating how convenient I have found ordinary draught-tubing for close-fitting dummies, &c, without jar in manipulation. —Clement Coke, Longford, Derby, August 29. [Many thanks for dummy feeder. We have found it quite useful just now in feeding-up driven bees troubled by robbers. By giving a half-pint of syrup in the tin case each night, and a cake of soft candy in the other portion of dummy, we have had the syrup taken during the night, and the candy keeps the bees going all along, without the temptation to robbing afforded by syrup-feeding during the daytime. — Eds.]

(Sept. 13, 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22**:364. Notes by the Way. [Letter 2067]. ... Re my experience with the broader top bars (in reply to a gentleman inquiring) I would say that the season has not been a fair test, the honey has not come in in quantities large enough to induce the bees to start brace combs and store cells in every crevice, but this I can say, there was only one little piece of wax attachment between the tops of the bars and the bottom of the crate of twenty-one sections in a strong swarm hived on them and the brood combs are all nice and straight. Mr Walton, when here the other week, spoke highly of excluder zinc as a preventive of brace combs, but I have only used it under shallow frames, Mr W says he finds no difference in the quantity stored above the zinc than in colonies without it. Well, the fact that most bee-keepers use it below shallow frames and all colonies in Wells hives carry their large takes of honey through the zinc, points pretty conclusively to the fact that it is very little, if any, impediment to bees in their work of honey storing, — W Woodley, Beedon, Newbury.

(Oct. 4, 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22(602)**:396. The Wells hive. From a cottager's point of view. [Letter 2080]. I have now read the *British Bee Journal* for many years, and during that time have had to do with many hundred hives of bees, but the Wells hive seems to be the master one that I have ever heard talked of. So far as having a double hive, I tried one fifteen years ago, but could never get the bees to store honey in it as others seem to be doing nowadays; in fact, I gave mine up as a bad hive, and it has for years been used as a store-place for lumber. But after all I read in your pages, I begin to think I must rub the dust off my double hive and start it again on another trial. Friend Nicholls (Letter 2058, p.346), who I know very well, was at my place some time ago, and our talk as usual turning on bees, he complained of it being a bad year with him, and that he should have to feed. Yet on opening my journal I found to my surprise that he had been trying the Wells hive and had taken 183 lb. from it. And that, too, in a bad year, when some bees worked on the old plan were about starving! Then comes your correspondent, Wm. Tustain (Letter 2069, p.365), and beats friend Nicholls by 73 lb, with 256 lb. from his Wells, so even with the 10 lb. of sugar and the nice cake of candy that the hive wants for winter, it is a big take. And although I have looked on my double hive as an old coat that was done with,

I must dust it down, and, after repairs, try it once more. It would be a great help to us cottage bee-keepers if some of the successful Wells' bee-keepers would tell us how it is done, or how these tremendous results are got at. I know our editors are very kindly disposed towards the cottager, and that these big takes from Wells hives are printed so that others may benefit and do likewise. This is rousing us up, and when I see friend John Walton bringing out his cast off double hives again to work them on Mr Wells' plan, it makes one want to have his report of their doings in this—to me—the worst honey season I have known for years. —W Martin High Wycombe, Bucks, September 27.

(Oct. 4, 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22**:398. [Query 1168]. Wintering weak stock in Wells hive.—I have a small swarm on three frames which I do not think will be able to winter by themselves, but as they have a very good young queen, I do not want to unite them. Do you think if I used a Wells dummy, and put them in the same hive as another stock, they would winter so ? or what would be the best thing to do?—EA Douglas, Underhill Road, SE.

Reply.— If you can so manage the Wells dummy as to get both lots of bees to gather on it, and so form one continuous cluster, it will, no doubt, be of great assistance in carrying the weak lot safely through the winter.

(Oct. 11, 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22**:409. [Query 1178]. Restocking a Wells hive.— I have lately had one of the two stocks in a Wells' hive die off; the other stock is strong and healthy. Ought I to move a stock into the vacant half from another hive before the winter, so as to give the stock in the other half the warmth derived from an adjoining cluster, or should I wait till I have a swarm next year to put in, meanwhile filling the vacant half with a dummy, and other things to keep it warm ?—FC Hodgson, Trickenham, October 4.

Reply.—So far as keeping warm the stock of bees now occupying the Wells hive, there is no need to trouble on that score; but, on the other hand, if you desire to try the Wells system for honey gathering next season, the vacant compartment of the hive should be occupied without delay.

(Oct. 18, 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22**:411-413. *Conversazione*. The autumn conversazione was held on Thursday, the 11th inst, at 6 pm in the Board-room of the RSPCA, 105 Jermyn Street, when among the large audience of ladies and gentlemen present were the Hon. and Rev Henry Bligh, Revs WE Burkitt and E Davenport, Miss Eyton, Messrs TW Cowan, W Broughton Carr, TB Blow, K Brown, HW Brice, DH Lurrant, J Garratt, JM Hooker, AS Horlick, John H. Howard, W. P. Meadows, J. II. New, AG Pugh, W. J. Sheppard, P Scattergood, G Wells, WH Woods, C Atkinson, and others. Mr Cowan (Chairman of Committee of the BBKA) presided, and briefly opened the proceedings by inviting any one present to initiate a subject for discussion, or to show- any specimen bee appliance which would be of interest to the meeting. Mr Brown (Somersham) regretted that his equaliser had unfortunately got broken in coming up to town, as he intended to show it at the meeting. It consisted of a small box, the bottom being covered with queen excluder zinc, and glass at top. In use it is placed over the two divisions of a double-queened stock, so that when

one colony was stronger than the other—as in a Wells hive—and it was desirable to equalise them, the bees could pass over from one side to the other. He had found it answer very well, and help to prevent swarming. It also served as an indicator to show when supers should be put on. Mr Garratt asked what prompted the bees to pass over from the one stock to the other just as required? In reply to which it was suggested that possibly the heat and crowding of the thickly-populated side caused it. Mr Brice inquired whether the transference of the lies was permanent or not. Mr Wells thought there was no doubt that the major part of the bees who left one side of the hive for the other returned to their old quarters. He did not think there was any rule as to which entrance they passed out at; probably as much one side as the other. The chairman said that bees always went back to their original entrance. He remembered when using supers with separate entrances to them, the bees, though passing out that way, did not attempt to enter the supers from the outside, but always went to their original entrance. Mr Howard said immediately he saw Mr Brown's equaliser he noticed that it would be valuable as an indicator for supering. There was no doubt that the bees returned to their original entrance wherever they flew from. He thought that the equaliser should be so placed as to allow of one-third being over the weak side, and two thirds above the strong side of the hive, and he certainly was of opinion that it was worth an appliance manufacturer's while to take up the invention and give it to the public. Mr Garratt wished to know with regard to the Wells dummy whether the ordinary wooden perforation was the only practicable one, or whether a sheet of finely perforated zinc would meet the purpose. No doubt in many cases the dummy became closed by propolis. Mr Blow thought the fact of a dummy being of metal was sufficient to condemn it, as with them a cluster could not be obtained, which was eminently desirable. A thin wooden partition (a sixteenth thick) perforated with holes just small enough to prevent a bee passing through would not be propolised, whereas if the holes were made very small they were often quickly propolised. Another cause of propolisation was giving the bees too much room. If they were crowded as to the dummy, they did not attempt to propolise it. The metal dummy would do very well perhaps in the summer, but in the winter the bees would try to get as far away from it as they could. Mr Wells said a correspondent had written him to say that he had taken over 200 lb. of honey from a hive where a metal dummy was used. In reply to an interrogator, Mr Woods said that he pierced the holes in his dummy with a small bradawl, and then burnt them through with a hot wire 1/8 in. in diameter. He had had no trouble with propolisation, but in any case the bees would not propolise the holes for several days, and after a week it would not much matter whether propolised or not, the partition being just as well solid as perforated. In reply to Mr Meadows, who asked how Mr Wells found his bees cluster in the winter with the dummy he used, Mr Wells said he simply put the dummy in and crowded the bees so much that they were obliged to cluster on it. When the cluster was once united he never found them to separate. Mr Howard thought that propolisation varied according to the district in which the apiary was situate. He had tried holes of many sizes, and came to the conclusion that bees would close any sized hole if they found no use for it. He had had this year experience of the bees propolis the whole of the queen excluder spaces. No doubt where propolis abounded any sort of a dummy would be closed up. He contended that a hole 1 in. in diameter would not prevent a bee getting through,

and had proved it this year in sending a swarm away by rail in which zinc with that sized hole was used, and many of the bees escaped while at the railway station. A gentleman stated that he had drilled two dummies with a twist drill, making the holes $\frac{1}{8}$ in. wide, and no bees had made their escape therefrom. Mr Howard said that in the case he had referred to, possibly the fact of the swarms being in confinement their efforts to pass through the [apertures would be more pronounced than in a brood nest. Mr Blow thought there must be some mistake about the exact size of the holes. He had conclusively proved that a bee could not get through a hole $\frac{1}{8}$ in. in diameter. He did not believe this depended on whether the bee was full of honey or not. The Chairman said he had made many experiments years ago for the purpose of testing the proper size of the holes, and had used several hundred queens in the process. He was astonished to hear of Mr Howard's experience. Mr Carr, referring to the propolis of the Wells dummy—thought it might be taken for granted that the best means to prevent propolisation in a perforated dummy was to crowd the bees on to the dummy, as it was a well-known fact that bees would stop up any aperture that admitted air except the entrance. The Chairman considered the discussion a very useful one, as it tended to confirm one of the first principles of bee-keeping—namely, that the bees must be kept crowded in the hives. He agreed with Mr Howard that propolisation varied with districts. When he had an apiary in Sussex the propolis there was very plentiful, and in autumn he had to remove all his quilts and substitute others, while in Cornwall his hives were scarcely propolised at all. This was because there was little or no propolis to be had in the locality, where very few pines existed. Mr Meadows exhibited his improved super clearer. He said that in going over his apiary this season, and wishing to have cleaned up some frames from which the honey had been extracted, he came to the conclusion that some improvement might be effected in the appliances hitherto used. He found that if a little piece of queen excluder was placed over a circular hole in the clearer, and a cover of metal so made as to slip over this hole at will from the side of the clearer, the bees might be admitted to the latter from the brood nest, and, after being allowed time to clean up the wet combs, be shut off from below, and so forced to return through the escape. This would enable the bee-keeper to get a good many boxes of combs cleaned up by one stock, and that with almost no disturbance of the bees at all, because when the super clearer was once put on it remained, and the bees were allowed to pass up into the boxes of combs as often as needed. The appliance referred to was then handed round for inspection.

(Oct. 18, 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22**:418. Experience with a Wells hive. [Letter 2088]. On May 18 last I put a lot of bees headed by a young queen into one department of a hive on the Wells principle—the hive was the same size, I think, as Mr Wells has been in the habit of using, viz one holding fourteen standard frames. On June 3 I put a swarm into the other compartment ; a few days afterwards I noticed the queen outside the hive, and I watched her for some time, when she entered again; on the 14th I examined this side of the hive, and as there was no brood I was sure the queen was dead, and therefore I put in another swarm, which seemed to settle nicely, but soon I noticed on this side of the hive work was carried on in a half-hearted manner, while the other side worked whenever there was a chance, which was not often, most assiduously. I had placed fourteen shallow frames above the excluder zinc,

and from these I took some honey. I had not time to examine the hive thoroughly until the beginning of September, and I then found one side of the hive full of bees and in a prosperous state, while in the other there was not a single bee or a drop of honey—the only result is some nicely worked out comb. Now I should be greatly obliged if you can account for this state of things. The bees could not pass from one side to the other, and they seemed to work harmoniously in the super of shallow frames in the early part of the season. The hive is placed north and south, and it was the north end that was deserted. Do you think in this dull season the bees in the north became so disgusted that they betook themselves to the sunny south? APJ, Norfolk, October 8. [It seems clear that the bees joined forces in one brood-chamber because of some mishap to the queen of the deserted compartment. —Eds.]

(Oct. 25, 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22**:426-427. The Wells System. [Letter 2090]. Friend W Martin (Letter 2080) wishes to hear how my hives worked on the Wells plan turned out. As I said some time ago, I could not find time to weigh my takings from hives worked on this system, but will give a bit of experience with half-a-dozen double stocks this season. I have only one that holds ten frames on each side of the perforated dummy, and these stocks were put in this particular hive last year. When the hives were full of bees I put on a shallow super (after putting on the excluder), filling it up with shallow frames of worked-out combs. As the bees increased I put on two supers of standard frames of worked-out combs, each holding about nine frames, on top of the shallow super, that was the full length of the hive. I got this super entirely filled, and the two supers of standard frames each about half full. I lifted off the two top supers, and had to take out shallow frames one by one and shake the bees off, as it was too heavy and cumbersome to lift, and to put an escape under, as I had not another super of the same size and length; so, after taking two or more frames out, I put other combs in that I had previously extracted, and so worked through to the other end of hive, but as our season came to an end there was very little more put in it. Of course I put the two supers with full sized standard frames on to the top again, and left them on till I cleared them out at the end of the season. These hives have required feeding up for winter. The five other double stocks did fairly well. I tiered them up with shallow frames of foundation, as these hives were only 2 ft. long, so as to give the queens more room for breeding if they required it—of course, putting in a shallow dummy to keep the queens apart. I then put on excluder, and on the top of that worked-out combs in shallow frame supers. These did fairly well for honey, but not enough for the extra trouble and work they gave compared with single stock hives that were tiered up with ready-built combs for extracting. I only had one swarm from these double hives, and this one swarmed while I was away at the Cambridge show ; but as it was late when I got home I had to defer putting this swarm back till early the next morning. Of course I had to take the supers off, as well as the excluders, and take the shallow frames out from the one that had swarmed to cut out queen cells. I found these shallow brood frames joined at bottom to the top bars of the stock hive below, being built full of drone comb and brood between bottom bar and top bar of bottom frame. The other side that had not swarmed had to be treated in the same way before I could lift off this super. I then had to go over standard frames below to cut out queen-cells, also to cover over the other

side so that the queens should not by chance get from one side to the other where bees had swarmed. I examined this lot and saw the queen, and found that they had not made any preparations to swarm, so after putting on the shallow frames again, as well as excluder and supers, I stopped the entrance of the one that had the queen in, and then giving the skep containing the swarm a few puffs of tobacco smoke, I threw them on to a tray and let them run into their old hive again, the one from which they swarmed. I watched the queen go in, and put a carboloc cloth to keep the bees to their own side of the entrance. These did fairly well, but at the end of the season, some time after taking off all supers and shallow frames which were under the excluder, and covering them up, I found all the bees had deserted from that side that did not swarm and joined the other stock, leaving that side empty of honey. Since then I have put in a lot of driven bees, giving them the combs the bees had deserted. But, first of all, they were put into another hive close by the side, and lifted out of that into the double hive, so that there was no chance for them to go into the other side. I have had four lots out of the five that have been minus the bees on one side into which I have put other lots in a similar way to the above. I also had one lot last year that did the same, so no doubt the queens got killed. I do not like the tiering up with brood combs or foundation, as there is too much work about it, but, all being well, I shall give them another season's trial. I prefer the hive that holds ten frames on each side of dummy. Years ago I had three full-size double hives, but as two of them would not hold standard size frames, I had discarded them when I changed all my hives that were not of standard size to the standard size. Here I may mention that I had made many of these hives before the standard frame was fixed upon. I think, too, that friend Martin was like me in working these double hives years ago, that we did not super them with one super, common to both lots, but separately. I very well remember friend Martin being at our place, years ago, when one of these double-stock hives swarmed; first one lot came out, and then almost immediately that on the other side came out; it appeared as though they both had got the swarming fever at the same time. I cannot speak very enthusiastically about the system, but if all's well I will try it again. Here I may say that our honey flow was so short that had I not had a lot of worked-out combs with 1¹-in. top bars I should not have had as nice a lot of extracted honey as I did get. It is also possible that, if the honey flow had continued longer, these double stocks might have done better than they did, in comparison to the single stocks. I am sorry to hear that Mr Martin has had such a bad season for honey, but there must have been some about his locality, or else he would not have had so many swarms as he told me he had had, and which I mentioned in my last echo. The great point seems to me (and this took me several years to get into my noddle) that the way to get the most honey in a short season is either to prevent the bees swarming, or if they do happen to swarm, to cut out queen cells and put the swarm back. In 1893 I did not have a single natural swarm, whereas this year I had about thirty from about seventy hives. I see from the *Beekeepers Review*, there is an extract from James Sheldon's quarterly paper saying he had only had, I think, one swarm. He thinks he is breeding the swarming mania out of his bees. Let him, however, wait another year or two, and he will probably find he is mistaken. Another point Mr Martin mentions is that his friend NicoUs said he would have to feed. Well, I have had to feed, as my stocks that were worked for extracted honey put nearly all of it in the frames of the top body boxes, and these I extracted.

When I crowded the bees below, what could be done but feed after taking all their honey away from them.—John Walton, Honey Cott, Weston, Leamington. October 13, 1894.

(Nov. 1, 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22**:437.

[Query 1196]. Space below frames in winter.— As it appears to be almost indispensable to have a space below the combs in winter, will you kindly inform me

1. if the lower sliding chamber in the Ford-Wells hive has any board on the top in summer, or is it simply left in summer as in winter, as shown in the maker's catalogue ? and

2. do the bees climb through it going in and out ? I want to make a provision of this sort in some I shall make this winter. — La Ruche, Wakefield, October 24.

Reply.—

1. There is no covering used for lower chamber of the Ford-Wells hive either winter or summer.

2. Yes.

(Nov. 8, 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22**:447. Bee-

keeping in Co Wexford. [Letter 2108]. In accordance with my annual custom I send you a short report of my bee-keeping for the year in Co Wexford. I commenced the season with eighteen single stocks and two Wells hives—which I will count as four colonies—making twenty two in all. All but one of these were worked for sections as usual, but this year for the first time I tried one for extracted honey, but as it was the weakest of the lot its result is not, of course, to be taken as any test of the comparative value of the two methods. The twenty-one hives yielded 850 completed sections, and 150 all but finished, together with 200 in every stage of filling, these being fed back to the bees. I got about 40 lb. of extracted honey from the weak hive mentioned. About half a dozen of the stocks were not very strong at the middle of June, but before the year was over vied with the best of them, and all of the hives finished their two racks of sections, some completing three. Roughly speaking, therefore, they may be said to average about fifty sections per hive, while increasing from twenty two to thirty eight stocks, after losing two swarms which flew off unseen. All of these are now covered down for winter with plenty of sealed stores to last till the spring of 1895, and strong in bees. Although the year was extremely wet and cold here, it has been the best season I have had since beginning keeping bees about seven years ago. Yet it was not a good season here, as I drove many skeps about this locality, and they were all very light, and some of them had not stores enough to last till Christmas. — JD, Co Wexford, November 1.

(Nov. 15, 1894) *British Bee Journal, Bee-Keepers' Record and Adviser* **22**:453-454.

Bee notes from Sussex. Something like feeding up for winter. [Letter 2112]. It has occurred to me that it might interest some of your readers if I gave a few notes about this year's bee-keeping in my locality (the coast of Sussex between Worthing and Littlehampton), because I am persuaded that bees in such sunny and favoured neighbourhoods as these require somewhat different treatment compared with those more to the North. I began the spring of 1894 with two well stocked hives, which had come in first-rate condition through the winter. I lost a

splendid swarm in June from the one, through unneighbourly conduct, and I had to divide the other twice to prevent a similar mishap. The one I worked for sections, and had at one time four crates on, making eighty four 1-lb. sections in all. Nearly all these were more or less built out, but only about twenty-four were fairly filled; most of the others I had to uncap and extract ; but I have a fine stock of fully or partially built out sections with which to start next spring. The extracted honey amounted to some 5 lb. From my other hive I obtained 15 lb. of run honey from one (upper) lift of shallow frames, and might have obtained as much or more from a lower lift, but I became alarmed at the destitute condition of the lower brood-boxes, and gave the whole of this sealed. honey to the bees of my hives. From the two hives I estimate that I obtained about 40 lb. of honey, in comb and extracted. Now the point to which I wish to draw attention is that all this was stored by the bees before the end of March. The use of glass panes on the tops of my hives enables me to state positively that after March the bees barely gathered sufficient to feed themselves from day to day. In the middle of September, when I overhauled my then four hives, there was very little or no honey, and no brood whatever, in the brood chambers, and very little honey above—except in the one sealed lift, then still left on one hive. Just at that time I became the possessor of a Wells hive, into which I transferred the two best of my stocks ; and I then filled up the weakest lot, and also replaced the stocks in the two single hives, with five lots of driven bees from skeps in the village. I do not think there was 1 lb. of honey in all these five skeps put together, and there was no brood ; and I fear a vast number of cottager's bees will perish this winter from sheer starvation. I am helping to dispose of them wherever they cannot be fed up well. Immediately after this I had to be away for five weeks ; but I left everything in order, and feeders on ; and during my absence and since the little wretches have actually taken down over 250 lb. of sugar made into syrup, or over 40 lb. to each hive, and are as merry as crickets, as they well may be. For with this they have—so far as I can see through my glass tops—built out, filled, and sealed, nearly all the ten lower standard and ten upper shallow frames in each of my six hives (counting the Wells as two), only one hive being somewhat backward. They would take, apparently, as much more as I chose to give them; but as they have begun building brace comb?, I think it is high time to cut off supplies at last. Otherwise comb building on such a scale from cheap sugar is profitable work. It is now November, and so far from settling down for the winter, every sunny hour these bees are dancing in front of the hives, ransacking the ivy blooms, and working hard at comb-making and sealing within the hives. Last spring they were hard at work again before March. I intend on the very first fine day in February to put on excluder zinc and supers, as I am persuaded that even so early, even if they do not store honey, they at any rate build comb. One neighbouring bee-keeper told me he once, by mistake, left an empty crate of sections on one of his hives in the autumn. In February, when he went to make a spring inspection of his hives, the crate was already filled and sealed. Last February my bees employed their leisure in building me no end of brace combs; and I prefer to give them more remunerative occupation, especially as removing brace combs full of grubs is unpleasant, although easy enough, work. On one point I should be very glad of advice.

1. Ought I, in the spring, to leave the bees the lifts of shallow frames above the brood chambers, as so many dependencies to these latter, in order to obtain

stronger stocks and avoid swarming ? This was my original idea. If not, how can I compel the bees to unstore the sealed syrup, so that I can get the combs refilled with honey? They are mostly splendid combs, and would be invaluable for the extractor ; but, of course, no suspicion of syrup must remain about them. I rather grudge their being spoiled by brood.

2. Also, is there any fear of the bees transferring syrup in the spring from below to above the excluder zinc ? So far as I know I have been much more fortunate than my neighbours, who have had positively no honey return whatever this summer, and are left with stocks of starving bees. May I conclude by saying, with respect to the right way of putting on excluder zinc, and as some excuse for myself, that hitherto every sheet which I have bought, and from different and well-known makers, has had the slots arranged along the combs and not across them; just as also nearly every sheet of foundation I have received has been cut so that the straight sides of the hexagons have been horizontal, and not vertical, as they should be. But I am afraid excluder zinc, however put on, does greatly impede the working of the bees. Thanking you in advance,—I remain, WRN, Sussex, November 5. [If the whole ten shallow frames are filled and sealed over, we fancy there will not be very much of the 40 lb. of food in body-box below. In view of the conditions detailed, and considering how near the winter is, we should therefore lift off the shallow-frame box and examine the combs below to make sure as to the amount of food in them. For the rest, we do not think any advantage would result from allowing the shallow frames to be used for brood in addition to the ten standard frames below ; because, in a district so early that bees are storing surplus in March, that number of frames would be ample for the queen's requirements.

1. Under the circumstances, our plan would be to get the queen below and set the excluder on now, keeping the shallow-frame box as a surplus chamber for early storing after the bees had used up the contents of the combs for food. The bees might be got to take down the contents of two or three of the shallow combs if they were uncapped at once, and mayhap several more might be emptied in the same way later on; but we should leave some of the centre combs as they now are for the winter.

2. Bees will sometimes carry syrup into supers if cramped for breeding space. — Eds.]

(Nov. 15, 1894). *British Bee Journal, Bee-Keepers' Record and Adviser* **22**:457. [Query1201]. Uniting bees in Wells hives.— Owing to my being busy I have not been able to attend to my bees for the last few weeks. Upon looking at them today I find one stock in a Wells hive gone, the combs being nearly filled with brood ; and in my other two Wells hives I find a weak lot in one compartment of each hive. I have also two fairly strong stocks in single hives.

1. I want to know if it is too late to unite, and, if not, shall I put the weak stock on the other side of the Wells hive with the strong stock, or unite the two weak ones? On one side of one of my Wells hives I put a skep in which was a strong stock of bees, bought in the spring. I put the skep above the frames, and the bees have worked down on to them. Now I want to remove the skep, but the bees in it are strong, with, I believe, plenty of honey.

2, What shall I do ? Leave them till the spring, or if I remove the skep what is the best way to do it ?—FRS., Cornwall, November 6.

Reply. —1. If you are quite sure the weak stocks are healthy it will be advantageous to winter each along with the strong lot in the Wells hive.
2. The skep had best be left where it is till spring. Are you sure the brood left in the deserted compartment of one Wells hive is not foul?

(December 13, 1894). *The British Bee Journal, Bee-Keepers' Record and Adviser* **22(602)**:493-495. Double *v* single-queened hives. [Letter 2130]. Mr Wells' report of season '94. Double *v* single-queened hives. [Letter 2130]. The report of my bee-doings for the year 1894 is, as usual, late, partly owing this time to want of time, and, for the rest, through delay in collecting particulars from the different apiaries in my own immediate neighbourhood, as I consider that my report would be of small value with the doings of my neighbours left out. In fact, comparison between the different methods of working bees in one and the same locality is in my mind the all-important question. Most of your readers are no doubt aware that '94 has been about as bad a season for bees in Kent as the worst on record ; that being so, they will not be surprised at my short crop this year. I do not complain; yet it is short in comparison with other years since I have adopted the two-queen system. It must not be supposed that all bee-keepers in my own district have been converted into Wellsites, as it is far from that at the same time, I have met with sufficient encouragement to make me continue to advocate my present plan of working bees. But, as I have so often said, it is of no use for persons to think that they can succeed with my plan by simply putting two queens into one hive, and leave them to do just as they like afterwards. In that case they might almost as well stick to the old straw skep. We have some in this district who will hear of nothing but the skep as a bee-hive; moreover, they declare that honey from skeps is stronger and better than that taken from frame-hives. One bee-keeper of my acquaintance bought two frame hives, which were prepared and stocked for him with swarms from his own skeps. These two hives were managed for their owner free of cost for several years. He was always very pleased with the beautiful lots of honey taken and handed over to him, and returned thanks for labour bestowed on the bees and hives (thanks being all that was expected or required), yet he would do nothing for these frame-hives himself, but simply left them to manage themselves, and, of course, in time they were bee-less and empty. He now uses nothing but straw skeps, and I quite commend him for so doing, a skep being the only suitable hive for such bee-keepers. But I am getting wide of the subject, so to return to my report. In the spring of this year I resolved to have only eight double queened stocks instead of ten (of course I have no single stocks) as I began to fear that my neighbourhood was rather over-stocked with bees for so poor a district for honey. The weather also was bad during the fruit blooming season, and half got but little from that source. The next thing we depend upon in rotation is trefoil clover, of which there was a very fair lot grown this year; but it is mostly cut too soon for the bees to take full advantage of it, and as the weather continued unfavourable very little was gathered from that. Then follows about twenty acres of sainfoin, growing a mile or so from my apiary ; but this, unfortunately, is usually cut before it gets in full bloom, much to the regret of us bee-keepers ; still, the bees worked well on it for three or four days. We have no white clover about, and I know of but a single lime-tree, located nearly half-a-mile away. After this there is very little forage from which surplus honey is to be got. I grow, however, some Chapman honey- plant,

borage, mellilotus, and Hepieter mussura, to maintain a little bloom, and keep the bees in good breeding trim as long as desirable. I cannot tell you what has been taken from my best nor my worst hive, not having kept a separate account of them; but there was not much choice, all yielding pretty even in quantity. I had two swarms, and by utilising the queen-cells and making nuclei I am well supplied with young queens. Not finding much demand for section honey, I work mostly for extracted, and from my eight hives I took 72 1-lb. sections and 52-4 lb. of extracted honey, making a total of 596 lb., together with 24 lb. of wax. The above figures give an average of 74½ lb. of honey, and just 31b. of beeswax per hive (most of the honey is sold). My financial position in account with the bees for this year (1894) is as under: —

20 doz. sections, at 6s. per doz.	...	£6	0	0
224 lb. extracted, at 6d. per lb.	...	5	12	0
Total...	...	11	12	0
Deduct expenses for foundation and sections	...	1	15	0
Balance for labour	...	£9	17	0
Balance for labour	...	£19	16	2

Showing the net profit to be a fraction over £2. 9s. 6d. per hive. I have also four strong nuclei with young queens, all of which I am wintering in one hive, with the thin, soft wood, perforated dummy between each lot. These may be useful in spring in case of the loss of queens during the winter months, which beekeepers are always subject to. I think Messrs Editors, you will agree that I have done fairly well with my bees this year, taking all things into consideration. Anyway, it is a plain statement of my own bee-doings for this year, and I have endeavoured to make things perfectly accurate. I will now give you the particulars of some of my neighbours' doings in bee-keeping.

The first, which I will call No.1, is a skeppist, and lives about a quarter of a mile from me, and that much nearer to the sainfoin. In the spring he had four stocks, and during the summer got six swarms. At the end of the season he declared he would only feed three of this ten skeps, so I bumped the the other seven for him, and he got about 6. lb of honey from the lot—certainly less than 1 lb. per skep. I gave the the three skeps—which it was decided to keep, and which had 5 lb. Of stores—10 lb. Of soft candy pushed between their combs, as it was too late in the season to give syrup. The owner may get 2 lb. Of wax from the combs taken from the skeps which were bumped. I also found light light cases of foul brood among his stocks.

No.2 apiary is nearly close to No.1 The owner had in the spring but one frame-hive (no skeps), and the bees being affected by foul brood died about Michaelmas time.

No.3 is about one mile away form me, and his bees are only separated from the 20 acres of sanfoin by the road; he is also a skeppist, and started the year with four skeps, from which he had five swarms. At the proper time I bumped five skeps for him, all healthy lots; I estimated his honey at 7 lb. per skep. He has gone into winter quarters with four stocks.

No.4 began with three frame hives, and during the season to 20 1-lb. Sections of comb honey (none extracted); had to feed 30 lb. sugar, got two swarms, and has

five stocks for winter.

No.5, one frame hive (no skeps), no honey taken, had one swarm, fed 10 lb. sugar and is wintering two stocks.

No.6 began with one frame hive, took 21 1-lb. Sections of honey, no swarms, no feeding and no increase.

No.7, one frame hive, no honey taken, one swarm, fed 30 lb. sugar, and has two stocks for winter.

No.8 began with two stocks in frame hives, 21 1 lb. sections taken, no swarms, fed 20 lb. sugar, no increase.

No.9 apiary, spring count, six frame hives, too 15 1-lb. sections, no swarms, no feeding, lost one stock through foul brood, five stocks.

No. 10 had in spring three frame hives, 12 1-lb. sections taken, some feeding required; winters three stocks.

No. 11 began with two frame-hives, no honey taken, feeding required, no increase.

It will be seen that twelve skeps have been taken up for honey, and that they produced among them 41 lb., an average of nearly 3½ lb. each, but 10 lb. of sugar has been given to the skeps now in stock, an average of 1¼ lb. each. I have also dealt with twenty frame hives—all single-queened stocks—from which 89 lb. of surplus honey has been taken, being an average of nearly 4½ lb. per hive. But 90 lb. of sugar had to be given as food for the bees, an average of just 4½ lb. per hive, or a trifle above the amount of honey taken. Much more food will also be required to keep them alive until the honey flow commences next year. There are several more apiaries near me, but the information obtainable is not very reliable, no account having been kept. But I have good reason to believe that they have done no better than their neighbours. I am also sorry to say that in one of these apiaries — With four stocks in frame-hives—the bees were drowned in the recent floods. There are also reasons to fear that many of the above are affected with foul brood. The above account of my neighbours' bee doings may be considered very brief, but it is sufficient for a comparison between the different ways of working bees, both in skeps and in frame-hives, with but one queen in each of them, and those in frame hives with two queens in each hive. I have received several letters from bee-keepers in which they state that the difference between their single and their double-queened stocks is greater than those shown here, though I have no authority to make them public; but if the writers would report direct to the *Bee Journal*, I, for one, should be very pleased to see it in print. I have purposely omitted names, &c, of owners of the apiaries enumerated above, but in case any of your readers would care to test the fairness or accuracy of the statements made, I will be very pleased to furnish names, &c, on being told the number of the case they would like to inquire into. I must not omit to say that I have also had to give my bees 192 lb. of sugar to make them safe till spring, the cost of which is, of course, included in my year's expenditure. I think the above account gives another proof that a hive with two queens in it, if properly managed, will pay much better than either skeps or frame-hives with but one queen in each. With the season's best wishes to all beekeepers, and hopes for a successful 1895. —G Wells, Aylesford, Kent, December 10.

(Dec. 13, 1894). *The British Bee Journal, Bee-Keepers' Record and Adviser* **22**:498. [Query 1219]. Transferring bees in winter— Thickness of Wells division boards. —

I should be much obliged if you would answer me the following, as I am only a beginner with bees this year: —

1. I have the chance of buying two lots of bees in hives ready packed for winter, but do not want the hives as I have a Wells hive empty, which I have just had made, also a WBC of Redshaw's make (new). Could the bees be transferred at this time of year into the Wells hive? I have had a small shed, 6 ft. by 4 ft. 6 in., put up, in which I keep my present two stocks, and can heat same with oil-stove, and in which I have room for the Wells hive and two ordinaries in single row, and have height for another row.

2. Can you inform me if the division-board of Wells' hive should be more than $\frac{1}{8}$ in. thick? The present one is made of mahogany, and is that thickness, but I am afraid it will warp.—EH Coltman.

Reply.—1. If the transferring of bees and combs is to be done by an entirely inexperienced hand, it will be preferable to defer the operation till a warm day when bees are flying freely. Otherwise the task is not at all a difficult one to a bee-keeper of ordinary skill. The main point is to avoid injuring the queen during removal. Our correspondent refers to being able to heat his bee-shed with an oil-stove, but we must remind him of the inadvisability of using artificial heat for bees in winter.

2. The perforated division-board used by Mr Wells is only about $\frac{1}{8}$ in. thick, but he binds it with tin, to prevent fracture and assist in keeping the wood from warping.

(Dec. 20, 1894). *The British Bee Journal, Bee-Keepers' Record and Adviser* **22**:504-505. Mr Wells's report. [Letter 2139]. We must all feel very much obliged to Mr Wells for his lucid statement of accounts for the past year ; and certainly to those who understand the working of an apiary on Mr Wells's plan it reads satisfactorily enough for a bad honey season; otherwise, an average of 32 lb. per stock is not an astonishing success, especially when it is considered that every particle of honey in the hive is removed, leaving nothing behind for the bees' winter use, except the stored pollen; for in no other way could such a large amount of wax be obtained. Then we must assume that out of the gross profit of £1. 4s. 3d. per each stock, the winter store of sugar had to be provided, and, consequently, the net profit would be somewhere about 18s. per stock. Well, I think I know of several larger averages than this on the single-queen system, and, therefore, we must wait yet another year for proof of the superiority claimed for this double-stock system. While writing I should like to say that I think the very best remedy for foul brood will be found to be Izal. It only occurred to me in the summer that Izal might be a better remedy than phenol, and as I had preserved two very badly affected stocks (which I found dead in the spring) for experimental purposes, I first washed the combs, and the hive, too, with a solution of about 1 in 500 of warm water; I then sprayed the combs with 1 in 750 of weak sugar syrup, and left them to drain. I then threw into each a driven swarm (about 4 lb. of bees), and began feeding with sugar syrup medicated with Izal, 1 in 990, which was taken greedily by the bees. The first and second batch of brood came out without a sign of dead, and both hives went into winter apparently quite free from disease, but, of course, one cannot say what may happen in the spring. Certainly as far as the bees themselves are concerned, they take very kindly to the medicine, and I never had the least trouble in forcing it, which is always a

difficulty with carbolic, and my present opinion is that Izal will surpass all other remedies as a cheap, agreeable, and effective remedy for this bee-keepers' abomination. — Thos F Ward, Church House, High gate, December 16. [Without waiting for any reply to the above from Mr Wells, we think our correspondent has mis-read the details given by Mr Wells on p.494. The profit stated therein is net not gross, and the cost of sugar for supplying his bees with food for winter is included in expenditure for the year, as stated at the conclusion of Mr Wells' letter (p.495). Again, it is surely a slip of the pen on the part of our correspondent to put the cost of feeding at 6s. 3d. per stock, while counting the eight double queened hives as sixteen stocks? In this way the sugar for feeding would have amounted to £5., whereas Mr Wells' total expenditure for the whole year only reached £4. 9s., sugar for feeding included. Referring to the measures taken for disinfecting the combs and hives in which foul broody stocks have perished, we would point out what our correspondent has probably overlooked, that the so-called best remedy—otherwise known as creolyne, alias soluble phenyle—has been for many years recommended in Mr Cowan's Guide Book as preferable to carbolic acid or phenol on account of its being entirely non-poisonous and non-corrosive as regards human beings, and, when properly diluted, its being freely taken by the bees (see pp.150 and 165 for directions how to use it.) —Eds.]

(Dec. 20, 1894). *The British Bee Journal, Bee-Keepers' Record and Adviser* **22**:505-508. A Christmas bee-talk about winter work, foul brood, &c, [Letter 2142]. I had laid down my pen with a view of—in bee-lingo—going into winter quarters. In other words, after a hard season's work, I was proposing to spend the evenings during the dull period of the year toasting my toes at the fireside, totting up results, reading bee literature, laying plans for next season, and picturing new devices in my mind's eye, in the hope of hitting upon a practical notion of some sort or other which might be of use to my fellow bee-keepers, but particularly so to myself. Candid confession is good, &c. However, on looking through the most recent numbers of the *Journal* and *Record* which I, of course, reads regular), I find therein referred to one or two little matters which recall past events and incidents to mind, and cause me to put off' my semi-dormant state, and postpone the intended period of hibernation much in the same manner as a fine mild day would bring out the bees at this period of the year. ...

Since writing the above another issue of the *Journal* is to hand, and it is pleasing to see that interest in the foul-brood question is in no way flagging. Again our Editors return to the charge, and Dr Sharp is also to the front, together with the veteran bee-keeper, Mr Wm Woodley, who has a say in Notes by the Way. Mr Wells' report, too, shows that my experience in one part of the county of Kent resembles his experience in another part thereof. The result is that this bane of the bee-keeper seems to exist more or less ail over the county, and unless something be done may go from bad to worse. There is some similarity in the case quoted by Dr Sharp and the one I have referred to above. No doubt he will bear me out that the instances mentioned are only examples of dozens of cases to be found by those who will trouble to make inquiries. I am thankful, however, to say that in my own neighbourhood I am not aware of a single diseased stock. ... Having in mind Mr Woodley's remarks on p.492, I would add that we too have a few poor bee-keepers not very far off, and I was surprised and sorry that he

should have written as he has on the matter dealt with, because Mr W has proved that in most things apicultural he takes a sound, commonsense view ; and I trust it will turn out that it is rather a slip of the pen, than a conviction of his mind, when he says : the law will deal hardest with the poorest in this as in other matters. Again, the poor man's little pig is slaughtered — it is his all. So with the little apiary of the poor cottager, &c. No, friend W, much as I respect your opinions in general, I cannot agree with you here, having regard to the enlightened laws of this the tail-end of the nineteenth century. I fail to see how even the poorest cottager will be a loser (*vide* Mr Wells' letter, cases 2 and 9), when it is proposed to give him at any rate some compensation for so utterly valueless an article as a foul-broody stock of bees. I feel sure Mr Woodley would modify his views, if his apiary was in constant danger from the proximity of this disease as those of many bee-keepers of my acquaintance are. In many cases, to my knowledge, the poor cottager would never have possessed a hive at all, much less an apiary, but for the liberality of the very gentlemen who are now sufferers from the contiguity of the pest, and without any chance of redress. It is a waste of money to attempt a cure whilst there are scores of hives reeking with the disease in the neighbourhood of the careful bee-keeper's apiary. Besides, if a hive is cured today, it may be contaminated again tomorrow, so that we are forced to the conclusion that the only means of cure at this advanced stage of the dire disease is the radical one. When this has been effected, then, and not till then, shall we be able to test and appreciate the value of the, at present known, preventives and cures. ... Henry W Brice, Thornton Heath, Surrey, December 21.

(Dec. 20, 1894) *The British Bee Journal, Bee-Keepers' Record and Adviser* **22**:509. Double *v* single queened stocks. [Letter 2146]. I was pleased to see Mr Wells' report for '94, as I had been trying the two-queen system, and see no great advantage in it so far as honey gathering goes. In order to try them fairly side by side I put two strong stocks with young queens in a Wells hive, and alongside of them two single hives with old queens. From the two last named I extracted 65 lb. and 70 lb. respectively, while the Wells yielded 120 lb. The two single stocks got 81b. of sugar each, and the Wells hive 20 lb. to feed up for winter. The benefit I see in the Wells hive is that a two-queen stock only takes the room of one single one in the apiary. I had under my care a single stock of bees bought last spring, and I have this last season extracted from that hive 95 lb. of honey, besides forming two nuclei. The hive having swarmed at the beginning of the honey season, I put the swarm back, and made the nuclei with the queen cells. — A Cheshire Max, Singleton, December 14.

(Dec. 27, 1894). *The British Bee Journal, Bee-Keepers' Record and Adviser* **22**:512. Some Christmas notes. [Letter 2148]. On reading Mr Wells's report for 1894 (p.493) we can but congratulate him on his successful take of honey; there must undoubtedly be something in the system, for I can vouch for the fact that very little honey was secured in single hives this season either in Kent or Surrey, and when Mr Wells secures as against abnormally small returns, no less than 74½ lb. per hive, the fact requires no comment. One thing, however, has struck me, and that is the 24 lb. of beeswax, and sold at 2s. per lb. Now, for such beeswax as I have had for sale 1s. 6d. per lb. (or 1s. 3d. in bulk) has been all I could obtain. For this reason, no doubt others besides myself would be glad of information—

1. If a ready market is to be found for pure beeswax at this price, and whether it is sold in small quantities or in bulk?

2. Whether Mr Wells gives his bees full sheets, half sheets, or only starters of foundation? It would also be interesting if he would tell us the modus operandi followed in obtaining the 3 lb. per hive of beeswax per season. I go in for a little comb building in my own apiary, and the way I proceed is to give a strong stock during the feeding up time, half sheets of foundation. This season I had over a gross of combs built in this way, and having in mind the remarks in Useful Hints on the matter, it has occurred to me that if Mr Wells will give us his views on the production of bees wax, some besides myself may be able to assist in developing this particular line of profit to bee-keepers. Anyway, the matter is worth consideration and discussion by the fraternity. BJ readers, therefore, who have a wrinkle on the subject, please come to the front, and they will receive a hearty welcome.

(Dec. 27, 1894). *The British Bee Journal, Bee-Keepers' Record and Adviser* **22**:513. Double versus single queened hives. A good report for 1894. [Letter 2149]. Having just read the very interesting report sent by Mr Wells under the above heading (Letter 2130, p.493), I thought I must hold up my hand and say a word in favour of the single-queened hives. I must, however, say that, in comparison with his neighbours, Mr Wells has done wonderfully well. Now for a word about my own bees. This is what I should call a very fair honey district; we have about 12 acres of old established apple orchards, plenty of snowy nespilus growing wild in the copses, 20 acres or so of sainfoin, within a radius of 1/2 miles, and a lot of white clover in the pasture land, also a good many of old-established lime trees within the mile radius. I started the season with nine frame-hives and one skep; from these I have taken about 240 sections and 224 lb. extracted honey. My balance-sheet for the year stands as follows:—

20 doz. sections, at 6s. per doz. ...	£6	0	0
224 lb. extracted, at 6d. per lb. ...	5	12	0

Total... ..	11	12	0
Deduct expenses for foundation and sections	1	15	0

Balance for labour	£9	17	0

I have had a lot of swarms, so that at the end of the season my count has increased to twenty stocks of bees, including two made up of driven bees. I only had to feed two or three stocks, as I make it a rule to take no honey from the brood nest. You thus see my average take from the ten hives (spring count) is 46 lb.; this is really from the nine frame hives. I took no honey at all from the skep which gave me two swarms. The reports of the double-queened hives have not yet aroused sufficient enthusiasm in me to start one, as I have had queens this summer which have been prolific enough to cover thirty standard frames with bees, the frames having been storified, with excluder over the top bottom ones. Of course my profits would have been larger if I had been able to realise so good a price for my honey as Mr Wells. The total results would then have been increased by no less than £7. 6s. 8d., or a profit for labour of £17. 3s. 8d. on the season. The wax, I reckon, will only about pay for the trouble of melting down. The honey flow in this district lasted about a fortnight. I will leave it to your readers to strike

the balance between the double and single hives, putting their own value on the eight extra stocks I finished the season with. Wishing you and fellow bee-keepers the compliments of the season, I am, &c., G Jordan, Steeple Aston, Oxon, December 14.

(Dec. 27, 1894). *The British Bee Journal, Bee-Keepers' Record and Adviser* **22**:515. Mr Wells's report and beeswax. [Letter 2154].—Will Mr Wells please state how he manages to get such a lot of wax from his hives? Does he melt up all his combs, and start every year afresh with frames of foundation? In speaking of it to my better half, she says he must melt all his combs up to get that quantity,—3 lb. of wax for each double stock is a large yield. — John Walton, Weston, Leamington, December 19.

(Jan. 3, 1895). *British Bee Journal, Bee-Keepers' Record and Adviser* **23**:3. Notes by the Way. [Letter 2156]. We are on the eve of a new year, and before this appears in print 1895 will be ushered in; let us welcome the glad new year; may it prove a good one for the craft, united together by mutual interest in the industry of bee-keeping, and may we successfully grapple with the bete noir of bee-keeping during the coming year. For myself, I have studied the subject pretty fully during the last year or two, and I am bound to confess that the more I go into it, the less fear I have of the pest. Thanks, Mr Wells, for your report; encouraging for a poor season, certainly, but that lump of wax is a poser; either your bees lay on the capping pretty thickly, or you pare off a good slice on each side of combs when extracting, or you have some method of renewing your brood-combs every season, and so getting new ones built out, thus increasing the size of your cake of wax. I remember in previous reports you have always had a much larger proportion of wax than I have ever had. Please don't think for a moment that we doubt the verity of your reports, but are bound to acknowledge that your system is par excellence for the production of wax, and from the constant inquiry for wax there is a ready market for the commodity. If you will kindly give us full instructions how to produce it you will be adding another source of income to poor beekeepers, and helping us to eke out poor seasons. As regards comparison between Mr Wells' output and result for the year with other apiarists in his immediate neighbourhood, of course they are not in it any more than a similar comparison between my own output, or net result, for the year would be compared with the apiaries around me, therefore I contend that such comparison proves nothing, except that modern bee-keeping depends on management. I started some half score bee-keepers with bar-frame hives, say, ten years ago, and as long as I took the trouble to attend to them the bees did well, and produced good takes' of honey, but as soon as I—from stress of work in my own increasing apiary — was obliged to give up the management the apiaries went back, and the owners soon tired of bee-keeping, and sold out. There is only three of them that still keep bees. One has not taken off his first crate of (empty) sections. One of the other two has not had a pound of honey this year; and the remaining one had a few sections (13) off one hive and one swarm, and the other hive swarmed only. The crate of the first one I put on myself, and soon after it was on the colony swarmed. This is situated near my out-apiary, and my best colony (non-swarmed) filled four crates within 300 yards, so that I contend that it is the management of bees that brings out the results, and not the one-queen or two-

queen colony. I, as a purveyor of swarms and queens, cannot expect to compete with other bee-keepers who produce honey only; I therefore make it a point never to strike an average; I only know the net result at the end of the season, and I can add that the balance has been on the right side every time yet—even in 1888, when I fed so heavily, I had a small balance to the good by giving in my time, or enough to pay for time, at a small wage. December 31, 1894.—We have had a change in the weather since above was written. Frost and a sprinkling of snow give a more seasonable aspect to the landscape on the distant hills in Hampshire. —W Woodley, Beedon, Newbury.

(Jan. 3, 1895). *British Bee Journal, Bee-Keepers' Record and Adviser* **23**:8. Mr Wells' report. [Letter 2166]. In reply to your footnote to my letter (Letter 2139, p.504) I have to apologise for not reading the whole of Mr Wells' communication, which I ought to have done, to the very end. When arriving at that part which gives an account of what other hives had done in his neighbourhood, I thought this won't do at all; he is comparing hives and leaving out of account the owners — as if the bee-keeper had no part or lot in general results. Had I seen the name of Mr John M Booker (for instance) mentioned, who is I believe, a neighbour in a bee-keeping sense, I would have given attention to the reasoning, as it was, I regret to say I stopped at the figures. As regards the so-called u slip of the pen, we will not argue that, Messrs Editors, for whether 6s. 3d. is too much in some cases to allow for feeding, I am quite sure if the sixteen hives were denuded of honey in August the sum of 3s. is too little to supply sealed food until the following May; but now this part of the subject has become a dead donkey we will cease thrashing it. I have referred to the copy of *Bee-keepers' Guide Book*, by Thos W Cowan, which I have in my possession—it is dated Nov. 1881 —and I can find no reference whatever to the subject of creolyne, alias soluble phenyle, on pp.151 and 165, as described by you, nor have I ever seen Izal referred to as a better remedy for foul brood than phenol—which, by the way, I always understood was carbolic acid — and, to crown my ignorance, I do not know even what Izal is. I only know by repute that it is non-poisonous, and a more powerful destroyer of microbes than carbolic; and any kind of practical experience tending to establish this fact is, to my mind, of value to bee-keepers, hence my excuse for writing about it. — Thos P Ward, Church House, Highgate, December 21. [In referring to *Guide Book*, pp.150 and 165, we had in mind the last edition, whereas it appears from the above that our correspondent's copy is the first edition, published thirteen years ago. As time goes on the book is revised and brought up to date, and it is now several years since phenyle was first mentioned, and it has appeared in all the later editions. We may here add that Creolin, Liquor Antisepticus, Izal, Lysol, Solveol, &c, are analogous, and only other names for the same nostrums, just as phenol, phenic acid, hydrate of phenyl, &c, are other names for carbolic acid. — Eds.]

(Jan. 10, 1895). *British Bee Journal, Bee-Keepers' Record and Adviser* **23**:15. Double-queened hives. A good word for the Wells System. [Letter 2172]. Last season I sent you my experience and result with a Wells hive, which you will find in your issue of December 14, 1893 (p.499). The take of honey only being small, 75 lb., considering the splendid sunny season of 1893, but this I think I accounted for by not having shallow-frames made in time, and no shallow combs

drawn out, and not having an extractor to remove the honey from the comb. I also mentioned I intended trying two Wells hives during the season of 1894, which I did with very much more success. From one Wells hive I extracted before going to the moors 200 lb. of honey. This Wells hive swarmed, and the bees were returned about two hours afterwards. We divided the swarm into two parts, and replaced one on each side of division board. My other Wells' hive did not swarm, I suppose on account of the one side becoming queenless in June, but from this hive I took over one hundred pounds. I fancy the queen got crushed in removing from Bedale to Burrill, a small village about two miles away, which I found a very good district for clover, and a splendid lot of lime trees; but my bees did not gather much from the latter, as the weather changed when the lime trees were in bloom. I have now four Wells hives stocked for 1895, and intend making other four this winter. My result from the moors in 1894 was very poor, but I always consider taking my bees there pays me, even in a bad season, on account of the splendid combs of honey I get for wintering, also having plenty of combs to give to weak stocks left at home, and the remaining combs to be given in the spring. The latter are splendid for stimulating bees. Since I commenced bee-keeping I have not payed more than 10s. for sugar, and I now have four Wells hives and eight single stocks. I worked four small hives for sections, and got 105 saleable ones. Many were spoiled with drone brood. Excluding zinc not being used this season. I was very pleased to see Mr Wells's result in the *Bee Journal*, and if he has not made converts in his own neighbourhood he has made a Wellsite of one who will have to see or hear of something better before I change. Should this meet Mr Wells's eye, I shall be most pleased to make his acquaintance if ever he should make a visit in the north. I live about ten miles by line from Northallerton, and shall be pleased to make him comfortable for the night. In conclusion, I did not intend sending any report, only Mr Wells wishes to know of some results, and consider this a very small acknowledgment for his trouble and time in developing such a splendid system.—IH Horn, Bedale, Yorks.

(Jan. 10, 1895). *British Bee Journal, Bee-Keepers' Record and Adviser* **23**:17-18. Shropshire notes. Mainly about foul brood. [Letter 2177]. Among your correspondents there are those who write week by week in our valuable paper, and whose pithy bits are eagerly sought after, and those who rise to the effort, like trout at a fly, only just when they feel inclined. I must class myself with the latter. I'll begin by wishing you the com No, I won't; you must be already overwhelmed with good wishes. Still, I wish 'em all the same. Have you had any frost, ice, and snow up your way ? They have been piling it on pretty thick down here, and several cold nights, driving winds, with keen frosts have been the order. It makes one's heart feel glad to know that our bees are comfortable and snug, no matter how hard Jack Frost puts down his heel. The past season in this country has been a fairly successful one, and I think, on the whole, not much under the average. Skeppists seem to have fared rather badly. Some ten or twelve stocks I have driven would not total 70 lb. of honey. Mr Wells, I consider, records yet another success in his district; still, his takes puzzle me. I have given the system a fair trial in competition with two strong single stocks, and the dodge won by about 15 lb. in 1893, and about 7 lb. in 1894, but none can touch his average, especially of 1893, 136 lb. Perhaps I do not extract often enough, but leave all honey to be sealed over and ripened in the hive. All bee-keepers will be glad to see

that the foul-brood question is being seriously brought to the front. Those who have read the articles in the Standard cannot fail to express their best thanks to friend Webster for putting Mr Maxwell-Hibberd in the right path. Surely he has been sadly misinformed. Practical experience tells us that the skep is a perfect arrangement for harbouring and spreading the disease; and as to new combs, I've seen brood in them simply rotten, and in my own apiary are brood combs, years old, perfectly clean, and I should hesitate to replace them with new ones. What a grand thing it will be if we can get the Board of Agriculture to take the matter up. But cannot our associations do something? What can ours (Shropshire) do? It is well known that the disease is lurking among us—some districts badly infected—yet we have no means of getting at them. Cannot members be offered something more than reduced entrance-fees at our shows, and so induce bee-keepers to join? Only the other day I was trying to persuade a good man to become a member, and I simply got the usual reply, What advantages are there? And he mourns the loss of several stocks through the disease. Could not associations appoint district secretaries to work and report under their orders? I'm sure gentlemen (probably experts) could be found in many places to undertake the duties free, to try and get into touch with all the bee-keepers in their district, give advice, and, if the worst comes to the worst, offer to supply remedies free (of course, the association to find these). I for one am agreeable, and would take an eight-mile radius. Apologising for my encroachment, and promising my next will not be so long. — Salopian, Broseley, Shropshire, January 4.

(Jan. 10, 1895). *British Bee Journal, Bee-Keepers' Record and Adviser* **23:20**. Rev JW Scamell (Rugby). — Transferring bees.—The skep now placed above the top-bars of frame-hive (No.1) should remain there until full possession has been taken of the lower hive by queen and bees for breeding purposes, when it may be removed. You might work the frame-hive on the double-queen or Wells plan if it holds so many as sixteen or eighteen standard frames. Referring to Nos.2 and 3, we do not at all like to advise beginners transferring bees and combs from skeps to frame hives. It is to them a risky and often unsatisfactory operation. We much prefer to advise peopling new frame-hives with swarms, then filling the frames with patched- up old combs. If you do decide to transfer—and, indeed, for general purposes—the help of a *Guide Book* giving full instructions for carrying out the operation is indispensable for one inexperienced.

(Jan. 10, 1895). *British Bee Journal, Bee-Keepers' Record and Adviser* **23:20**. Echoes from the Hives. Geo Stocks.—Criticising Mr Wells's report for 1894.—Our correspondent, dealing with the above, declares the figures to be misleading. Why, we fail to see; because if Mr Wells sold his honey at the price named it would be rather absurd on his part to state other than the facts.

(Jan. 17, 1895). *British Bee Journal, Bee-Keepers' Record and Adviser* **23:24-25**. Bee notes from Sussex. [Letter 2182]. In the BBJ for November 15, 1894, at p.453, you were kind enough to publish a letter from me, No.2112, and to give me some most sound and practical advice in response to some queries of mine contained therein. I wish first of all to acknowledge my obligations to superior experience and wisdom, and to describe how I have benefited by your valuable counsel. It will be in some respects a confession of errors ; but so long as it

remains true that *humanum est errare*, so long will it also be equally true that we may profit most by our mistakes, if we only use them in the right way. *In primis*, I was mistaken in the amount of syrup fed to my six hives (counting a Wells as two stocks, which it seems to me we cannot help doing). There was a miscalculation during my five weeks' absence, and only about 200 lb. (instead of 250 lb.) of sugar was fed to them. I don't know how much syrup this would represent. Perhaps you could kindly give a formula for this, which might prove useful to others beside myself? [Roughly speaking, about 250 or 270 lb. — Eds.] At any rate, my bees only received in consequence something like 33 lb. of sugar for each stock. When I discovered this, I began to doubt the accuracy of some of my conclusions. And, in effect, upon lifting the upper stories, in accordance with your advice, I soon discovered that appearances had been deceptive, and that little or no comb building and storing had taken place below. In fact, there was only one hive in which I could venture to drive the bees below, and place excluder zinc between brood chamber and lift of shallow frames. But I also transferred the frames in both divisions of my Wells hive from the upper to the lower story (they were all standard frames), and covered the brood chambers with excluder zinc, because I particularly want some standard frame combs built out above in the spring, and I wish to watch the process through my glass covers. Of course, I shall have to feed well for this. My other three hives each have the bees in the upper shallow lift, with a brood chamber below filled with standard frames, with starters, or incomplete and empty combs. The bees of one of these three hives dwindled unaccountably during my absence, and did not take food like the rest. I should suppose they were queenless, were they not so thoroughly content and active. Today I glanced at them through the glass under the quilts, and although it was just freezing outside, they were cheerfully roaming over the tops of the combs, with plenty of sealed stores within reach. I should explain that they are in a sheltered spot, with full exposure to the sunshine throughout the day—and it shone brightly all today. But there are hardly two seams of them, and yet they appear quite happy. The bees in the remaining two hives cluster over the tops of the frames right up against the glass covers, which, far from shunning, they appear to like. They all seem well and strong, flying singly until the frost set in a week ago ; and, of course, I am careful not to take more than a momentary glance at them, and keep them well covered, over the glass, with six thicknesses of carpeting and carpet-felt. They always feel warm. Since the beginning of December, although the weather here was singularly mild, the rain and mist were so continuous that I do not think the bees came out in numbers on any single day ; at least, I have not observed it. I have before me a tiny nosegay picked from my small garden on the shortest day (December 21), and it contains rosebuds, mignonette, primroses, sweet alyssum, wallflower, cornflower, violets, everlasting-mallow, calendula, and stock; a curious mixture. Things seem quite out of season. Some spring stocks have nearly done flowering; one or two campanulas are blooming, while the autumn alyssum is not yet over, although that sown for the spring is already in flower. The laurustinus is flowering profusely, and in November was much favoured by the bees. Of course, the hard frosts and slight snow have spoiled and checked all this; but it was pleasant while it lasted. It was time, however, that the too-forward buds and blossoms should be checked ; but daffodils and crocuses are already showing above ground, and I first saw some ten days ago. I was much amused the other day, on looking down at one of my

clusters of bees, to observe a large fly hovering around it inside the hive, apparently very happy, and quite ignored by the bees. Now, if I mistake not, I had some days previously observed this gentleman, or his first cousin, making desperate attempts to enter the hive. He would roam about the entrance in an aimless and careless manner, but each sudden attempt to enter was frustrated by an angry buzz and rush from the sentinel bees. However, there he was at last in comfortable winter quarters, evidently well satisfied with himself and contemptuously tolerated. A query which has occurred to me is this : watching my bees in their endeavours to pass from the tops of the frames to the under side of the glass covers has made me ask myself—Are not the bits of brace comb the bees ladders or staircases? And are we right in always removing them? I have made up my mind to destroy no more, except where absolutely necessary, because, for the life of me, I cannot see how, without their help the bee is to pass up and down through the stories of the hive with anything like facility and despatch. However, this letter is far too long, and I hasten to conclude, with my best thanks and all seasonable good wishes to the *British Bee Journal*, its courteous conductors, and all fellow readers and contributors. —WRN, Sussex, January 4.

(Jan. 24, 1895). *British Bee Journal, Bee-Keepers' Record and Adviser* **23**:37. Perforating zinc for Wells dummies. [Letter 2201]. When I first began bee-keeping twenty-five years ago I recollect noticing a peculiar stench from one hive. As I never can endure anything unclean or unhealthy, I immediately cut out the diseased combs and buried them, and cleansed the hive, but did not destroy hive or bees. I probably used carbolic, as that was all the go at that time. I have never seen any foul brood since, and have always kept ten or fifteen hives going. I always dread, purchasing old straw skeps with bees, and I think it most likely that I bought the disease and the experience. Notice I did not destroy the bees, and yet no harm ensued. I consider the Wells hive a good thing, but in my opinion perforated zinc does quite as well as wood perforated; it is stiffened with zinc or tin ; sold in V-shape at the zinc shops, and the whole thing is not | in. thick. —FV Hadlow, Buxted, Sussex, January 18. [Referring to our correspondent's foul-brood experience, it can hardly be regarded as conclusive, though to notice a stench coming from a hive is suspicious enough. Unfortunately, however, we have had repeated cases brought to our notice where perfectly healthy hives have been suspected because of the bad smell, i.e. stench, coming from them in spring, when black currant honey, (with its peculiar smell) was being gathered. Any way, we congratulate our correspondent on keeping his bees healthy for so long. It speaks volumes for the good which comes of hating anything unclean or unhealthy. — Eds.]

(Jan. 24, 1895). *British Bee Journal, Bee-Keepers' Record and Adviser* **23**:10. JC Bamlett (Penzance).— best hives and best systems of bee-keeping. —The questions of best hives and systems are so entirely matters of individual opinion , that we could not take upon us to state in so many words which is best. We know what our own preferences are, but it does not follow that all should adopt our views. As to the Wells system, we advise learning how to manage single-queen stocks well, and try the double-queen plan later. If you can make it succeed, as many have done, increase your Wells hives, but not otherwise. Meantime you

might peruse Mr Wells's pamphlet, to make yourself thoroughly acquainted with the method followed.

(Jan. 31, 1895). *British Bee Journal, Bee-Keepers' Record and Adviser* **23**:47-48. Bees as a hobby. [Letter 2209]. Confined to home with severe cold, my thoughts turn longingly to my now snowed-up bees. I see the white hive tops in my lower garden, sixty yards distant, but neither can I go to the bees nor can they come to me. Memory fondly reverts to the happy hours spent with them last season, and I keenly anticipate the fast coming time when ice-bound winter shall give place to genial spring, and my little friends be foraging for their first pollen from arabis, crocus, and catkin. Speed the pleasant time ! In the summer of 1890 I was bantered by friends on setting up two hives of bees. Stingy things! You will soon be sick of them! They cannot be made to pay! Such was the left-handed encouragement which did me more good than a lot of fine compliments would have done. I determined to succeed, and I did. Of course, in common with scores of fellow readers of your paper, I refer to my bee-keeping, not as to a business, but as to a small cult or hobby. Nobody expects to live on twelve or sixteen hives of bees; but, as most men are happy with a hobby, they must be happier when it can be made to pay. On p.435, November 2, 1893, I told you how I had done for that season, having taken between 5 and 6 cwt. of good honey from fourteen stocks. During the season of 1894 I obtained nearly 5 cwt. from twelve stocks. This is counting my two Wells hives as one stock each. Nearly all my honey was extracted from shallow frames, and of good quality. I bottled it all in screw-capped 1 lb. bottles, and have sold nearly all of it retail at 1s. 2d. per bottle, the remainder going at 10s. per dozen wholesale. My receipts for honey at close of 1893 were £23. 6s. 4d., and for 1894, £20. 6s. 11d. Against this I have only to set expense of bottles, carriage to local shows, &c, because I was pretty fully equipped in appliances and foundation before these two seasons set in. I showed honey and an observatory hive of bees at all our local flower shows, explained bee-life to the visitors, and sold them the honey. This created a future market, too, and many people have called upon me without my having to keep shop, for more of that nice honey they had at the show. I give these particulars chiefly as encouragement to beginners, especially those who tell us in the *Journal* sometimes, that, though they have succeeded in obtaining honey they can get no market for it, except at losing prices. I want to testify once more to the soundness of the Wells' principle in the hands of those who have once learned how to manage bees in single stocks. I think the failure will only occur where the learner attempts too much at first. My Wells' have again eclipsed any other stock in production of honey. I tried wide shallows last season, that is, eight in a box instead of ten. I got much heavier slabs of honey at less labour to the bees, no doubt; but I got them built down continuously to the frames below, as others did. This discounted some of the advantage, but advantage there was, as I soon found, when extracting. I bought no wide ends. I had a lot of ordinary WBC ends by me, so, I opened out the ends of every other one with pliers, and there you are ! Eight frames fit just where ten did before. Regarding the discussion on compulsory powers for stamping out foul brood, I quite agree therewith. I have never seen it. I don't want it. I use preventives. But if I had it I would make short work with it. I would prefer to burn the lot and start again. — Horninglow Cross, Burton-on-Trent.

(Feb. 14, 1895). *British Bee Journal, Bee-Keepers' Record and Adviser* **23**:64-65. The double-queen system. Mr Wells' reply to his critics. [Letter 2225]. In referring to Mr TF Ward, BBJ for Dec. 20, 1894, p.504, Letter 2131, I quite agree with your correspondent that 32 lb. is not a big take from one stock of bees in one year; but the point is, would he be dissatisfied with that amount if the average take of his neighbours did not amount to one-ninth part of that amount? Moreover, on what grounds does Mr W say, especially when it is considered that every particle of honey in the hive is removed. If that is his practice it certainly is not mine, for under no circumstances do I remove honey from the brood-combs unless they contain more than the bees require for winter use, in which case one or two combs are removed and stored away until some stock requires food, in which case an empty comb is removed, and the full one inserted in its place. Mr W also says, in no other way could such a large amount of wax be obtained. He falls short of the mark again, because my wax is obtained in a far better way than that suggested by your correspondent, who stumbles again by suggesting that the cost of sugar for winter stores must be deducted from the profits. How could it be profit if deductions like this had to be made? Without intending any offence, I must say it is rather begging the question to talk of larger takes than mine in some distant county. My view is that, to have any value, comparison of systems must be confined to results in one and the same county; or, better still, of same district. Your editorial footnote (for which I thank you) appears to have opened Mr W's eyes somewhat, by the tone of his second note (Letter 2166, p.8). If Mr Ward is really prejudiced against the double-queen system, I know of nothing so likely to remove his prejudice so effectually as giving the system a fair trial himself. Mr JM Hooker has been referred to by Mr W, and could tell him something about the system if he desired it. I hope your correspondent will take what I have said in the friendly spirit in which it is meant, and that we shall have the pleasure of comparing notes for many years to come. Mr J Walton (Letter 2154, p.515, vol.21) also expresses a wish to know how I obtain so large an amount of wax. Well, I cannot say whether or not this district yields more wax than others, but I manage mine as follows:— I know that for every 100 lb. of honey extracted the cappings will produce about 1½ lb. of wax; then I every year set aside a certain number of old combs to be melted down, and from every 100 of these combs I get about 15 lb. of wax. I can thus always tell within a trifle what my wax cake will weigh. In 1891 I extracted 524 lb. of honey, and melted down 110 old combs, which together yielded about 24 lb. of wax, but it being darker than usual, I have decided to send it to Mr TB Blow in exchange for foundation, &c, and I can refer any one curious enough to care for a sight of my 24-lb. cake of wax to that gentleman, who I doubt not would show it to them if it is not yet melted down. It should also be stated that I never remove more combs than actually wanted until quite the end of season, when the cappings are much thicker than earlier on, or when just sealed over. I do not think it either unfair or misleading to get the wax in this way, and put its value down as I have done, because, if I get so large an amount from the old combs, the money paid for foundation is reckoned in the expenses for the whole year. Some persons seem to contend that my figures are misleading; why, I am at a loss to say, as I try to make everything as plain as possible, and it is surely not my fault if they cannot understand. I trust that friend Wm Woodley, who is also anxious to have this wax matter explained, will

be satisfied with what I have said above. Of course he will see that I do not get it in the way that he suggests. Next, Mr Ward (Letter 2156, p.3) says that the comparison between my own results and that of my near neighbours proves nothing. I must respectfully beg to differ with him, because some of the apiaries referred to were managed by their owners with a keenness that leaves little more to be desired in the one-queen system, and some of them far older hands in the craft than myself; in fact, one of them possessed the first frame-hive I ever saw, and when I began to use frame-hives, he very kindly gave me his assistance. He not only understands bees and their requirements, but has carried away first prize in every class in which he exhibited at a BBKA meeting. Friend Woodley may say this, too, proves nothing, but I think it should go towards showing that some of the bee-keepers I have referred to do not leave their bees to do just as they like. As a matter of fact, some of them give their bees more attention than I have time to bestow upon mine. In conclusion, I would say that one thing is quite certain, namely, the two-queen ball has started rolling, and I quite believe the man is not yet born who will live to see it stop. I thank Mr JH Horn very much for his report (Letter 2172, p.15) and kind invite, and should I at any time visit his neighbourhood I will certainly seek him out. BBJ readers desiring to know anything about my wax extractor, will find it described in BBJ for December 28, 1893, p.315.—G Wells, Aylesford, Kent, January 23.

(Feb. 21, 1895). *British Bee Journal, Bee-Keepers' Record and Adviser* **23**:78. The Wells System, and Mr Wells' reply. [Letter 2235]. I entirely reciprocate the kindly sentiments expressed in Mr Wells' letter (Letter 2226, p.64); the word prejudiced, however, does not apply to me, for I have already stated that I tried the double-stock system many years ago, and have several double hives in my apiary at this time. I am not concerned to prove that this system is a failure, and I shall be glad if Mr Wells can give the same proof of its great superiority as did Mr Cowan, in 1874, at the Crystal Palace, when those grand supers of honey stamped the bar-frame hive as far superior to the skep. But in criticising Mr Wells' report I only seek to obtain information and establish truth. I have said it is an expensive, complicated, and difficult system, and I see no reason to change those views. Whoever expected to hear of 110 combs being melted down for the sake of the wax, and then crediting the same as produce of the bees in one season? I ask any fair-minded man if this is a proper reply to my remark that in no other way could such a large amount of wax be obtained. If it be stumbling, it is stumbling on truth. What I have said on this subject has been in the interest of beginners, and those who seek information and guidance; the older bee-keepers need no such advice, and if Mr Wells is satisfied with the queries and reports on the subject from time to time in our journal so am I, in proof of my contention. —TF Ward, Highgate, February 18.

(Feb. 28, 1895). *British Bee Journal, Bee-Keepers' Record and Adviser* **23**:89. Mr Wells and his critics. [Letter 2250]. In reference to your correspondent Mr T F Ward (Letter 2235, p.78). It appears to me that nothing I can write will convince Mr Ward of his errors, so I will not trouble him any further in that way. I may, however, be allowed to say that all I have in the bee line is open to his inspection at any time, and I should be most happy to explain anything or everything on the spot should he think it worth his while to visit me, where he will find the

hospitality of a friend.—G Wells, Aylesford, Kent, February 22.

(March 21, 1895). *British Bee Journal, Bee-Keepers' Record and Adviser* **23**:120. [W Burrows (Eskmeals).—Wells dummy. —

1. According to Mr Wells' description, as given in BJ for May 19, 1892, p.193, the wood used is best yellow pine, 1/8 in. thick, with holes nearly 1/8 in. diameter, and 1/2 in. apart.

2. Where surplus chambers are in two parts, the entrance connecting them should be about 5 or 6 in. long by 3/8 in. high.

3. We should put the two stocks in Wells hive as soon as weather becomes warm if they now stand in close proximity to each other.

4. Yes, thyme is a good honey plant.

(May 9, 1895). *British Bee Journal, Bee-Keepers' Record and Adviser* **23**:185.

Uniting bees in Wells hives. It is very gratifying to me to see that we have at least one lady bee-keeper (Letter 2049, p.174) who is trying what can be done with two queens in one hive, separated with the perforated division. For the information of your lady correspondent, and of any other reader requiring guidance in this direction, I may point out that there was no need whatever to scent the bees in small Wells hives before she withdrew the perforated dummy. The bees would have united without any fighting, and worked just as harmoniously together as any other single colony.—G Wells, Aylesford, Kent, May 4.

(May 30, 1895). *British Bee Journal, Bee-Keepers' Record and Adviser* **23**:218.

Queries and Replies. [Query 1281]. Managing Wells hives.—Having several Wells hives with only single-queened stocks in them, and being desirous to divide them so as to get two queens and possibly prevent swarming, I shall be glad if you would inform me whether the present queen should be retained in her present quarters, or should be put into the fresh compartment. — Richard Dutton, Witham, May 27. Reply. — Under the circumstances and season, our plan would be to super the hive now and let the stock swarm later, then hive the swarm into the empty compartment of the Wells, giving only about six frames (with foundation), and giving surplus chambers at the time to the swarm. It would, of course, work for the rest of season as a double-queened stock, if all queen-cells but one are removed after first swarm comes off.

(June 6, 1895). *British Bee Journal, Bee-Keepers' Record and Adviser* **23**:223-224.

Bee notes from Sussex. [Letter 2085]. About a month since I ventured (Letter 2069, p.185) upon a bold prophecy. We all know what an unmitigated satisfaction to human nature it is to be able to say, in others' misfortunes, There, didn't I tell you so? But when you have plunged head over ears into a rash forecast of good luck, and, to your own unbounded astonishment, come out all right, you give yourself (metaphorically) a hearty slap on the back; you say to yourself, Well done, my boy! and you feel on beaming good terms with everybody else—for the time being. The big boom has, at any rate, begun. May it continue! Though the season is late, everything connected with the bees is full of promise. Here, on the South Coast, for weeks we have been enjoying cloudless skies, day and night. The winds have been a little keen, but not enough to seriously incommode the bees in their flight after forage. All the blossoms seem to be running on in a continuous

sequence without a perceptible break. The fruit blossoms were something marvellous. The bees simply revelled amongst them, with the consequence that, with us, apples will be plentiful, gooseberries, plums, raspberries, strawberries, cherries, and currants only a little less so; and only pears seem likely to be scarce. Then have followed on lilacs, laburnums, horse-chestnuts, and now the hawthorns and elders. The flowers and red clovers have also all come on together. Only a little rain has been wanted. In the last fortnight we have had two thunderstorms, but only a cupful of rain each time; not enough to lay the dust on our roads, which are in a shocking and almost dangerous condition, the stones having worked out, and lying about loose all over the surface. In my Wells hives the bees from one side (the other being yet too weak) are building out and storing by themselves all sixteen frames of a wide spaced shallow super at a rate little short of marvellous. Today, since the little rain last evening, I can say for certain that honey is being stored in quantity. In two single hives sections are being worked out, and the bees are increasing so fast in these three hives that I shall have all I can do to keep them back from swarming just yet, although under the brood-chambers of all three I have frames with starters only after Mr Simmins' plan. The two halves of the hive I divided are doing well. One will receive its last two frames of brood foundation to-morrow, and will be supered as soon as these are covered and occupied. The other is showing a rapid increase in its population, owing to the quick hatching out [sic emerging] of the beautifully marked brood of the hybrid queen, whose introduction, after serious mischances, thus proves to have been successful. Both these lots are being carefully fed, and will give a good account of themselves presently. If we can only get some rain before the white clover begins, and then a continuance of this fine weather, I am convinced the honey yield this year will be perfectly phenomenal. Only yesterday I was called to look at a neighbour's hive, where, although one rack of sections was on, the bees were hanging out in two great clusters; and no lift or further section-rack was ready to give them relief, poor things. In the village, a swarm from a skep, after being hived, flew away yesterday when no one was on the watch, and was lost. To escape the possibility of myself losing another swarme this year, I have secured, and have just received, one of Mr Hole's most ingenious self-hivers, slightly altered, through his kindness, to meet some ideas of my own which (to me at any rate) increase its usefulness; and it will give me the greatest pleasure, both for my own sake and his, if later on I am enabled to report its usefulness and success in my hands. When space is not so valuable as it must needs be at present, there are two subjects as to which I have much sympathised with several recent writers to the BBJ and upon which I should also much like to have my little say.

1. The expense of starting even a small apiary, which I (who have kept a true account of all expenditure and receipts) find enormous.
2. And the woes of dealing with black bees, when a sting on the hand makes your arm swell to three times its normal size right up to the shoulder, and a sting in the face places you hors tie combat for quite three days afterwards! Truly, when you come to think of it, a bee-keeper is a wonderfully courageous, enthusiastic, and long-suffering being; and I am rather inclined to believe must be, like the poet, born and not made. — WRN, Sussex, May 31, 1895.

(June 13, 1895). *British Bee Journal, Bee-Keepers' Record and Adviser* **23**:233-

234. A cooperative hive. Some questions about queen-rearing. [Letter 2090]. So much has been already written on the system of keeping several queens in one hive, that it is with some hesitation that I venture to add to the literature of the subject. I have kept bees for nearly fifteen years in almost all sorts of hives, and until recently have been strongly impressed with the advantages of comparatively small, manageable hives, say, ten bars, which could be tiered up to any required strength. Most of my experience has, however, been in a large garden of nearly 3 acres, where, for a matter of thirty hives, space was no object. Having now only a very small strip of garden to devote to bees, it seems to me that any form of economising space is an advantage to bee-keepers similarly situated, and therefore last year I determined to try Wells' system with ordinary combination hives, having an entrance cut at the back; and it seems to me that, while admitting the trouble of manipulation with large fixed hives, the system might, in certain circumstances, be not only useful but capable of extension. I intend if possible this summer to fit up and stock such a large compound hive, say 6 ft. by 2 ft., holding perhaps half a dozen colonies. It seems to me that such a hive would be useful where space is limited, and that also the danger of robbing would be minimised, as probably all the bees in such a hive, whatever entrance they might happen to use, would incline to treat the hive as common property, and not attempt to rob except from another hive. This can, of course, only be decided by experiment. I hope to get over the difficulties of queen-mating by having a few entrances at the back, which can be used for nuclei. Apart from this, however, it seems that the Wells system, as ordinarily practised, has the advantage of readily allowing us to save an extra queen or two in autumn to make up any losses in the spring, and also that it has a considerable bearing on the kind of race and style of queen it is desirable to rear. The only objection to which I attach any weight which has been urged against natives is that the queens are less prolific than those of other races. As to their ceasing to store honey sooner in the year, I think that the fact that they generally do well at the heather shows that where honey is to be had they will store it. But by having two queens in a hive, each laying, we have much the same effect as having one queen of twice the prolificacy. Or, in other words, while securing a large brood nest, taken as a whole, we yet reserve to each queen a fairly contracted brood nest, and if we adopt narrow spacing, and say seven or eight bars to each queen, my experience is that we get these frames a dense mass of brood, that the bees take readily to the supers, and that little or no honey is found in the brood-nest. At the same time the queen is not overtaxed in any way. No special stimulation, except feeding in bad weather, is necessary, and the queens should be available for at least two or three seasons, instead of being worn out in one, as is the case when heavy and continuous breeding is required on the part of the queen, so that the expense of queen raising is very much reduced. It would therefore appear that in rearing queens for working on the Wells system, longevity, hardiness, and honey-getting qualities should be sought, while great fertility on the part of the queen is of secondary importance, although, of course, that should also be secured if possible, though not at the expense of the other points mentioned. And now a word or two as to securing the race of queens we require. Your correspondent, Mr Brice, in BJ of May 30 (p.214), regrets that the discussion on heredity (by which, presumably, he means Mr Grimshaw's letter and my reply thereto), has been allowed to drop. I should be much interested in hearing his own views on the subject, and, doubtless, many

other bee-keepers would be glad to hear them also. I should also like to ask a few questions with regard to Mr Brice's articles on queen rearing which appeared last autumn, and which I read with great interest. As I have not the back numbers of the BBJ by me, while writing this, I may be pardoned if I quote him incorrectly, or have misunderstood some of his remarks. In the first place, why does he consider it necessary that to produce fine queens there must be a fertile mother present in the hive where they are reared? I have not found this to be the case practically, and theoretically one would expect that queenless bees would, in their effort to obtain a queen, devote all their energies to that purpose. All that I have found necessary is to secure a strong colony, with plenty of young hatching [emerging] bees, little or no unsealed brood to feed, and eggs to start from. Secondly, if I remember rightly—but I am not sure about this — Mr Brice concludes that when rearing a queen in the ordinary course of nature, the bees do not first make a queen cup in which the egg is laid, but that the queen cups found on combs are utilised for this purpose ; but, on the contrary, the bees construct a queen cell round a larva already hatched. Remembering the distinction which the late Mr Cheshire draws in his admirable work (Vol. 2) between a normal and what he terms an emergency queen cell, and the diagram of former with egg in position at base of cell, I felt doubtful of this, as such a careful worker as Mr Cheshire would hardly be likely to draw on his imagination in such a matter, but still, until this morning, I had no personal proof of the contrary. Today, I was removing a comb of brood from a strong stock to make room for a sheet of foundation to supply eggs for queen-raising. The comb removed was a new white one, worked out from foundation a few weeks before containing capped brood, and in the centre of comb I noticed two open queen cells. On inverting the comb to look in I saw in the base of each an egg evidently deposited in the cell for the express purpose of raising a queen. I removed frame to another stock, and shall see whether they continue the work already begun for them. — MC Clutterbuck.

(June 13, 1895. *British Bee Journal, Bee-Keepers' Record and Adviser* **23**:237. [Query 1293]. Swarms. — How should frames hang.—

1. Will bees swarm before queen-cells are formed, providing that the hive is very crowded with bees, but with no drones flying.

2. What are the advantages in having the frames hanging at right angles to the entrance over having them the other way?

3. What distance should the combs be from the perforated dummy in a Wells' hive?

4. In putting sections on a swarm that came off on May 29, and were hived in a skep, will it be necessary to have queen-excluder between skep and section ?

5. Would the old bees from a skep go into a frame-hive if I was to move the skep away after swarming and put a frame hive in its place? —W Barrows, Eskmeals.

ps—Is it not very strange I cannot get my BBJ on a Saturday? The agent here from whom I get it says that the people who supply him say that it is not to hand in time for Saturday's parcel, and I am always in a great hurry for it. It is a grand paper. Reply.—

1. Bees will not swarm naturally unless there are queen-cells in the hive tenanted with embryo queens.

2. Among other advantages it is considered to be better for ventilation that frames be hung at right angles to entrance. It also avoids the risk in winter of a seam of

bees perishing and their dead bodies blocking up the entrance way after dropping from between the combs.

3. Half an inch.

4. It is not imperatively necessary to use excluder zinc below sections, either with skeps or frame hives.

5. You cannot make an artificial swarm of flying bees secured in the manner stated. The bees must first be driven from the skep in the usual way.

Referring to difficulty in getting BJ, the paper is delivered in London to wholesale agents on Wednesday afternoon. We cannot account for your not getting it till Saturday.

(June 20, 1895). *British Bee Journal, Bee-Keepers' Record and Adviser* **23**:247.

[Letter 1297]. Lazy bees and swarms. — Bee stings for rheumatism.—

1. Into one compartment of a Wells hive this week I put a strong swarm on wired foundation. They started work next day, having taken down 2 lb. syrup the night before. In the other half of the hive I had a pretty strong stock, but all spring they were sluggish and lazy until the new arrival in the next compartment, and now they are working like niggers. Is this usual, and if so, is it due to pride, prejudice, or emulation?

2. Why do humble bees patronise flowers (particularly those of N. order, Labiatae and Scrophulariaceae), which the honey hive bee does not frequently visit?

3. The next case of very painful chronic rheumatism I have to treat, I propose using bee stings from three bees. How may I best apply them, say, to the knee joint?

4. Does the sting contain anything besides formic acid?

5. Should cracked hive tops be first painted before cracks are filled in, and would you putty or white-lead the cracks? —B Walker, Kirkby-Stephen, June 17.

Reply.—

1. Emulation, we hope, was the moving cause, induced by the buzz of active work going on next door. By the way, Mr Wells will be claiming this as one more point in favour of his hive.

2. Different varieties of bees select flowers wherein the position of the nectary is fitted to the organs with which the insect gathers its food. Thus, the humble bee works on many flowers whose nectaries are entirely beyond the reach of the tongue of the hive-bee.

3. The sting must be inserted by the bee itself, and the operation managed thus:—Take a worker bee gently by its wings, and place it—in natural standing position—on the surface of the knee-joint; a little downward pressure will cause the bee to at once insert its sting; hold it so for a few seconds, to give time for the injection of a full supply of the sting contents; then let the bee release itself, minus its sting. Repeat the operation with as many bees as required. A practical bee-man would, without any hesitation, illustrate the modus on himself, so there is nothing difficult about it.

4. The sting-poison is a secretion of the blood of the bee, formic acid being the active agent.

5. Give a coat of paint before using the putty, or else fill up cracks with plenty of white-lead, before the painting.

(Sept. 12, 1895). *British Bee Journal, Bee-Keepers' Record and Adviser* **23**:370.

WS Brothers (Dewsbury). — Making bee syrup.— Earwigs in hives. —

1. As we reminded ABT, on p.360, one pint of water should be added to each 2 lb. of sugar in making bee-food for autumn use. That proportion makes the syrup quite thick enough.
2. Powdered naphthaline sprinkled about quilts and coverings will keep earwigs from harbouring there.
3. Queen excluder zinc is not suitable for a Wells dummy.
4. It has been proved in practice that two compartments are quite sufficient for a Wells hive, and that any number beyond two only increases the risks of failure.
5. A slow-feeder must be so made that bees can only get at the food through a very few very small holes. To allow a single bee-way to a rapid feeder would in no sense make a slow feeder of it, seeing that a continuous file of bees might be passing in and out.

(Sept. 26, 1895). *British Bee Journal, Bee-Keepers' Record and Adviser* **23**:390. Jacques (Dorset). Perforated dividers for Wells hive. — The use of perforated metal for dividers tends to defeat the object Mr Wells has in view—viz to induce the bees of both compartments to form one continuous cluster. Very thin wood is the best material for this purpose; metal—by reason of its coldness in winter—the worst. It is, we think, advisable, for all who work bees on Mr Wells's plan to procure his pamphlet on the double-queen system, which may be had direct from the author for a few pence.

(Oct. 10, 1895). *British Bee Journal, Bee-Keepers' Record and Adviser* **23**:407. [Letter 1390]. Experience with a Wells Hive — I have had a very curious experience with a Wells hive. About a fortnight ago I found all the bees were on the one side of the division board. I took it for granted that one of the queens was dead, but on examination I found the two queens in the same broodnest on neighbouring combs. As the bees were very strong. I put the queen (injudiciously as it turned out), which was nearest the division board in the empty compartment of the hive with her quota of brood and bees. Next day I found all the bees had joined her and were on the same side, but I could only find one queen. Making a more careful search the following day I could find no queen at all. On examining the hive today, after an absence from home, I have found a queen cell sealed up, and three or four drone cells with raised seals, but rather small, and a little worker brood, probably near hatching [emerging]. There can be, I suppose, no doubt that the hive is queenless. Do you think it possible for the bees to raise a fertile queen, and would you advise me to allow them to try, or should I, whilst there is yet time, unite to adjoining stocks?—TBG. Reply.—By all means unite the bees to another stock, unless you can procure a fertile queen to give them. It is quite useless attempting to raise queens at this late season.

(Dec. 12, 1895). *British Bee Journal, Bee-Keepers' Record and Adviser* **23**:501. A cottager's bee-keeping. A good harvest in 1895. [Letter 2326]. With your kind permission I will give you my experience as a cottager bee-keeper at Newmarket. I began ten years ago by securing a stray swarm, which I put into a straw skep. Having told a friend that I had got a swarm of bees, he persuaded me to adopt the bar-frame hive, which I first did in the year following, although, at the same time, I regarded my friend's account as to the large takes of honey got from frame-hives

as a bit of romancing, or something of a fairy tale. I am pleased to say, however, that I have exceeded the estimates there given many times. My apiary stands in the centre of some large stud-paddocks used for breeding race-horses. These paddocks are hugely laid down with white clover, which is the chief source of our honey supply. We have also some lime trees and sainfoin, but no heather. My take of honey in 1893 was 11 cwt., or 1232 lb. of honey, from fifteen hives. This year I have taken 2096 lb. from twenty-three hives, spring count. Two of the above gave me 150 lb. each, and a Wells hive yielded 300 lb. The lowest take from one stock was 50 lb. From a swarm which issued on June 6 I got sixty perfect sections. I have sold all my honey locally with the exception of 500 lb., and this I advertised for sale in the PJ, which soon found me a customer for same. I think it very encouraging to have a good yield of honey and a good Bale at a fair price, and cannot understand people not being able to sell their produce. I make all my own hive; in my spare time ; being a postman I come under the eight-hours- a-day system, so I have sufficient time to do this work in. I am a strong believer in Mr Wm Woodley's plan of exercising strict economy in the management of my apiary and have profited in various ways by reading his notes by the way. — Charles Carter, Gwynne Apiary, Newmarket, December 7.

(Dec. 12, 1895). *British Bee Journal, Bee-Keepers' Record and Adviser* **23**:501-502. Wells hives. My experience of the Wells System and of queen raising. [Letter 2327]. I have been looking for Mr Wells's annual account of his bee doings for 1895; but, though so far it has not appeared, I hope it will not fail us. For myself, I bought a Wells hive in May, 1893, and about the same time I put two swarms into another big hive, and managed it on same principle, so that I have worked the double-queened hives according to Mr Wells's directions so far as I could, but have not succeeded in making one Wells show better, or even as good, results as two single-queened hives. I put the bees of two strong single stocks into the Wells hive referred to above early in June, '93, and immediately put on a surplus chamber filled with frames of foundation and partly worked out combs. The bees took possession directly, and swarmed in the course of a week. I removed the two queens, and put the swarms back, after cutting out the surplus queen-cells. The bees did not swarm again, but worked away pretty well in the super, and gave a fair return of honey, though not so good in proportion as my single hives. Towards the close of the season I observed that the bees were using only one entrance, and so, fearing something wrong, I lifted off the super, and found one compartment queenless, and nearly beeless, and so ended 1893. In the spring of '94 I transferred the bees from a single hive into the empty end, and from the doubled stock of the above hive in that year got eighteen standard frames well filled with honey, and a second lot of drawn out combs, and a few pounds of honey in them. The bees did not swarm, and went into winter quarters for 1894-5 with a fair amount of natural stores. In the spring of 1895, though both lots were clustered against I he dummy-board, neither of the queens commenced to lay early or fast— perhaps the hard winter might account for this — and when the two compartments of the Wells hive had brood on seven combs and five combs respectively, in my best two single stocks examined on same day I found brood on nine combs in one and eight combs in the other. At the close of the honey season my Wells hive had one tier of standard combs about three parts filled with honey, while from two single-queened hives worked for the extractor I got from one a tier

of combs well filled and sealed (several weighing 7 lb. and 8 lb.); the other yielded one tier well tilled, and a second with about 20 lb. in it. My Wells swarmed early in June. I removed both queens, and put bees back; but they swarmed again in ten or twelve days, and clustered in two portions. I gave one lot to a friend, and returned the other, after cutting out queen-cells. After a time I found east end of the Wells again queenless. The two entrances are not far apart, though there is an outside dividing-board between them, and I suppose both queens entered the same compartment after mating. The friend to whom I gave the swarm has had a Wells hive working for two seasons, and his experience has been very like mine. Last year his hive swarmed, and one end became queenless. He took the remaining bees out of it, and this last summer furnished it with two swarms, the second of which was added a fortnight after the first one. The queen of the first lot was laying well, brood showing on several combs when the second swarm was put into the other compartment. On examining both divisions some days after neither eggs nor young brood was found in either. We concluded that the queen of second lot had gone to the wrong entrance when returning from her mating trip and had killed the laying queen. Curiously enough, my friend found eggs in both compartments after a time, but being convinced that the first queen was killed — and having observed that a good proportion of her now hatching progeny were marked like Italians—he waited with interest for the hatching out of the later lot of brood, and sure enough they were all blacks, thus confirming our impression. Now, we saw three queens go in with the last-named swarm, which was got from me, and, if we are right in our premises, the bees must have kept two of the queens alive for a time, and when returning from her mating flight one had found its way to the wrong entrance and been killed!

Queen raising.—If space allows I would like to describe my attempt at queen-raising. I got an Italian queen about mid-July this year, and on observing, at nearly the end of August, a lot of drones in the hive to which I had introduced her, I determined to try the business, proceeding as follows: —I removed the queen with two combs of brood and adhering bees, leaving other four or five combs with brood on them on the parent hive. The bees built five queen-cells, two of which were on a comb half full of drone brood. On examining the hive some days afterwards, I could only find two of the five cells, one (unsealed) on the face of the drone comb, the other (which was capped over) on another comb. About eight days later I looked again, and found neither cell hatched out. I put a queen cage over the latest sealed one, and covered all up again. Next day, finding the first sealed cell hatched, I searched for and caught the young queen, putting her in a nucleus hive from which I had recently taken the queen. I then took away cage from the other queen-cell, leaving the hive undisturbed for two or three days, when I examined and found the cell still sealed over. Thinking there must be something wrong, I gently uncapped the cell with my penknife and found in it a big white drone ! It was a properly formed queen-cell, and as there were worker eggs and brood in plenty, why did the bees build the cell round a drone egg? The hive was now queenless, so I took the young queen from the nucleus and re-transferred her to her mother hive. Unfortunately, however, she was still unmated, and, after flying out next day to meet the drones, she went back to the nucleus where I left her until she became fertilised. Meantime, the bees in stock hive were killing their drones. Being, therefore, uncertain as to whether they might not have another queen, I gave them a comb with eggs and brood. In a few

days queen-cells were found, and so, thinking I had better put my old queen back into the hive, I caged her for half an hour then I let her run in, and next day found her lying dead on the flight-board, through my forgetting to destroy queen-cells ! After doing so, I introduced the young queen, her daughter, and the bees took to her all right. I saw her fly several times from the nucleus hive, and during the warm Week we had in September I saw her fly in with the marks of fertilisation on her, and, after a few days she commenced to lay, but the cold coming on soon stopped her. —DM Aluth, Perthshire. December 4.

(Dec. 19, 1895). *British Bee Journal, Bee-Keepers' Record and Adviser* **23**:515-516. Mr Wells' report for 1895. [Letter 2340]. It is just twelve months since my report for 1894 appeared in BJ and I am again late in sending a brief account of my bee doings for 1895. The causes of delay are devoid of interest, and so I will proceed with events concerning the bees. In the autumn of '94 I decided to work only seven hives this year, six of them were packed, for the winter of '94-5, well stocked with bees and stores, and, of course, two queens in each. The seventh hive— holding twenty frames —had in it four queens and four lots of driven bees of a very fine strain, all of which queens I wished to save in the event of contingencies during the winter. These driven lots were each placed on three frames of comb, the two centre lots well supplied with stores; the two outside lots were, however, sparsely furnished with food, so I decided to help them out with a cake of soft candy. This I duly made, but, owing to after-events, not necessary to explain, was never given to the bees until too late to be of service; for one day at end of February this year, on examining the hive to see the cause of the quietude of its two outside compartments, I found that the candy had never been given, and the poor bees had died of famine! My other fourteen (preens were, however, safe, with plenty of bees for the time of year, and, strange to say, the two driven lots proved my best stocks this season, yielding me 231 lb. of extracted honey. My hives were strong in bees and all were supered for the fruit bloom, but the unfavourable weather prevented much storing in surplus chambers, though the bees increased rapidly in numbers. Beyond giving surplus chambers to avoid overcrowding, the bad weather took away much of my interest in the bees, but as in some hives they did not increase as usual, and the end of May had come, I took off the supers in order to examine brood nests, and found that five of the seven hives were more or less affected with foul brood! I at once set about doing my best to cure them, and by the 10th of July not a single bad cell of brood was to be seen. The previously affected stocks afterwards storing quite a nice lot of honey. At close of the season I had taken in all 685 lb. of extracted honey and 39 lb. in sections. I kept no account of the surplus yielded by my second best hive, which was not diseased, but I estimate it at 200 lb. extracted honey, and 24 lb. in sections, the remainder being got from the best lot referred to and the five foul-broody hives. I feel that few can conceive the amount of trouble this disease has caused me in various ways. The large number of store combs I had on hand could not be again used and so it became necessary to melt down all in the least doubtful. This has made my take of wax this year weigh no less than 85 lb. I thought to have been able to report a complete cure of foul brood among my bees, but when packing for winter I found two hives still slightly affected. I therefore defer further remarks till the spring of '96, when I hope to write you again. My financial position with the bees for 1895 is as follows:

85 lb. extracted honey at 7d. ..	£19	19	7
39 1-lb. sections honey at 10d... ..	1	12	6
85 lb. wax at 1s. 4d.	5	13	4
	<hr/>		
Total	£27	5	5
Deduct total expenditure during the season	4	1	9
	<hr/>		
Balance for labour ..	£23	3	8

The very large amount of wax this year is, of course, accounted for by the melting down of so many stock-combs; but any readers who may doubt the weight of my wax-cake for '95 can have ocular demonstration of its weight, as it is still in my possession, and will be for some time, unless I can get a better bid for it than my present highest, viz, 1s. 4d. per lb. Some readers may wonder why I reduce my stocks, if bee-keeping pays me so well. My answer is (1), nearly the whole of my time is now taken up with my ordinary business, which is quite apart from the bees; (2) My two sons, who formerly did between them the largest part of the labour of the apiary, are now away in South Africa, and so more of the work falls upon myself; (3) Seven hives well managed pay far better than fourteen badly attended to, and so the proportion per hive is much higher, and the labour, consequently, less in comparison. My district being a poor one for honey, compared with some others in Kent, and the bees having to go long distances for it after the first week in July, I may say they get a good deal from plants which I grow for them on such waste lands as rough banks and hollows about here. Some are also grown in my garden, among which may be named the white melistus — a splendid honey plant, growing anywhere almost—the seed of which was sent to me several years ago by our esteemed editors; I shall be very pleased to send a few seeds to any one forwarding me a stamped and addressed envelope. The Chapman honey plant which I grow is another good plant for honey; I will also send free seeds of that. Borage also is good, but does not transplant well. I must apologise for taking up so much space, but if I am spared until another year I hope to be able to report a mastery over foul brood; it has, however, cost me something by way of labour, and not a little for the stuff used. Hoping that few bee-keepers will ever have a similar experience of this disease to mine of 1895.—
G Wells, Aylesford, Kent, December 11, 1895.

(Dec. 19, 1895). *British Bee Journal, Bee-Keepers' Record and Adviser* **23**:516-517. Bee notes from Sussex. [Letter 2341]. Being at last in a position to give a correct summary of the results of my bee-keeping for 1895, I do so as an encouragement to any who may be placed in the same position as I have found myself—that is, be obliged to puzzle out everything about their bees, whether theoretical or practical, for themselves, from books, or the invaluable and ever-welcome BBJ and Record, without ever having been able to see a bee, skep, or hive handled by another, or to obtain any help from a brother bee-keeper in the management of their favourites. I began the season this year with five colonies. Nos.1 and 2 were strong. No.3 was a single colony in a Wells hive, with access to both sides. Nos.5 and 6 were weak halves of one original hive, divided in mid April to preserve a fine Ligurian and English hybrid queen, refused by the queenless side of the Wells hive, all the bees of which concentrated ultimately on the other side. All except No.5 were black bees—I believe, of pure race. On the memorable swarming day, Saturday, June 11, two enormous swarms issued from Nos.2 and 3 (Wells). Returning home in the evening, I found the lad I employ had cleverly secured these—which had settled accommodately in a neighbouring

field—in skeps; and by working hard and late, we hived them as best we could. Next (Sunday) morning they simultaneously came out again about 10.30, Hew clean away, and were utterly lost. I have strong reason to believe I also lost a swarm from No.4 at some unknown time. I prevented swarming in No.1 by using one of Hole's swarm-catchers. So far as I am aware, no swarming was even attempted; and the yield of honey was the largest from any of my hives, except the Wells. Too late, I put another swarm catcher on the occupied side of No.3 (Wells). In the end, I found both stocks queenless; and being compelled to go abroad for a month's holiday before I could requeen them, I lost them both. Just before leaving, however, at end of July, I managed to divide No.4, having divided No.2 earlier. In mid-October I distributed four skeps of driven bees between the two sides of the now empty Wells hive; hived another strong skepfull in a single hive — I had previously hived a stray cast —later I bought another hive and stock; and thus I start for a fresh season with nine stocks and queens. With all these adventures and misadventures the honey yield has been as follows — premising that I commenced with no built-out super combs, but with about forty more or less built-out sections:—

The sections were magnificent, averaging, I should think, quite 17 oz., many being over 18 oz., and even reaching 19 oz. in weight. So I have no hesitation in calling them each 1 lb. I had no difficulty in disposing of sections and honey at 10d. per section and 10d. per lb. This further simplifies accounts. My bill therefore stands as follows:

No.	Description	1-lb. sections.	Extracted lbs.	Total lbs.
1.	Single : blacks	63	18	81
2.	„	30	23	53
3.	Wells : „ (1 stock)	—	115	115
4.	Single : „	8	5	13
5.	„ : hybrids	—	18	18
Total lbs.		101	179	280

	£	s.	d.
280 lb. honey at 10d.	11	13	4
2½ lb. wax at 1s. 6d.		3	9
30 built-out sections, say at 2d.		5	0
50 super (wide) and brood combs at 6d.	1	5	0
Total	£13	7	1

I sold all I cared to part with—about two thirds of the above honey, and the wax—to one firm, who have offered to take all I can produce next year; so I presume they are satisfied, as I am. If all those who forward reports of their takes would do so in the form I have tried to follow out—viz tell us what stock of built out comb³ and sections they start with, and what remains to them after melting down for wax at the end of the season, I suspect comparisons would be more fair, and possibly less startling, than they now sometimes are. Next week I will furnish some notes on the action of Hole's swarm-catchers. I will only now add that of the above, 40 lb. extracted honey was yielded in August, after I had begun taking off supers in view of my holiday—viz 8 lb. from No.1; 18 lb. No.2; 5 lb., No.4; and 18 lb., No.5. Had I left on more supers I believe I should have obtained much more, as on my return in September all the hives were plentifully stored for the winter,

except one of the smaller halves of a divided hive, since fed up. I have apportioned the yield to the various hives as best I can; but it is only rough, as unfinished sections were shifted from hive to hive to fill up crates and ensure capping over. No.1. and the half-tenanted Wells hive, both of which had on Hole's swarm-catchers, did best, but I lost the queens, and eventually the stocks, in both instances. No.2 I divided early in June. No.4 was but a weak half-hive by June, and suffered from further division early in August. No.5 (the hybrids) refused to go into a section rack all the summer; did not swarm (so far as I know), but built out and fairly filled a lift of full-foundation wide-spaced combs in August, as did No.1, after all the section racks above had been taken off at end of July. It is easy to be wise after the event, and doubtless I ought to have done better; but even with all my mishaps and bad luck the outcome is sufficiently satisfactory to induce me to hope that I may do proportionately better next year by virtue of the very experience I have thus gained. —WRN, Sussex, December 14, 1895.

(Jan. 2, 1896). *British Bee Journal, Bee-Keepers' Record and Adviser* **24:6**. Mr Wells' report for 1895. [Letter 2358]. The recent publication of what may be called Mr Wells' annual report will doubtless revive the controversy never altogether at rest—if we may judge from the very general discussion on the subject—as to the value of double-queened hives. Unless I am greatly mistaken, one of the main advantages claimed for the principle is the comparative safety with which hives containing twin stocks will pass the winter, owing to diminished consumption of stores and the resulting earlier date at which the stocks are in prime order for the work of the opening year. Curiously enough some natural history literature that has recently come into my hands points to the fact that this very claim in favour of double and treble colonies was made as early as the thirteenth year of the present century, and then proved by exhaustive experiments to be based upon a sound foundation, although Sir William Jardine, writing in 1850 on the subject, takes occasion to doubt—as do many bee-keepers with whom I have come in contact—the possibility of a double colony of bees consuming no more stores, or even less stores, than a single stock. Facts are, however, stubborn things, and I see no reason why we should doubt the record of M Galieu, a Swiss clergyman, author of *Le Conservateur des Abeilles*. After expressing his wonder that such an apparent impossibility should exist, as the consumption by 20,000 bees of no more weight of stores than that by 10,000 bees, M Calieu gives a table of the loss of weight of thirty-six hives under experiment from September 20, 1813, to March 31, 1814. The greatest loss in weight was equal to 19 lb. and the least loss to 8 lb., but of the thirty-six hives, the doubled stocks (or trebled in some instances) of which there were six, all stand at the foot of the list as regards loss of weight, and none are so high as the average consumption of all the hives. These hives were not, of course, doubly queened, but as the argument is in favour of uniting very freely in the autumn, to gain enormous stocks for successful wintering, it should give pause to some of those gentlemen who have failed to find out this conspicuous advantage in the Wells system.—JW Jacomb - Hood, The Avenue, Surbiton. December 29.

(Jan. 9, 1896). *British Bee Journal, Bee-Keepers' Record and Adviser* **24:16-17**. Bee-keeping statistics. [Letter 2373]. I was much interested by a paragraph in last week's *Journal* occurring in Mr Taylor's article Still more chestnuts (p.4), in which

he dealt with the matter of statistics connected with apiculture. I quite agree with him as to the usefulness of this information. Statistics showing the position and progress of any art or craft, cannot fail to prove of great value to those interested, and the fuller in detail the more useful, manifestly. It was with much surprise I learned from the article mentioned that such statistics are not published by the Board of Agriculture, in view of the fact that in England the bee-keeping industry is fast becoming an important one, whilst in Ireland, where it is but a small item, comparatively, the fullest details are published. Statistics of bee-keeping in this country are required by the Board of Agriculture, and are furnished (which may not be generally known) by that efficient body the Royal Irish Constabulary; a constable in every district throughout the country being appointed in turn each summer to take the agricultural statistics, and apiculture—being a kindred branch of the same and apparently considered of importance—is also dealt with in detail. It is a regrettable fact that the bee-industry in this country does not prove a more lucrative one, especially just now, when the inhabitants are suffering so much from agricultural depression, but unfortunately one of the main causes of the failure—climate—in the one all-important industry would prove a hindrance to success to any great extent in the other. Indeed my humble experience which, although practical, extends over but a few years, has brought me to the conclusion that the uncertainties of our climate is the one great barrier to a marked success here; all other conditions but those which are due to nature we can alter by some means or other of course. However, grumbling at the unalterable laws of nature will not benefit the cause of our craft, or any other, it is clear; nevertheless, many of us feel betimes a spirit of discontent rising within us when we ponder over all the energies of mind and body expended on a project rendered fruitless, almost, owing to the influence of one factor over which we can have no control. From accounts published from time to time in the *Bee Journal*, it seems clear that climatic conditions are much more favourable to bee-keeping in England, and notably in the south—though climate brings disappointment there, too, at times — than they are in this country, where the truest white or Dutch clover is often valueless to our little labourers, owing to wet or cool summer days and nights. I read with much interest the reports furnished by your correspondents of their bee-doings, and am indeed amazed at the amount of surplus which has been taken in some instances, particularly in Mr Wells's case, and in that of others following his system, the amount of wax taken by Mr Wells appears to me to be even more remarkable than his honey produce ; and the very small item of expenditure—especially last season's £4 1s. 9d.—employed by him is also very surprising. Indeed, I think the fact that such results are attainable in our British climate, where the summers are short and cool comparatively, speaks volumes for the systems and management in vogue, and I trust our Editors may often be enabled to publish such gratifying reports, as they must be a stimulus to many of us in the ranks, and serve to raise enthusiasm in our cause. I trust I have not trespassed too much upon your valuable space—that is, provided you consider the above worth placing before your readers, in which case I might find time occasionally to send other small contributions to our *Journal*. Wishing all bee-keepers a Prosperous New Year. — Sea Bee, Co Louth, January 4, 1896.

(Jan. 9, 1896). *British Bee Journal, Bee-Keepers' Record and Adviser* **24**:20. [Letter 1409]. Transferring bees. Wells dummy shallow-frames for extracting. —

1. What would be the best month to put two strong skeps of bees on a Wells hive for working down into the latter?
2. Does a Wells perforated dummy require the same thickness all round as a standard frame, viz 7/8 in. wide? Would a perforated board 1/2 in. thick fixed in centre of brood chamber answer as well 1
3. Would perforated zinc do harm to bees; if so, what harm?
4. What are the advantages of shallow-frames for extracting ? Would not standard frames answer better if wired? — EG Parsons, Stoke Golding.

Reply.—

1. End of April if bees are so numerous as to fairly well fill the skeps.
2. The Wells perforated dummy is made 1/8 thick, not 7/8.
3. Zinc is harmful for use in hives during winter, because of probable oxidisation of the metal through moisture.
4. It would occupy too much space to detail what we consider the advantages of shallow-frames for storing surplus, but that they are advantageous is generally admitted.

(Jan. 16, 1896). *British Bee Journal, Bee-Keepers' Record and Adviser* **24:23**.

Notes by the Way. [Letter 2377]. The weather continues open and mild, quite in contrast to last January. The barometer has nearly touched 31 in. during the last few days, but the dull foggy weather has kept the bees quiet, and we have seen but few out since the 31st December, when the apiary was in a merry hum with thousands of bees on the wing. I removed covers of hives, spread out the wraps for an airing, and even transferred a few frames of food from the over-stocked to those getting short of stores, and so saved candy for the present. I am always glad to read the encouraging reports of our bee-keeping friends, but we seldom find anything debited for time spent in producing these favourable results. Exceptions occur, of course, but generally speaking—and to most people—time is money. Those who have spare time are, I suppose, entitled to represent their gross profits on the year's working of their apiaries, but those not so situated ought certainly to charge the value of the time to the debit account. Then the item wax is often credited at full market value; possibly the bulk of it may have been foundation made from the bee-keeper's own wax in previous years; if so, the weight of foundation used in making the combs ought to be deducted from the cake of wax. While on the subject of wax, I may add there are few of us who can ever hope to equal that cake of wax mentioned on p.516 of BJ for '95 by our friend Mr Wells. I myself must own that either my method of extraction, or the wax-secreting proclivities of my bees, are sadly deficient, as I imagine that by melting up the combs in fifty of my hives, I should not get 85 lb. of wax from the whole! How Mr Wells does it, and where the wax comes from, is a mystery to me. In saying this, however, I in nowise cast a doubt on Mr Wells' figures. A good device for outdoor feeding is given in the *Bee-keepers' Review* (American). One cask to hold the syrup, which is allowed to drip from a tap into an inclined shallow trough, and the bees feed from this trough. Then at the other end of trough is another cask into which any surplus syrup not cleared up by the bees may run ; this receptacle being covered with wire-cloth to prevent bees getting drowned. The writer suggests that medicated syrup could be given to the bees by this method—in fact, to all the bees in the vicinity. Some of our readers desire to prevent swarming, and are eager for any wrinkle that will help them in that line, while others are

anxious to get early swarms. The first-named are evidently fully stocked with hives, while the latter desire increase. Now I well remember Mr Simmins' articles advocating comb-building below—or with combination hives in front, of the brood-nest. I tried this plan at the time with some hive?, but it did not succeed in my case, as about 75 per cent, of the hives on which the system was tried swarmed that season, consequently I have not troubled to give it a second trial. During the last two or three seasons I have not had more swarms than I required. Nor do I lose swarms from the fact of my home apiary being under constant supervision the season through, and a watcher for swarms being employed at my out-apiary. I have no wish to entirely prevent swarming myself, though by judicious management swarming may be reduced to a minimum, as most practical bee-keepers know. Those who want early swarms should gain first an accurate knowledge of the bee flora of their district. Some districts are provided with early forage, while places not far distant may be a week or a fortnight later ; then the early swarm sent to the early district would do well, whereas the early swarm sent to a later district, so far as pasturage, would not make progress, and by the time the honey flow came on many of the bees constituting the swarm would have died off or been lost in foraging, thus the depleted population would store honey less rapidly than if income had started immediately on their arrival. Therefore I consider it lost labour to feed stocks and incite the bees to early breeding, except for early districts. — W Woodley, Beedon, Newbury.

(Jan. 23, 1896). *British Bee Journal, Bee-Keepers' Record and Adviser* **24:36**. Mr G Wells's wax cake for 1895. [Letter 2392]. My offer of bee-seeds and plants free (on p.516 of BJ for December 26) brought me so many applications that I could not fill orders so fast as some desired, but my stock is not yet run out, so all will be supplied in time. I have also received many letters expressing sympathy for me in my foul brood trouble, and in here thanking the writers, hope I shall soon be able to tell them how I have rid my bees of the disease. In Letter 2377 (p.23), our friend, Mr Woodley, refers to my cake of beeswax for 1895, and is apparently mystified as to how I got it. Well, in a previous number of BBJ I gave full particulars of my wax extractor, and its use by myself. Reference to the same will save my repeating the information then given. I hope it will be enough to say that I gave the weight correctly, and I will gladly give the dimensions if that will help in any way to understand it. The cake is 27 in. long, 17 in. wide, and 6 in. deep, and, as I have said, I shall be very pleased to show it to any one who might wish to see it. —G Wells, Aylesford, Kent, January 20, 1896.

(Feb. 20, 1896). *British Bee Journal, Bee-Keepers' Record and Adviser* **24:76**. The Wells System. My experience with it in 1895. [Letter 2422]. For the benefit of my brother bee-keepers who may have tried the Wells system and failed with it, as I did myself on the first trial, I would like to say how I at last got hold of the secret of making it a success. Well, I may be said to have followed the example of the great artist who, when asked what he mixed with his colours to make his paintings so successful, replied brains. In this way I brought all I possessed of intelligent common sense to bear upon my management as I gained experience of the system. I feel quite sure Mr Wells never intended that two strong stocks should be put in one hive to work side by side in one super. The system was devised to enable the bee-keeper to get the benefit of cooperation between two

weak stocks, so that between them a harvest could be secured. We know that stocks which have from various causes—other than disease—dwindled down in winter, are generally useless as surplus gatherers the following season because of not getting strong enough till the honey-flow was over. Now this is where the Wells system comes in to aid the bee-keeper. In my case I had in March, last year, twelve of my stocks which were decidedly weak in numbers that month, yet these twelve gave me 600 lb. of such fine honey that I fear I shall not soon see the like again for quality. They also stored in addition plenty of winter food for themselves. The bees were worked in hives each containing fourteen frames, and over each double compartment was placed one of my equalisers filled with soft candy in case of scarcity. I winter the bees in these Wells hives on twelve frames, to give the bees more space for clustering. When the Wells plan first came in vogue I made a hive to hold twenty four frames; put two strong stocks in it, and expected to get a harvest from it to break the record. But it failed, for one side became queenless, and the result was no surplus at all. I then tried ten frames on each side of divider, but the bees swarmed and I lost the swarm. Now all this time I did not condemn the system. I felt that my method must be somewhere a bit faulty, and intended to make it a success, if possible. I therefore read up Mr Wells's reports and his advice, as they appeared in your journals, and now, with a slight variation, have worked the system for two years, and been successful with it. The variation referred to is with regard to the extension of brood-nests. I do not always give the additional fourteen shallow-frames to enlarge the brood-nests ; because, although your queens may be young, they are not always so prolific to need the extra breeding space, and when I see that the fourteen standard frames are sufficient for the two queens I do not give the extension as recommended by Mr Wells. In conclusion, I have a lot to thank Mr Wells and his system for, and feel sure if followed out, as I say, with intelligence, it will make the whole of the stocks in your apiary successful, because of getting a harvest from the weak stocks. One word I must add: Do not attempt to make your own Wells dividers. You may burn ninety-nine holes of right size, and the hundredth just large enough for the queens to pass; then comes failure. Buy your perforated dummy from a good appliance manufacturer. Hive, too, if you can afford it ; everything fits so nicely and accurately. — Richard Brown, Flora Apiary, Somersham, February 14.

(Feb. 20, 1896). *British Bee Journal, Bee-Keepers' Record and Adviser* **24**:79. Queries and Replies. [Letter 1424]. Beginners and the Wells hives. —Having made a Ford-Wells hive, I should like to be beforehand in necessary ideas for management of same. We will assume that the brood-chamber is flourishing, and, in fact, waiting for supers or shallow frames as the case may be, and I ask—

1. Is it absolutely necessary to have queen-excluder zinc? I don't mean on account of cost of same, which is very little, but some do not like using excluder zinc, as they say bees do not so readily go up as when there is none there.
2. I have a friend that has four ordinary hives, and he never uses excluder zinc, but he has good sections, and only on one occasion did he ever find the queen among the sections. But the Ford-Wells being a double hive containing two queens, I suppose the precaution would be the more necessary.— Jacques, Dorset.

Reply.—One object we have in printing the above query in full is to show the need

for those who venture to take in hand new or special systems connected with bee-keeping to make themselves more or less acquainted with the principles upon which such system is based. This our correspondent obviously has not so far done, and we must once more state our opinion that the double-queen system, i.e. of working two queens in one hive, is not suited to novices in bee-keeping. In fact, it is nothing less than courting: failure to make a Ford-Wells or a Wells, or any other hive adapted to the system without first acquiring the knowledge necessary for its proper management. Having said this, we reply to queries as follows: —

1. Without excluder zinc, the hive must be worked as two distinct stocks, and supered accordingly.
2. The use of excluder zinc is, in our opinion, a matter of choice when working for sections, but with shallow frames for extracting it is indispensable.

[Letter 1425.] The Wells System.— Chemical properties of honey.—

1. Is the Wells system on the whole growing in favour among bee-keepers?

2. What are the chemical properties of honey?

3. What are the best vessels in which to keep honey stored 1 Wooden I suppose absorb.

4. Do you advise Canadian feeder to be used in spring for weak stocks in frame-hives?—Frank Smith, Stoneham, Glos., February 7.

Reply.—

1. It is not easy to say. What we know of it is mainly gathered from what has appeared in our pages, and judged in this way the system seems to be very successful in the hands of careful [bee-beepers who are thoroughly up in the management and handling of bees—in fact, men like Mr Wells himself. On the other hand, we do not consider it suitable for beginners, though some of them have done well with it, as their reports show.

2. The chemical equation of honey is as follows :—

Dextrose, C ₆ H ₁₀ O ₅ }	} = C ₁₂ H ₂₂ O ₁₁		
Levulose, C ₆ H ₁₂ O ₆ }			
The constituent parts as under :—			
Water	... ..	—	22·0
Crystalline (dextrose)	... ..		38·0
Vitreous (levulose)	... ..		36·0
Mineral matter	... ..		0·2
Wax, pollen, &c.	... ..		3·8
			100·0

The first season, 1893, (had no extractor until I received it in July, and before it arrived the bees had swarmed. — AH Horn Bedale, Yorks, February 25.

(Feb. 27, 1896). *British Bee Journal, Bee-Keepers' Record and Adviser* **24:89**.

[Letter 1426]. Double-queened hives for beginners. —

1. Being a beginner and possessor of one movable bar frame-hive which brought me in nearly 60 lb of honey last year, please state if it will be possible, provided it is strong in numbers at the end of May, to make an artificial swarm and place both swarm and stock in a Ford-Wells hive and work them for comb or extracted honey?

2. May I expect as good a result from the stock when transfers as if left undisturbed (after making swarm) in its original hive.—AJC Ipswich.

Reply.—

1. It is of course quite possible to make an artificial swarm and deal with it as proposed, but we should hesitate in recommending a beginner to adopt the plan. In fact, we fear our correspondent will turn his success of 1895 into failure in 1896, if not careful. The Ford-Wells hive is not intended for beginners in bee-keeping, nor is the making of artificial swarms in May—with only one stock to deal with—quite unattended with risk which might culminate in disaster. Our advice, therefore, is to try and repeat the success of last year by working single-queened hive?, and if increase is desired, let the stock swarm naturally, or defer operating till swarming comes in June.

(Feb. 27, 1896). *British Bee Journal, Bee-Keepers' Record and Adviser* **24**:90.

A Somerset bee-keeper. —Wells hives. —As seen in illustration, the lower or brood-chamber is fitted with standard frames, and for a manufacturer to send it out with a shallow frame brood-chamber is an error, to say the least, which should be rectified. It should, however, be borne in mind that Mr Wells in his own practice is perforce compelled to enlarge the brood chambers of his hives because of their being so made as to hold only seven standard frames in each compartment. He therefore in early summer—when the queens require additional room for ovipositing—adds an equal number of shallow frames overhead to make the brood chamber of suitable size. But with ten standard frames in each broodnest no shallow-frames are required. If, as stated, the lower chamber, with fixed porches, is fitted with shallow-frames in the hive sent you, and the mistake be not rectified, we should remove the shallow frames, set on the eke to increase the depth of lower chamber, and fill the latter with standard frames. This will overcome the difficulty at once, and the shallow-frames may be used for surplus honey.

(March 26, 1896). *British Bee Journal, Bee-Keepers' Record and Adviser* **24**:126-

127. [Letter 1439]. Wells hives for beginners.— I am just commencing bee-keeping, having had but one year's experience, and have been making a Wells hive, intending to put two skeps on it this spring ; but, after seeing your advice to others situated like myself in late numbers, I feel rather inclined to discard it for this season, unless I can utilise it in some other way than as a Wells hive.

1. Can I do this and use it as two single queened hives by cutting through centre and adding ends?

2. Or can I divide it into two parts by putting in a thin division-board (not perforated), and working a stock in each brood compartment, with separate supers ? The hive takes twenty-four standard frames in all— twelve in each compartment. Would there be any objection to this plan? Of course the hive could not be lifted off floor-board, but I have seen a hive similar to the above, and I think there would be considerable economy in heat and also in timber; there would also be no draught through division-board, as there must be in perforated dummy of the Wells hive.

3. To whom must I apply for membership of county association, and should I get a visit from expert this spring?

4. What are the chief difficulties in working the Wells hive? I should have queen-excluder in two separate parts, so that only one compartment would be opened at once. — Bluestone, Bugeley, Staffs.

Reply.—

1. This would be making two distinct hives in every sense, so it is really only a question of joinering.
2. Yes, but — if not too difficult a job to manage—we should make the separation of the two stocks more complete by having the entrances at each end, instead of both being front. One main objection to these twin hives is that any disturbance of either stock affects both more or less.
3. The expert of the SBKA, Mr R Cock, 19, Lichfield Road, Stafford, will furnish particulars wanted if written to.
4. The difficulties are not easy to define, but they include parting or separating swarms and queens, which come off simultaneously, and the more or less general knowledge of bee management, which only comes of experience.

(March 26, 1896). *British Bee Journal, Bee-Keepers' Record and Adviser* **24**:128. Echoes from the Hives. Mattingley Vicarage, Heckfield, Winchfield, March 18.—All my hives (nine single and two Wells) have come through the winter successfully. No sign this year of dysentery. As Wells hives are still on their trial, I may mention that in mine every hole in both perforated dummies was carefully stopped with propolis by the bees (226 holes in each dummy). The propolis in upper holes was sufficiently thin to be able to show a little light through when held up to the window. Mr Wells makes no mention of this drawback to his system, and apparently does not suffer from it. I attributed the propolisation at first to the fact that the bees, which I had put into the hives last autumn, were strangers to each other, but an expert tells me that the same thing has happened with him, where the bees had been in the hive for twelve months, and had worked together comfortably all last summer without attempting to close the holes of the dummy. I wonder can the season have anything to do with it, or the locality, or the race of bees. — H Salter. Heeley, Sheffield, March 9.—My stocks are doing good work just now; the very mild weather is enabling a lot of pollen to be gathered, and breeding has commenced generally.—PB Wood. Fordwich, Canterbury, March 19. —Today, for the first time this year, pollen is coming in in large quantities. I have young drones flying from one of my best colonies. — Ned Swain.

(May 14, 1896). *British Bee Journal, Bee-Keepers' Record and Adviser* **24**:196-197. [Query 1468]. Keeping smokers alight.—Wells dummy.—Referring to queries (Query 1443), will the Editors kindly reply to the two following queries which have not been answered, and allow me to thank those bee-keepers who kindly answered the other questions? —

1. Girders for section racks?
2. Smokers? Your footnote regarding these, p.154, reads as follows : —And how easy it is — when one knows how—to keep a good smoker alight for three or four hours at a stretch. Will you please explain how this can be done?
3. Wells dummy. The holes in my Wells dummy have been stopped up by the bees. Will you please say if, under the circumstances, it will be safe to let the bees amalgamate in super when the time comes? I cleared the holes in March, but the bees will persist in stopping them up. — Anxious bee-keeper, Dorset, May 8.

Reply.—

1. Personally we prefer wooden rests for the sections to rest upon.

2. By using ordinary intelligence in making a roll of paper close enough for fairly slow combustion, and yet allowing a current of air to pass upwards and through the roll on using the bellows. Some degree of the same intelligence must also be used in choosing a paper which will smoulder, and not persistently go out.

3. Bees of two separate stocks have been known to work in a super common to both lots, but it is not quite safe to let them do so. Hence Mr Wells's plan of a perforated dummy to give the same scent to the bees of both compartments. Yours must be regarded as having a solid dummy, since all the perforations are closed.

(May 28, 1896). *British Bee Journal, Bee-Keepers' Record and Adviser* **24**:217-218. [Query 1473]. Queries and Replies. The Wells System. Some time since I saw some copies of the *British Bee Journal*, and was much struck by the articles on the Wells system of bee-keeping. The idea seemed feasible, and I have been making some arrangements to test it. A recent number of *Gleanings* prints a straw; from Dr Miller to the effect that the BBJ says the Wells system is not suitable for novices, and also that it is only adapted to weak colonies. Would you please let me know how this system is really regarded in England? Has it stood the test and become a recognised system, and what can be the objection to using it with strong colonies. I have Mr Wells' book.—II P Joslin, Ben Avon, Allegheny County, Pennsylvania, USA.

Reply.—The most we can say is that — judging by the reports which have reached us — some in this country have succeeded remarkably well with the Wells system, while with others it has failed completely. The failures may also be noted as happening in a large majority of cases, to beginners. The mention of our views on the subject by Dr Miller, in *Gleanings*, evidently refers to the opinion we have all along held and expressed, viz that the double-queen system — while admirably suited to the practised hand — requires at times so much of what is known as management as to render it unsuitable for the inexperienced novice in bee-keeping. So far as the last point mentioned in our correspondent's query, there is nothing within our knowledge to warrant or justify the notion that the Wells system is only adapted to weak colonies. At the same time it is claimed, as one of the merits of the system, that by concentrating- the working forces of two weak colonies in one super common to both it enables the bee-keeper to secure an amount of surplus not obtainable by weak lots worked singly. We rather fancy that a stray straw in our pages pointing in this direction will have been the only foundation for Dr Miller's remark. Anyway, there is nothing in Mr Wells' book to justify the idea referred to, and the extraordinary results obtained by Mr Wells and others point in an entirely opposite direction.

(June 25, 1896). *British Bee Journal, Bee-Keepers' Record and Adviser* **24**:255-256. [Query 1494]. Stocking a Wells hive.—I have three stocks of bees in skeps, one stock in frame-hive (all very strong), one swarm (May) in frame-hive, one swarm (May) in skep, and an empty Wells hive— lately purchased — which I wish to get filled. Will you kindly advise me how to manage this from material at hand? — Aspirant.

Reply. —The simplest way of furnishing the Wells hive is to gradually bring the two stocks in frame-hives within three or four feet of each other. This must be done by moving a yard or so on each fine day. When near enough, set the Wells

hive so that its two entrances will occupy nearly the same position as those of the two frame-hives Drought near together, and lift out the frames from the latter into the Wells.

(July 9, 1896). *British Bee Journal, Bee-Keepers' Record and Adviser* **24**:277.

[Query 1506]. Wells hives and their management.—I have a Wells hive, one compartment only containing a stock of bees. Unfortunately, there are shallow-frames beneath those of standard size, and only entrances and a fixed porch to this shallow-frame body. This stock being very strong, I propose dividing it by placing half the brood and bees on the other side of perforated dummies; at the same time removing the old queen and introducing a young hybrid queen to each compartment. Of course I can diminish the number of standard frames by removing some and replacing them with dummies; but to do likewise with the shallow-frames below will give me a lot of trouble, and I have no shallow dummies.

1. All things considered, will it be best time to divide stock and introduce young queens when lime-tree blossoms are over?
2. May the bees then have all the shallow-frames left below, and a few standards above.
3. Will the bees winter best with all the shallow bars below?
4. What is the best method of checking wax moth?
5. Is there not great danger—when removing the shallow-frames below in a Wells hive—of queens and bees mixing and fighting.
6. May queens when received in travelling cages be detained in them several days before introducing to a stock.
7. What is the space that just prevents a worker bee from passing through it?
8. Can you give me any help in finding queens? I am, I think, naturally quick-sighted, but sometimes have been uncertain as to worker and sometimes drones being the desired queen? — Albert J Conder, Ipswich, July 4.

Reply.—Before replying to queries as enumerated, we cannot promise success in working such a Wells hive as the one described. Having, as we learn, Mr Wells's pamphlet, on the working of his double-queen system, by you, the first desideratum ought to be a hive in which that system can be properly carried out, and however we might manage to overcome such difficulties as present themselves in the Wells hive referred to, it cannot be easily made clear to one who is manifestly inexperienced in bee-management. Having said this much we reply as follows:—

1. Seeing that it is now the second week in July the sooner the attempt is made to establish two colonies from one the better.
2. and 3. We should have the shallow-frames away from below before dividing the colony at all.
4. Keeping stocks strong will prevent moths getting a foothold, but a few pieces of naphthaline placed among the quilts is also helpful.
5. Yes, very great danger indeed in any but skilful hands.
6. Though queens will live for several days in properly-prepared travelling cages it is not wise to keep them so any longer than is absolutely necessary.
7. A shade under $\frac{3}{16}$ th of an inch.
8. Only practice will enable any one to pick out queens readily. There is no rule that can be stated in words beyond saying that size and general appearance

enables a quick eye to detect a queen with ease.

(Oct. 1, 1896). *British Bee Journal, Bee-Keepers' Record and Adviser* **24**:398. [Query 1556]. Suspected queenlessness.—At end of July I divided a strong stock of bees occupying one compartment of a Wells hive by placing half the brood and bees on other side of perforated division. All went on well, queen-cells were started and sealed up in the queenless division. I did not examine again until September 20, and then found the bees very much decreased in numbers, not a vestige of brood, and no drones in hive ; but I did not attempt to look for the queen, as I can never find queens. The general behaviour of the bees at the entrance and in flight I should say is sluggish. Will you tell me, please, in *BB Journal* if the absence of brood or any other symptom points to queenlessness. My other hives have two or three frames of brood each . — A Bee-keeper, Ipswich, September 23.

Reply. —The absence of brood shows that either the young queen has been lost or has failed to mate. In the former case, remove dummy and join the stock up again. In latter case, the unmated queen must be removed (there being now no chance of mating), and stock treated as above indicated. If a frame of young brood is inserted in doubtful stock the condition of matters as to queenlessness will soon show itself.

(Oct. 22, 1896). *British Bee Journal, Bee-Keepers' Record and Adviser* **24**:427-428. [Query 1574]. Loss of queens in Wells's hives. —I made a Wells hive last winter, and in the spring put into it two moderate stocks, A and B, the former being the stronger of the two. In the middle of August I divided the two joint supers in order to prevent the bees from one side deserting in a body to the other. A few days later I took off the supers of stock B, and examined the brood nest. What did I find? Next to nothing! The queen was gone, the bees were gone—except about 100, many being drones—of honey there was none, except about 6 oz. The supers I should say, though fairly well filled with honey, were also deserted. (Jan you explain this?)

1. Is it probable that the queen in B stock, having died from some cause (she was a prolific one), the bees were contented with their knowledge of another next door, and so did not trouble to raise one for themselves? Apart from the loss of this stock, the result was satisfactory, for I took 70 lb. of honey from this double hive, and the bees built out about thirty shallow frames of bar combs from strips of foundation. This result, no doubt, sounds exceedingly small when compared with the takings both from single and double hives in some places, but it has been a very poor season in this neighbourhood, and my average taking from thirteen single and this one double hive has only been 20 lb. There was an abundance of white clover in bloom during July and August, but the bees seemed to get nothing from it, though they had frequent opportunities to do so.

2. Does dry weather, not regular drought, prevent the plant from producing nectar later on, even though it has grown to a good size? In this immediate district honey has been thin and rather darker than usual this year.

3. What sort of honey is gathered from beans?

4. What would you do with stocks which, though unfed, have most of the combs unsealed now ?

5. Are bees slower in sealing up one year than another?

6. Is there any reason for their apparent slackness this year? — E Charley, Ince, Chester, October 13.

Reply.—

1. There seems to be little doubt that bees occupying one compartment of a double queened or Wells hive are less eager to replace a lost queen than those of ordinary single queened stocks. This is shown by the comparative frequency with which they join forces with their next-door neighbours under such circumstances as are detailed above.

2. It is a fact well known to bee-keepers that white clover never yields anything like so freely of honey to bees as in the month of June, no matter what the other conditions may be. This year, however, the return from that queen of bee-flowers has been very small indeed. That the want of rain in May and June was the main cause of this failure is quite certain.

3. Bean honey is usually brown in colour, and somewhat coarse in flavour.

4. If they have more combs than the bees cover we should remove some of those containing only unsealed food.

5. Yes. In such weather as has been experienced for many weeks past, bees are very unwilling to seal the food unless crowded into a small space.

6 Only the reasons given above.

(Nov. 5, 1896). *British Bee Journal, Bee-Keepers' Record and Adviser* **24**:446. Bees in Durham. [Letter 2683]. Seeing comparatively few reports of the bee season in the *Bee Journal* for 1896, I herewith send you mine. We have had a poor year, with only about half the yield of 1895. I commenced the season with fourteen queens, eight in single hives, the other six in three hives worked on the Wells system. I have increased my stocks to twenty-two by natural swarming. My total yield from clover was 140 lb. of very poor quality. From the heather I got 298 finished sections of nice heather-honey and a lot of unfinished ones. Among these latter were sixteen sections spoiled by the queen breeding in them, a thing I have never experienced to any extent before. The spoiled sections were from three of the hives, each with the whole eleven frames in brood chamber and sections put on just before being taken to the heather. I also lost three valuable queens at the heather through swarming. Two of the queens were from a double-queen stock and one from a single-queen lot; these hives consequently yielded nothing. My best stock gave me 36 lb. of clover and 52 lb. of heather honey in sections, and one stock headed by a queen of 1896 yielded fourteen sections of heather honey. Some of my best queens had brood in several frames when they came back from the heather. — George Rochester, Black Hill, Durham, November 2.

(Nov. 12, 1896). Editorial notices &c. *British Bee Journal, Bee-Keepers' Record and Adviser* **24**:451-453. British Bee-Keepers' Association. Conversazione. Mr Cowan wished to congratulate the meeting on the large attendance, which he noticed included some very old bee-keepers, one of whom, Mr Martin, was among the first few connected with the Association at its commencement. He remained a member for a long time afterwards. Mr John Walton (also present) was as old a member as Mr Martin, but the latter had not favoured their meetings with a visit for a long time, while Mr Walton had, he believed, attended every show held in London. He (Mr Cowan) was very glad to meet these two gentlemen again, and to find that their interest in the cause was unabated. Mr G Wells, too, was also

specially welcome as the inventor of the system of keeping two queens in one hive. He hoped that meeting would be the means of introducing in person many bee-keepers previously only known to one another by name. At this stage of the proceedings an adjournment was made for refreshment. Upon resuming, Mr Cowan occupied the chair, Mr Jonas being compelled to leave, and said that he thought it would be of interest to discuss the question of selling honey from the tradesman's standpoint ; in other words, to know whether grocers had a preference for any particular kind of package. No doubt many present had dealings with tradesmen supplying the retail trade, and could give information on the subject. Mr Wm Woodley said he supposed the question related more to extracted than to comb honey. With regard to the latter, he could speak from extensive experience. He had found that grocers preferred glazed sections, and were quite willing to pay a shilling per dozen more for them than for unglazed ones. With regard to extracted honey, he I bought they liked upright tie-over glass jars rather than those with the screw-cap. ...

(Nov. 12, 1896). 454-455. *British Bee Journal, Bee-Keepers' Record and Adviser* **24**:5. The double queen system. Mr G Wells's report for 1896. [Letter 2689]. The receipt of several letters reminding me that no report for 1896 has yet appeared from me shows that the double-queen system of working bees has still a good deal of interest for some readers of the BJ. Having, therefore, now found time to square up accounts, I venture once more to send you particulars. But, lest any should be disappointed to see so moderate a result compared with some other seasons, I hasten to explain that it has been caused through the ravages of foul brood. I intended to have worked seven double-queened hives this year, but, owing to the heavy mortality amongst the bees during the winter of '95-96— heavier than I ever remember before—nearly all my colonies were very weak in bees in the spring. Taking the stocks all round, there were only bees enough in each compartment to cover two frames, and when the fruit trees were in bloom I was obliged to unite the bees in order to get any surplus honey at all from that source. By this means I just managed to fill three hives with six queens and sufficient bees in each compartment to cover seven frames. I gave a rack of 1-lb. sections each to two of the hives, and put a box of shallow frames on the other, and all the hives were worked right through the season with only seven frames for each brood-nest. I certainly had a fourth hive, in which there was only enough bees to cover one frame on each side of the dummy, and I thought that so few bees were scarcely worth saving, but I wanted to see what could be done with so few bees in the spring, with the two-queen system. At one time it appeared as if they would dwindle right away, but I packed them very warm and still kept only one frame for each queen. The bees increased but slowly, and at the end of May only covered two combs for each queen. From that time, however, they began to increase very rapidly, and soon fourteen combs were covered in the two compartments mostly well filled with brood. A box of six shallow frames was put on, and the bees commenced to store surplus honey in these at once ; then more shallow frames were added at intervals as required. In the end I got about 30 lb. of surplus honey and sufficient stores from such late plants as borage, melilotus, and Chapman honey plant, to stock themselves with food for the winter in seven frames, each with plenty of bees. This result from so untoward a beginning argues well for the two- queen plan. One of the three first-named hives swarmed,

and I made three nuclei from it after the swarm had come off. I also bought some late casts. These, along with a few lots of driven bees added, enables me to go into winter quarters with seven hives full of healthy bees and stores, and fourteen good queens with them. My financial position with the bees for the season of 1896 is as under: —

99 1-lb. Sections, say at 8d.	...	£3	6	0
357 lb. Extracted Honey, say at 6d.		8	18	6
21 lb. Beeswax, say at 1s. 6d.	...	1	11	6
			<hr/>	
			13	16 0
Deduct total expenditure during the year ... ..	...	3	15	5½
			<hr/>	
Balance for labour...	...	10	0	6½

All the surplus honey (less 30 lb.) was taken from three hives, bearing an average of 142 lb. per hive. If it is preferred to call each hive two colonies, the average is 71 lb., with 30 lb. added from the weak lot mentioned. Most bee-keepers in this district seem satisfied with their bee-doings for 1896, many being quite hopeful for the future. I again repeat my offer of last year, to send seeds of melilotus and Chapman honey plant (free) to all who forward a stamped addressed envelope. — G Wells, Aylesford, Kent, November 5.

(Nov. 12, 1896). *British Bee Journal, Bee-Keepers' Record and Adviser* **24**:458-459. Queries and Replies. [Query 1587]. Wells hives and methods.— Your preliminary remarks, in reply to query 1506 in BJ for July 9 last (p.277), in answer to my too numerous questions were rather confusing, and I think you were a little hard on me. Commencing with the remark, we cannot promise success in working such a Wells hive as the one described, you proceed to say: And however we might manage to overcome such difficulties as present themselves in the Wells hive referred to, it cannot be easily made clear to one who is manifestly inexperienced in bee management. I may say my hive is precisely as recommended by Mr Wells, and was made and sold as such by a well known manufacturer. Hitherto, however, the shallow-chamber underneath has been practically a fixture, as there were neither porch nor entrances to the standard-chamber above, which the hive should have had. I think of making a shallow dummy the thickness of six frames to place in centre of shallow-body with the ordinary standard perforated Wells dummy resting on it above. This will leave seven frames on each side, which I imagine will be the most that will be ever required. Then, as I may often wish the shallow chamber completely away, with the standard frames close down on floor-board, I propose to fit a platform or second floor-board under the standard frames in groove made for the shallow frames, leaving an entrance in the platform of some sort. Please be good enough to give me advice as to size and shape and position this entrance should occupy, and if a board should slope from same to lower floor-board to assist the bees to travel, and if this attempt is likely to be a success?—Thanking you in anticipation, Albert J Conder, Ipswich, November 9. Reply.—On referring to reply given in our issue for July 9 last (p.277) we really cannot see in what way we are even a little hard on our correspondent. The replies are brief, but as he admits, were rather too numerous coming at a busy

season. And for the confusion, does it not come from his side? His query begins I have a Wells' hive; but the details which follow deal with parts and arrangements in construction entirely absent from the Wells hive as it is generally known. We have read Mr Wells' pamphlet describing his system, have seen and personally handled the hives in his own apiary, and heard the gentleman describe his methods of bee-management many times and often, and in view of all this it is news to us when we read in the above communication that the hive dealt with therein is made precisely as recommended by Mr Wells. Anyway, we are reluctantly compelled to confess our inability to give advice as to how the proposed alteration in construction and management are likely to effect the object aimed at, or to say whether the attempt is likely to be a success. If the hive is one Mr Wells recommends, that gentleman, or, may be, the manufacturer, can afford information, which we will be very pleased to print if forwarded.

(Nov. 19, 1896). *British Bee Journal, Bee-Keepers' Record and Adviser* **24**:467-468. An Essex labourers report. [Letter 2706]. I have been asked to send you a short account of my experience in bee-keeping this year, and gladly give it for what it is worth. I started the year with sixteen stocks of bees in twelve hives (four being double lots with Wells division boards) of my own make. The bees seemed fairly strong in early spring, so I had supers on the strongest stocks by the middle of May. The bees worked well up to the beginning of June, then had a month's rest, so I had to close the entrances to about 1½ in. to prevent robbing. In the first week of July, however, the white clover came out—I forgot to say we had some heavy rain in the middle of June, after the hay was cut. All over the meadows and second crop of clover and rye grass, I never saw bees work like they did for about three weeks, and only having two empty shallow frames left on hand, except those on the hives, there was some work for yours truly. Coming home one night I found the bees of five hives hanging out wanting room. Of these, two were double and three single ones. I removed two frames from each one and extracted them that night, and then work was kept on the whole time whilst the honey flow lasted. Well, for my results :—Counting sections as 1-lb., I have taken about 1240 lb. of honey, and sold over 1100 lb. at about 6d. per lb., leaving me not a great deal of 112 lb. This does not include what was used for home consumption, nor that I have given away to friends ; and I have also left the bees with all their brood-frames untouched, and sold 16 lb. of wax from the cappings; had two swarms (which were put back) and reared five young queens for the Wells hives. I am only a labourer, working from 6 am to 5.30 pm. This compels me to do all my work mornings and evenings, so I rise with the sun, or as soon as it is light, and go to bed thoroughly tired. I have to do all the bee- work, for my wife likes bees best dead; or at a distance. You must excuse mistakes and correct bad spelling, for I am more used to a crowbar than a pen. If this report has any interest for readers you are welcome to insert it in the BJ. — GA, North Weald, November 14.

(Nov. 26, 1896). *British Bee Journal, Bee-Keepers' Record and Adviser* **24**:475-476. Doings of the past month. [Letter 2715]. We are told that a certain very dark-complexioned gentleman has a happy knack of finding mischief still for idle hands to do, and I have been lately thinking how good a thing it must be—so far as giving a wide berth to our coloured friend—for a man to turn bee-keeper. Why, I never knew an *idle bee-keeper* yet! (that is, so far as I understand the word

italicised), and although the last month is perhaps the dullest of the whole twelve, so far as work in the apiary is concerned, yet, instead of having an easy or idle time of it in November, I am busier now than ever. In the days of my novitiate — good old days—with pound jars (not screw caps either) of honey selling at 1s. 9d., unglazed sections at 2s. 6d. apiece! There were no Disappointed Cottagers then. But were we all contented? Not a bit of it! High prices were the rule, and we looked for them, and expected them as a matter of course. In fact, prices were high all round. Why, the first numbers of our own *Bee Journal* used to cost 10½d. each! and a month to wait for each issue. Other necessaries also in the same ratio. No grumblers in those days, say you. Well, just a few, but they couldn't ventilate their grievances in your columns at that price, and so we small fry had to stand aside, listen to our betters, and be thankful! Good old times, no doubt! I see Mr Wells has favoured us on p.454 with his report for 1896. He still gets that big cake of wax! From about the same weight of honey as his take amounted to this year my cappings weighed 3½ lb.! Fancy the difference between Mr Well's £1. lis. 6d. and 5s. 3d! No need to ask if he is a contented cottager—by the way, I should be contented too, in the way of wax, with 21 lb. of it in harvesting 4 cwt. of honey. ...

(Nov. 26, 1896). *British Bee Journal, Bee-Keepers' Record and Adviser* **24**:479. Queries and Replies. [Query 1597]. A beginners queries.—[The following queries are sent by a correspondent who writes each on a separate sheet and signs it Melissa. In order to avoid useless repetition we enumerate the questions consecutively, giving reply to each with one general number for the whole as above. — Eds.]

1. Carbolic acid vapour for quieting bees—Is there any objection to the use of carbolic acid vapour as a substitute for smoke in quieting bees?

Reply.—Carbolic acid vapour now and then is not harmful, but for regular use in quieting bees, smoke is, for many reasons, far superior.

2. Prevention of swarming.—Where bees are inclined to swarm in spite of supers being put in, would not swarming be made impossible by putting excluder-zinc over the entrance, so as to prevent the queen quitting the hive? Is there any objection to this?

Reply.—The above plan and various modifications of it have been tried many times only to fail completely.

3. Double-queened hives.—What is reported of the Wells hive seems to suggest that though bees are content with one queen in a hive, they do not object to several fertile queens in the same hive at the same time, provided the queens are kept from destroying one another by division boards which allow workers to pass, but not queens. Do you regard this inference as warranted?

Reply.—The perforated division-boards in Wells hives do not allow worker-bees to pass through them as stated. The perforations prevent this, while causing the bees of both compartments of the hive to possess the odour or scent. It is only when this has been secured that they are permitted to mix in a super common to all. ...

(Dec. 3, 1896). *British Bee Journal, Bee-Keepers' Record and Adviser* **24**:487. Queries and Replies. [Query 1601]. Working with double-queened hives.—

1. Is it necessary to use a perforated dummy in a box of shallow-frames worked

above the two compartments of a Wells hive? I ask this because all the illustrations of these hives which I have seen show a dummy; but if bees may safely mix in a rack of sections I fail to see why not in a box of shallow frames.

2. I have a Wells hive which has been used this year for two separate stocks, the bees never having mixed. Will it be safe to admit both lots of workers into one super next season, seeing that the holes in perforated dummy now dividing the body box are so propolised as to cut off all chance of bees acquiring the same scent? Entrances to Wells hives.

3. Do you advise having the entrances to Wells hives at each end — which necessitates one facing either north or east—or is it better to have both doorways in front facing south?

Queens hatched [emerged] late in autumn.—

4. Will queens hatched too late in the autumn of '96 to begin breeding this year have any chance of being fertilised without my knowing it? I have two stocks, each with young, late bred queens, but am not sure as to whether they are mated or not. Your replies will oblige Windmill.

Reply.—

1. On reference we find very few illustrations as our correspondent states; on the contrary, nearly all show the super without a dummy at all. In fact, allowing the worker bees of both compartments of the body-boxes to mix in a super common to all is one of the fundamental principles of the Wells system.

2. We should advise careful removal of perforated dummy the first fine day, and freeing-perforations from propolis so as to allow the bees to form one cluster during the winter. If this is successfully done it will secure one great point Mr Wells aims at, viz early breeding, and prepare the bees for working amicably together in early honey-season.

3. Personally we should prefer one entrance in front and the other at side of compartment, the hive being placed with its length facing south. By doing this and making the side entrance face east, the two doorways may be — at critical times—placed as far apart as the extreme corners of the hive will possibly allow.

4. Queens not mated now will be useless for next year's work. If, therefore, any uncertainty exists on the point of fertility, the only thing is to keep an eye on the earliest brood seen in the early spring, when it will be easily seen if drone-brood is being reared in worker-cells.

(Dec. 3, 1896). *British Bee Journal, Bee-Keepers' Record and Adviser* **24**:488.

[Query 1604]. Populating a Wells hive advantageously. —I am the owner of two stocks of bees in bar frame hives, and this winter have ordered a Wells hive, and would ask—how can I populate this hive and keep my two stocks to most advantage?— CC Turner, Kempston, Beds, November 29. Reply.—Presupposing that the stocks now in hand are strong in the coming spring, the simplest and perhaps most advantageous plan will be to get the bees into as forward a condition as possible, super in good time, and let both stocks swarm. Then, as each top swarm comes off hive it into one compartment of the Wells hive, contracting the space to about five frames. When the swarm is comfortably fixed up, place queen excluder above frames and set on the supers previously removed from the parent hive. Repeat the operation when the other hive swarms, using, of course, the second compartment of the Wells for the purpose. You will thus probably get nearly as much surplus honey as if your present stocks had not

swarmed at all, and by making up a couple of nuclei from the swarmed hives may be able to re-queen the Wells hive with queens of the current year, thus closing the season of '97 with young queens to all your stocks.

(Dec. 10, 1896). *British Bee Journal, Bee-Keepers' Record and Adviser* **24**:493-494. Bee-notes from Sussex. [Letter 2727]. I have at last found time to make up accounts, and, as far as I can now ascertain, the following is my return for the past season. The figures relating to the sections are accurate; those relating to the extracted honey are mostly estimates, as I got mixed during the straining, which was a very tedious and difficult business this year, owing to the thickness of the honey. The gross totals at foot are, however, quite correct, as I have checked them by the quantities sold and on hand. One stock (No.2) became queenless early in the season, and died out. Towards the close, one of the stocks in the Wells hive amalgamated with the other. Upon my removing the united colony to a fresh hive for cleaning-up purposes, apparently the queen was injured or balled, for that stock has now greatly diminished. I have filled up the blanks with driven bees, as being cheaper and less troublesome than queen introduction, and a little benefit to my cottage neighbours. The returns from hives as enumerated are as follows:—

	Total.
1. 78 1-lb. sections, 2 lb. extracted honey	80
2. 10 lb. „ „	10
3. 51 lb. „ „	51
4. 10 lb. „ „	10
5. 33 1-lb. sections, 1 lb. „ „	34
6. 50 lb. „ „	50
7. 17 1-lb. sections, 2 lb. „ „	19
8. 113 „ „ 9 lb. „ „	122
9 and 10. (“ Wells ” hive)..... 80 lb. „ „	80
Total.....	456

All stocks are black bees except No.6, which are hybrid Ligurians. The gross totals are 241 sections and 215 lb. extracted honey, or an average all round of 46 lb. per stock. In considering results I ought to say that in the spring I put sections on the strongest stocks, which accounts for the poor returns from some of the hives worked for extracted honey. Nos.6 and 8 I divided, I believe successfully, in August ; and all these ten hives, together with the restocked Wells are doing well. Most of the honey came from early fruit and May-blossom, yellow clover, and other spring blooms, up to middle of July. The white clover was an utter failure, and I have had to feed up rather heavily. The recent long-continued rains weakened some of the stocks frightfully, added to which fighting has been going on freely at one or two hive doors, strangers from a distance apparently trying to gain an entrance, no doubt impelled by famine. They are smaller than any of my bees, and get the worst of it, poor things! The strangers must, however, have been successful in effecting an entry in at least one case, for the stock in question is not only doubled in numbers, but the hive is now full to overflowing, and the bees have cleared out a 2 lb. box of candy in less than a fortnight, although otherwise well provided. I cannot believe they can have successfully reared brood through the recent spell of severe cold, and can only account for their sudden increase in this way, as in a similar instance last year. What the effect of the recent rigorous weather may be I hardly like to anticipate,

but am afraid I shall lose one or two additional weak stocks I have been trying to nurse up. In conclusion, but for the long-continued drought, 1896 would have been a splendid honey year. As it is, it has been only mediocre, but the quality of the honey hereabouts has been superb. It may encourage cottage bee-keepers to know that I sold the bulk of the sections at 8d., some at 10d., and a few 1 lb. sections at 1s. They also took me a first prize at a show, and I have given many away. I have likewise sold all the extracted honey I wished at 10d. per lb, after gaining two second prizes, for this. I have reserved some 2 cwt. for show next year, and have also given much away. In spite of this, the money return is upwards of £12. I do not give a debtor and creditor account, because I have gone in for many luxuries this year, such as expensive glazed cases for standard and shallow frames, &c, and the statement could answer no useful purpose. I sell all my honey to one buyer, a chemist in a large town, who says he is delighted to have it, and dispose of it himself to his customers, or to other chemists, because the quality is so fine, and he is sure of its purity, and is relieved of any anxiety about adulteration and consequent troubles. In addition, without going into wearisome details, my fourteen stocks are all supplied with ten well-filled standard frames of comb (I never extract from brood-combs); and I have a fine reserve stock of built-out sections and shallow combs for next year's harvest, besides about 5 lb. of good wax. Hence I, for one, am well satisfied with the bee bill for 1896—WRN, Sussex.

(Dec. 10, 1896). *British Bee Journal, Bee-Keepers' Record and Adviser* **24**:494-495. Free seeds of bee plants. [Letter 2730]. My offer of free seeds of melilotus and Chapman honey-plant (on p.455) has brought me a large number of applications for a supply. I had, however, enough on hand to fill all orders, but in reading the letters it has struck me that many of the writers must have only recently become readers of the BJ I say this because of the many who ask for particulars as to cultivation, height, colour, suitable soil, time of flowering, whether biennials, and many other questions far more than I have time to reply to. In consequence of this, I have written a good many to say that I would ask you to reprint what has appeared in your pages on the Chapman honey plant, adding that the same treatment will apply to the melilotus. To grow good plants of the former, fresh seed should be sown every year, and by good cultivation they will reach as high as 10 or 11 ft, the melilotus attaining about 6 to 8 ft. —Geo Wells, Aylesford, Kent, November £0. [Since full particulars of the Chapman honey plant (*Echinops sphaerocephalus*), with illustration, appears in BJ of April 11, 1895, and may be had for three-halfpence in stamps, it hardly seems necessary to reproduce the article. — Eds.]

(Dec. 31, 1896). *British Bee Journal, Bee-Keepers' Record and Adviser* **24**:521-522. Bees in Wells hives. [Letter 2713]. As copy may be scarce this week, you may have room for my remarks.

1. In working a Wells hive I have found more than once that the bees have refused to keep apart—after being hived. Last September I put two lots of driven bees, headed by young queens, into a Wells hive; each lot was treated exactly alike, but the next day I found one side deserted by almost all the bees, they having joined forces with the lot in the other side, carrying with them the honey on two or three frames which had been given them the day before. I was helped

by an experienced bee-keeper, who had bought me the driven bees, and we took every care, I thought, that the operation should be successful. I should like to know if this has been the experience of other bee-keepers, and, if so, can it be accounted for? I have put two established stocks into a Wells' hive, and they settled and worked well.

2. I notice in your reply to GMS, Query 1621, last week, you say, in speaking of ventilation, that on some July days it is quite a common practice with us to raise hives from their floorboards, &c. About June I always raise my hives sufficiently to allow a bee space the whole front of the hive and leave them so until the honey season is over. Am I to gather from your remark that this plan is only suitable for very hot days? I had no swarm last year, and I attributed this partly to the fact of my having given ventilation in this way. In addition to this I raised the roofs slightly and put wet cloths over them when it was very hot. To be constantly removing the wedges and replacing them would be troublesome, and, besides, I should think it would have a tendency to irritate the bees, a thing to be especially avoided.

3. The note on superseding queens, on p.519, is very interesting. May we understand from this that bees, as a rule, raise a new queen when it is found the old head of the colony is wearing out? If four frames filled with brood, say in the middle of May, is sufficient indication of the presence of a prolific queen much anxiety on the point would be removed. Some writers in the BBJ apparently recommend that after the second year a queen should be always replaced with a younger one. Two or three years ago, impressed with this idea, I acted accordingly, and the result was that the hive that did the best that year was the one in which we failed to discover the old queen.

4. Some bee-keepers may have found a difficulty, as I have done, in getting the bees to clear up shallow frames at the end of the season. I should like to call attention to a most useful arrangement for this purpose, supplied to me by a manufacturer, which some may not have seen. A hole is cut in the board into which a Porter Bee-escape has been fixed, through which the bees enter the shallow- frame box; as soon as the frames are cleared this hole can be closed by sliding a piece of tin over it ; and then the bees of course are obliged to go through the escape, and the box can be removed free of every bee.

5. Should any young bee-keeper have a difficulty in finding material for keeping their Smoker alight I would advise the use of an artificial-manure bag. It costs little or nothing and will burn one or two hours if once well lighted. I bought, two years ago, a lot of old things of Abbott, and amongst them were a few bags in which, I suppose, their Little Wonder was packed as they were all thus marked. That I found first rate material for use with a smoker, far better, I think, than any carbolised. cloth. —APJ, Dec. 28th.

(Jan. 7, 1897). *British Bee Journal, Bee-Keepers' Record and Adviser* **25:5**.

Bees in Wells hives. [Letter 2749]. I, like APJ (p.521), have found the same difficulty in putting driven bees into a Wells hive. Two successive lots left one side to join forces with the other. I cannot account for their so doing, unless the queens of the driven lots had been lost or balled. The third lot I tried stopped in the right side without emigrating. Shall be glad to hear of other bee-keepers' experiences, and the way they account for this behaviour of the bees. — HM, Atherstone, January 2. [We will be glad if Mr Wells would send a line of reply to

the above, as having, no doubt, had more experience on the point than any one else. It is also of much interest (to beginners especially) if those who render help in this way would state exactly what form of the Wells hive they have in use. So much of the ultimate results of working the double-queen system depends on this point. —Eds.]

(Jan. 14, 1897). *British Bee Journal, Bee-Keepers' Record and Adviser* **25**:16-17. Hiving bees in Wells hives. [Letter 2755]. In response to footnote on p.5 of last week's *Bee Journal*, I am willing to afford any information in my power on the subject, but cannot help saying that if persons would adhere strictly to the directions given in my pamphlet, they would find no trouble whatever through bees leaving one side of a Wells hive and joining those in the other compartment. Should anything have happened to cause one side of the hive to be queenless, the bees are sure to do so, but this cannot be called a disadvantage, as it not only saves the queenless bees but removes all trouble and risk to the bee-keeper in uniting. Many persons err in stocking a Wells hive with bees, especially so with driven lots. In the latter case, one side should have its entrance closed so that a bee cannot enter that compartment. The first lot of bees are then run into the other side and allowed to quiet down, and when all have entered close the entrance so that not a bee can get out. Now open the opposite side and put the bees of the second lot into it, and allow them to become quiet as before. Then open the other entrance. Neither side, however, should have more combs in it than the bees will cover well. If all the combs are crowded in this way with bees both sides will be content. Should one lot have its queen damaged or killed in hiving, the bees in nearly all cases refuse to raise another from eggs or brood given them, as they seem to be aware of the close proximity of a queen in other part of the hive. If there is room for them to crowd into that side, they will do so. If they fail to find room the bees will cluster in the queenless part for a time, and, as the weather gets colder, will gradually join on to where the queen is, and the other part will in the end be found tenantless. If the queenlessness occurs in the spring, the bees in that side will store honey and pollen, but make no attempt to raise a queen until both sides become overcrowded with bees. I take this opportunity to say that I have distributed a large quantity of Melilotus and Chapman honey plant seeds to those who sent stamped addressed envelopes. Having still seed to spare I can supply further applicants, as all are welcome who require them. — G Wells, Aylesford, Kent, January 9.

(Jan. 28, 1897). *British Bee Journal, Bee-Keepers' Record and Adviser* **25**:35. Bee notes from Sussex. A retrospect. [Letter 2767]. In looking over the notes made last year in the course of my humble attempts to become a proficient in the gentle craft of bee-keeping, the following points were those which seemed to stand out from the rest in my own experience. The Yield. — In this neighbourhood the return for 1896 seems to have been fairly abundant, but not above the average. The quality was splendid. It was mostly early, gathered by June 15, little surplus having been stored after that date. I found the honey unusually thick, and difficult to strain. My early sections were grandly filled, some weighing 1¼ lb. Clover and late crops were an utter failure, dried up and nectarless. Swarms.— This is rather like the celebrated chapter on snakes in the description of Ireland: there were none as far as my bees were concerned. That is to say, while I was

absent for a fortnight in May, an attempt at swarming was reported, but it was believed the bees went back, and when I returned I could no longer tell if a swarm had issued from one or two hives, or none. From that time, I effectually stopped swarming by stretching over the hives a canvas awning, sufficiently broad to well shade them from the sun at all times of the day. In consequence, I had no use for my two Hole's self-hivers, and can give no report upon them. This year, however, I intend to bring them into use again, especially in case of absence.

Strength of Stocks. —This varied, in some cases, in a remarkable manner in the course of the year. I have been relieved to find that others— Mr Wells, for instance—noticed the same fact. Four at least of my stocks kept up their strength fairly well the whole year through, and even now are as numerous as they can well be ; but with the rest there were two, if not three, periods of great falling off. The first was in April and May, when other stocks were doing a roaring business, and this in spite of careful feeding, warm coverings, and constant attention. The next was after mid-June, when there was a great falling off in all the hives. I was almost inclined to think I had shaded my hives too much, and so checked brood-laying; but in a recent conversation a practical bee acquaintance drew my attention to a spell of cold weather in May which had affected his bees in a like manner. And this would account for the strong stocks not being so much checked as weaker ones, as their numbers would better maintain the heat necessary for raising brood; and once more the advantage of a large population—at any rate, amongst the bees —was shown. The third epoch was in September, before wintering. Although I never take stores from the brood-nests, although my stocks all seemed well provided, and although I fed lavishly wherever the least doubt could be entertained, many of the hives began the winter very weak in numbers. It is only fair to add that just before the present cold spell the bees had largely increased in all the hives, and if they now survive I believe they will presently give a very good account of themselves ; they seem preparing for early work.

Wells hives.—I am still persevering with my one Wells hive. I have never yet gone fairly through the year without losing one of the two stocks in some way ; but the stocks winter famously, the early spring returns are enormous, and I am interested in the experiment, and am one of those who persevere doggedly until, by dint of profiting by past errors, success crowns the attempt. But I have never had any difficulty in filling both sides at once, one after the other, with driven bees. I have generally put two weak skepfuls on one side, and a strong skepful on the other, transferring them late, sometimes by lamplight, by shaking the driven bees out of the temporary skeps on to the opened hive-top, brushing them down between the frames, and then quilting over. Where there have been two lots to go in together I have mixed them at the same time and left the queens to settle matters between themselves, which they have done in every case to their and my perfect satisfaction. Those treated in this way, last autumn, are now nestling up against the perforated dummy on either side, and doing well.

Anti swarming chamber .— One of my best hives was one having between the usual ten-frame brood chamber and the entrance a second brood-chamber fitted with wooden dummies spaced j in. apart. This stock never offered to swarm, gave a magnificent return, and is now in first-rate condition. But a very curious thing happened. I suspect the bees must have tried to raise brood between the dummies, and were cramped for cell-room. At any rate, about June, a large number of tiny bees appeared, hardly bigger than houseflies ; and it was most comical to see the great burly drones, the

normal (rather large-sized) workers, and these dwarf specimens all fraternising and working and living harmoniously together. Perhaps others who may have tried this anti-swarmling device, strongly recommended in your columns in 1896 or 1895, will kindly say if they have noticed anything of the sort, and how the plan may have so far succeeded with them? Envoi.—In conclusion, having once tasted of the bee-fever, I shall now continue, if possible, an ardent bee-keeper to the end. Even if prevented at any time, I shall never lose the interest once aroused in bees and their doings. The work comes at a time of year when it is a pleasure and a benefit to be out of doors as much as possible ; and all the rest of the year no pets could give less trouble. Theory and practice are alike absorbing. My hearty wish is—may 1897 put 1896 far in the shade as a bee-year. — WRN Sussex, January 25, 1897.

(Feb. 18, 1897). *British Bee Journal, Bee-Keepers' Record and Adviser* **25**:68. The double queen or Wells system. [Letter 2787]. Is it possible to get those who have tried the Wells system to give their experiences in the BJ, and especially those who have been unsuccessful? A comparison of such notes may be most useful in the coming season. Now and then we hear of good results, but I must say that though I have mixed much with bee-keepers during the last few years, I have not come across one who has been altogether successful with the double-queen system. I have tried it several times, and have in more ways than one failed. Sometimes, for instance, one of the queens has disappeared before or after the supers have been put on. Sometimes the bees from one side pass over to the other, leaving one queen with a mere handful of bees on two or three frames, and the number seems never to increase, though the other side becomes unusually strong. Perhaps the hive under these conditions has given a little more surplus than a single-queened hive, but still the expected success has not been realised. I am not—as our Editors know—a novice at bee-keeping, and the hives which I have used are by well known makers. I admit Mr Wells's own results are invariably wonderful, especially his yield of wax. I cannot think how he gets such a cake from so few hives. I wish the secret of his success could be easily learnt. I take this opportunity of thanking you for the views of the apiaries which are appearing in the BJT.

(Feb. 18, 1897). *British Bee Journal, Bee-Keepers' Record and Adviser* **25**:70. [Query 1658]. Introducing Queens in Wells hives.—Can a queen be successfully introduced in the queenless part of a Wells hive with laying queen in the other compartment, or is it necessary to divide with an ordinary dummy before introduction? — Seeker. Reply.—If ordinary precautions are observed a queen may be introduced to a stock in a Wells hive as easily as in any other.

(Feb. 25, 1897). *British Bee Journal, Bee-Keepers' Record and Adviser* **25**:79. [Query 1667]. Joining weak and strong stocks in Wells' hive.—Saturday the 6th inst. being so warm, I made an examination of my bees, and found all in excellent condition, with the exception of one hive in which I was sorry to find quite three parts of the bees dead, not more than a pint of bees being left alive. There is plenty of sealed honey in the hive, so they are not dying off for lack of food. I lifted out one comb and found the queen all right. Will you kindly say: —
1. Do you think it possible I shall pull this stock through? I placed a cake of

warm candy over the cluster and reduced hive to three frames, then covered up warmly.

2. I have made a Wells hive, and, the adjoining stock to this weak one being very strong, would you advise me to put these two stocks in the Wells hive, placing one on each side of the perforated Wells dummy? I had other intentions for the Wells hive, but if you think I shall stand a better chance with the weak stock close to their strong neighbours, I should of course place them thus.—JW Browning, Woodchester, Glos. Reply.—

1. There is not much hope of building up 'a pint of bees into a useful colony for this season's work, though it would not be difficult to keep the queen alive and well for future use if needed for re-queening with. We have, however, known a pint of bees in February, with a good queen, do well the same season; but it is not, as a rule, advisable to potter with such weak lots of bees in spring.

2. We should reserve the Wells hive for a better first trial of the double-queen system than your proposal affords, and carry out your other intentions with regard to it.

(March 4, 1897). *British Bee Journal, Bee-Keepers' Record and Adviser* **25**:86. Correspondence. The Wells System. [Letter 2803]. In reply to your correspondent Bruen Chester (Letter 2787, p.68), my experience of the Wells system is, that it answers if you have two weak stock? which, worked singly, would not give any surplus honey. It also has the advantage of numerous opportunities to form nuclei at swarming time, to those who wish to do so. If one is near home to divide the swarms, knows how to find queens quickly, and can, when returning the swarms, return the queens to their respective compartments of the hive, as well as how to avoid ructions at each swarming, a very respectable surplus may be secured, but it takes quite as much work as three single stocks require. I thank Mr Wells for spreading the knowledge of his system for the benefit of the bee-keeping public, but, in my opinion, two stocks, with two queens, divided, or kept separate, are not one stock, as Mr Wells claims. I am satisfied with the returns given on Mr Wells' system, but I am not satisfied with the amount of work required to secure a good return. — William Loveday, Harlow, Essex, February 20, 1897.

(March 4, 1897). *British Bee Journal, Bee-Keepers' Record and Adviser* **25**:86. My experience of Wells hive. [Letter 2804]. In reference to a report on the Wells hive which your correspondent Bruen (Letter 2787, p.68) is rather anxious to hear about and perhaps glean some slight information upon. In the first place, let me say I make up my own hives; the Wells I make to hold twenty frames, or nineteen with two dummies, nine on one side and ten on the other. The Wells dummies I also make myself, with holes twisted through 1/8 in. thick board, each hole 1/2 in. apart. When boring, I use small size wire, as that used for telegraph wires ; the entrance is full length of hive front, with a division put between flight and shade board, each side being painted different colours. I place a single-stock hive, painted white, between each Wells. I had some trouble through one side becoming queenless once during the summer season, and about three times during the back end and the the following spring. But when this takes place in the Wells hives, the queenless lot join the other side, if space allows them. The bees do not therefore, like a single stock, become idle, and indifferent about

storing honey, when queenless. The cause in most of my Wells hives becoming queenless was through the perforated dummy moving a little from the floor board and leaving room for the bees to go under the dummy. This I now prevent by placing a strip of wood, 1 in. thick, the full length of the bottom ; fastening the same to the floor board with gimps to prevent any chance of the bees working over the top of the perforated division or dummy, and under the quilt I place a flat piece of wood, about 3 in. wide, right over the centre of dummy, and on the top of the first cover laying on a weight to prevent it moving or working up. I have worked four Wells hives right through the season of 1896, without finding at the back end any of them queenless. I have also wintered the same hives, with two other Wells hives, made up with driven bees, and find both sides much stronger today (February 26) than I expected. These four Wells hives were moved four miles in June and in July twelve miles to the heather — thirty miles or more in all. I may also mention we do not walk our bees to the moor, but not, of course. They travel on a good spring cart. I would here draw Bruen's attention to Mr Wells's letter a few weeks since in the BJ about the precaution necessary when stocking a Wells hive. For my first attempt with the Wells hive your correspondent will find full report on p.499 of BJ for December 14, 1893. My second report, in 1894, appears on p.15, January 10, 1895. Below you will find result of the best two single stocks worked in any given season against best Wells hive of the same season: — 1893 1894 1895 1896:

			Single.	Single.		"Wells."	
			lb.	lb.		lb.	
1893	..	..	80	50	— 130	.. 79
1894	..	..	51	43	— 94	.. 216
1895	No account kept.				
1896	..	..	33½	28	— 61½	.. 160½

The first season, 1893, I had no extractor until I received it in July, and before it arrived the bees had swarmed. — —AH Horn, Bedale, Yorks, February 25.

(March 18, 1897). *British Bee Journal, Bee-Keepers' Record and Adviser* **25**:103. The Wells System. With a word on tits and fly-catchers. [Letter 2816.] I was glad to see your correspondent Bruen (Letter 2787, p.68) asking for the experiences of those who have tried the Wells system, and hoped to have seen more replies either for or against it. I certainly think that if all those who have tried the system and failed with it were to comply with his request, the Editors would be puzzled to find space for them. The Wells system has probably proved a good thing for the hive manufacturers, but it is open to question whether it has to the average bee-keeper. Moving a good deal among beekeepers, I know of many Wells hives either standing empty or used for single stocks only, owing to the difficulties and repeated failures experienced by the owners. My own experience (commenced in 1892) with the double-queen (or double-stock) system has certainly not been a failure in the strict sense of the terra, as I have never had them swarm or lose their queens, while the bees have always been up to full average strength. My hive (a homemade one) takes ten frames on each side of dummy with one entrance in front and one at end. I put on standard frames for extracting, and I have had some splendid takes of honey from it, but only once, in '94, have I ever taken more honey from this hive than from any two of my single stocks of equal strength. I therefore fail to see anything in the system to pay for the extra care and trouble required to work it, and my advice to the inexperienced is always—

Let the Wells system severely alone. ...

(March 25, 1897). *British Bee Journal, Bee-Keepers' Record and Adviser* **25**:115. The Wells System. Mr experience of it in West Cumberland. [Letter 2828]. In reading accounts of the working of the above-named system by different writers in the *Bee Journal*, I could not help being struck with the similarity between our individual experiences. In August, 1896, I stocked a Wells hive with two fairly strong lots of bees, the front entrances of hive facing north-east, and the ends looking south and west respectively. I used the front, or northeast, entrance for one lot, and west entrance for the other, so that the entrances stood at right angles. Both lots of bees wintered well, building up rapidly till about the middle of April, when I found the south end extremely populous, while the west end was correspondingly weak. On examination of combs the west end was discovered to be queenless, with very little brood, but plenty of stores; the bees and brood, however, seemed quite healthy. In searching outside hive I found the dead queen, so joined up both lots, after which they did well and gave me 30 lb. or so of surplus, which is considered good for this district. In August, 1896, I again stocked the empty west compartment of hive, but used only the front, or north-east entrances. Both queens were in their second season, and gave a nice lot of bees before going into winter quarters. On February 7 last I made a slight examination of the hive and found both, sides strong for the time of year, with ample stores and a nice patch of brood on centre frames. On February 28, however, I found the dead queen on the flight-board of the west half of hive, and both lots in a similar condition to that of the preceding year. Now, I have another double-queened hive standing within a few yards of the above-mentioned one, and I find the half looking in a western direction, or towards the sea, is very weak in comparison to the south end, although breeding is going on in both halves. I may mention that the dummies (perforated) in each instance were thoroughly propolised. On inquiry, I find that in this locality it is the general rule to find double stocks queenless in one half more frequently than in the case of single hives. But I am none the less determined to give the system a thorough trial, and hope to stock another double hive during the coming summer, though I shall not have entrances together, but at opposite ends. I hope to send you my report of working the Wells system for 1897, and subsequent experiences, all in good time. My six lots wintered well. I have never had the misfortune to lose a stock during winter; I use good hives, good feed, and plenty of coverings. —JA Nichol, West Cumberland.

(Aug. 19, 1897). *British Bee Journal, Bee-Keepers' Record and Adviser* **25**:326. [Query 1800]. Dividing colony in a Wells hive.—You may remember my writing to tell you that I had a hive which became queenless six or eight weeks ago. There were no drones or drone cells in the hive at the time, but on examining the hive about fourteen days later, I found that a queen had been reared, and was evidently mated, for I saw an abundance of brood in the combs. To my surprise, there were also at least a hundred drones among the bees.

1. Will workers allow strange drones to establish themselves in the hive at such a time? Or, if not, how did the drones get there? The bees are now increasing quite fast, thirteen standard frames being fully occupied with brood and honey, and they are working well in a rack of twenty one 1-lb. Sections.

2. I lost two colonies of bees last spring, and wish to increase my stocks either this autumn or next spring ; I should therefore like your advice on the following plan: — I propose to use my fifteen-frame hive on the Wells system by putting a queen-excluder in the centre and making another entrance into one compartment at the back. I would keep the queen now in the hive at one end, and introduce an Italian queen at the other end, and let them all work in one super next year. Has this been done, and, if so, was it a success? I also wish you would give me the name and address of the secretary of the Glamorgan BKA — A Working Man, Cardiff (Glam.). Reply.—

1. Whenever bees are raising queens in a hive they will welcome drones from whatever quarter the latter may come. The drones also are either attracted to or seek out such hives and take up their quarters therein. This is in fulfilment of a natural law easily understood.

2. We have not heard of the plan proposed being tried before, and although it looks simple and feasible on the face of it, we fear it won't work out so well as it looks on paper. In the first place, when dividing the combs between the two compartments of the Wells hive, it must be borne in mind (a) that in order to get the bees to accept a second queen, a solid dummy must divide the two lots ; (b) that the flying bees of the back—or new entrance —compartment will nearly all enter by the front doorway, and so cause a considerable diminution in the number of adult bees in that compartment. This will need watching, and young bees should be given to the latter—if the brood is not well covered by bees—to prevent chilling. It will be safer to try the plan this autumn than next spring.

3. Mr E Thornton, Bridgend, Glam is Hon Secretary of the Association named.

(Sept. 30, 1897). *British Bee Journal, Bee-Keepers' Record and Adviser* **25**:381.

The honey harvest in Atholl. Now that the honey season is over, says the Dundee Advertiser, both bees and bee-keepers are settling down for the winter, and, although 1897 cannot be recorded as a failure, yet it almost borders upon that unenviable state. To the bee-keepers of North Perthshire, who are situated on the high hills, August is looked forward to as the month of their honey harvest. Unfortunately, however, the past month of August has been one of the worst on record. Opening with a severe thunder-storm, followed by incessant rain, the heather bloom was literally washed away. With the barometer hovering about 29 in. and the rainfall varying between 7 in. at Blair Atholl to 9 in. at Daluaspidal, it is surprising that the beekeepers' returns do not read nil. Undoubtedly such would have been the case had not the heather been early, and the bees able to take advantage of the fine weather of the last few days of July. During that short time the bees gathered about all the season's surplus, which cannot be more than about 15 lb. or 18 lb. on an average per colony. Nevertheless, some bee-men have done really well—one fortunate apiarian, Mr P Robertson, Garryside, taking 81 lb. from a single hive, a phenomenal return for a bad season, and also showing what *apis mellifica* could do, given a congenial environment. Although this district is far removed from the orchards and gardens of England, yet Mr Wells, of Kent, has an enthusiastic follower who has been running a two-queened hive for the last few seasons with indifferent success. The system is certainly good for rapidly bringing the bees to full strength, especially in the earlier part of the season; but the great tendency to swarm counteracts the good otherwise accomplished. No doubt in skilful hands the system has proved veritable wells of

honey, but such has not been the experience of the Atholl Wells. Notwithstanding the wet weather, the quality of the honey is fully up to the ordinary average. This is probably due to the fact that most of it was gathered in the short spell of heat during the latter end of July. Although the supply has fallen 60 per cent, compared with last year, yet, happily for consumers, there has been no advance in price, clover and heather blend going at 1s. per lb., while well-finished sections of pure heather still command 1s. 6d. per lb.

(Nov. 4, 1897). *British Bee Journal, Bee-Keepers' Record and Adviser* 25:434-435. The Wells System. [Letter 3038]. Your correspondent, Mr WJ Farmer (Letter 3036, p.428) asks for reports from bee-keepers who have adopted the Wells system. The more experience I have of this system, the more I am convinced that it cannot be generally adopted. It is only the bee-keeper who is within easy call of home during the swarming season (as I believe Mr Wells is) that can hope for good results from this system. I, too, am perforce (unfortunately for myself) never far from the apiary. This season (not an average one here), the quantity I have taken by the double-queen plan is one Wells hive to three single ones. This has been exactly my average, comparing the two systems for four seasons; but the labour involved by the double-queen plan is more in proportion, that is, one Wells hive makes quite as much work as three single queened ones. Bees swarm, do what you will, if worked on the Wells hive system. If the bees in one end swarm, those in the other compartment follow suit at once and join them, even if no preparation has been made by last-named lot for swarming. The result is, you have a swarm weighing from nine to twelve pounds to hive, or return if you wish; and this may have to be gone through three times in as many weeks. If the bee-keeper can afford to have an empty Wells hive ready to hive the double swarm into, placing the new hive on the old stand, this will allay the swarming fever, for a time at least. My experience is that the swarms invariably unite, and if one wishes to continue working on the Wells system, this enormous mass of bees and the queens have to be divided. This season I tried a solid dummy placed in between the two stocks before supering, but this had not the desired effect. On the other hand, if it is desired to work up two weak colonies for the honey flow, the Wells system has none to equal it. If nuclei be wanted, have a few Wells hives stocked, and nuclei may be formed by the dozen during the swarming season. — Wm Loveday, Hatfield Heath, Essex, November 1.

(Nov. 11, 1897). *British Bee Journal, Bee-Keepers' Record and Adviser* **25**:446-447. The Wells System. [Letter 3050]. May I be allowed to say a word on the other side in answer to your correspondent W Loveday (Letter 3038, p.434). I have never had the discouraging experiences described in his letter, after working bees on the double-queen principle, or Wells system, ever since it first came into vogue. Nor have I been unfortunate enough to lose a stock in a Wells hive during the whole time. Working this present year with twenty-one double-queened and forty single-queened colonies, not one of the latter have approached the Wells stocks for quantity of surplus honey. I also labour under the disadvantage Mr Loveday mentions, for I have three out-apiaries, the farthest away being eighteen miles from home, and, so far as the bees in this spot are concerned, I only see them about once a fortnight during the honey-flow; yet one Wells located there was tiered-vip this summer with three boxes of shallow frames, twelve in each, and

after extracting and returning these thirty six frames, half of them were filled again, notwithstanding our short and very moderate season in Hunts. I am quite within the mark in saying that my good single stocks this year on eleven frames have not yielded anything like in proportion to the small stocks worked out on the Wells system. All my other double-queened hives have done equally well, so far as giving best returns. A most remarkable thing is, I have never had a swarm from a Wells hive yet. My principle is to give the bees plenty of work in advance, without reducing the internal heat of the hive, and so long as I am a bee-keeper, I shall continue this principle. I think a great deal of gratitude is due to Mr Wells for introducing his double-queen system. In conclusion, I may state there was not convenience for me to weigh the honey got from my Wells stocks ; but the approximate weight would be about 200 lb. per hive.—R Brown, Flora Apiary, Somersham, Hunts, November 6.

(Nov. 18, 1897). *British Bee Journal, Bee-Keepers' Record and Adviser* **25**:453-454. The Wells System. How I make it successful. [Letter 3057]. In response to your correspondent WJ Farmer (Letter 3036, p.428), at first I could not see my way clear to write, because you will understand how difficult it is for an amateur to extol a system that seems to have failed in the hands of so many old hands in the craft. On reading Mr Loveday's experience, however (Letter 3038, p.434), and Mr Brice's remarks re Wells system in the November Record (p.164), I concluded, in all fairness to the introducer of the system, that I should give my experience with the Wells system, and let readers see that at least there is one in this remote part of Yorkshire who has made the system a very great success. My experience entirely differs from that of both gentlemen referred to above. I adopted the system at the time Mr Wells was giving us his splendid report in the BBJ some years ago. I now possess nine Wells hives, and have never yet known the bees to leave one side and all join up together in the other compartment. During the last heather season I had the misfortune to lose a queen in one of my Wells hives, and as honey was coming in I decided to leave it alone and note result. This hive stood four weeks without a queen at one side, and yet the bees did not join up with their next-door neighbours; they continued storing in the supers, and at the end of the time stated the only difference I could see was that the brood-nest was completely filled up with pollen. As to swarming, well, I should be quite surprised to have a swarm from my Wells hives, seeing that, for the last three years, not one of them has swarmed. The honey return?, too, from these hives have always averaged as much as any four of my single-queened stocks ; and so far as the Wells system is looked upon by the members of the Association I belong to (the Pickering BKA) is not due to any trouble in working, but solely to one cause, viz — they are too large to cart to and from the moors. I induced a friend to try one on the moors in 1895, and it gave him 13½ stones of heather honey. My own Wells hives in that year gave me 196 lb. each, about 50 lb. each of this being clover, while my single hives for the same year gave me 41¾ lb. each, and, as I said before, it takes about four of my single hives in the best of seasons to compete with one of my Wells. I also carry my Wells system further than the production of honey by raising a few more young queens during the summer than I require at the end of the season for requeening. These spare queens are packed up for winter in ordinary single hives with a perforated division board in the centre, with one queen and bees on each side, and just as many frames as they

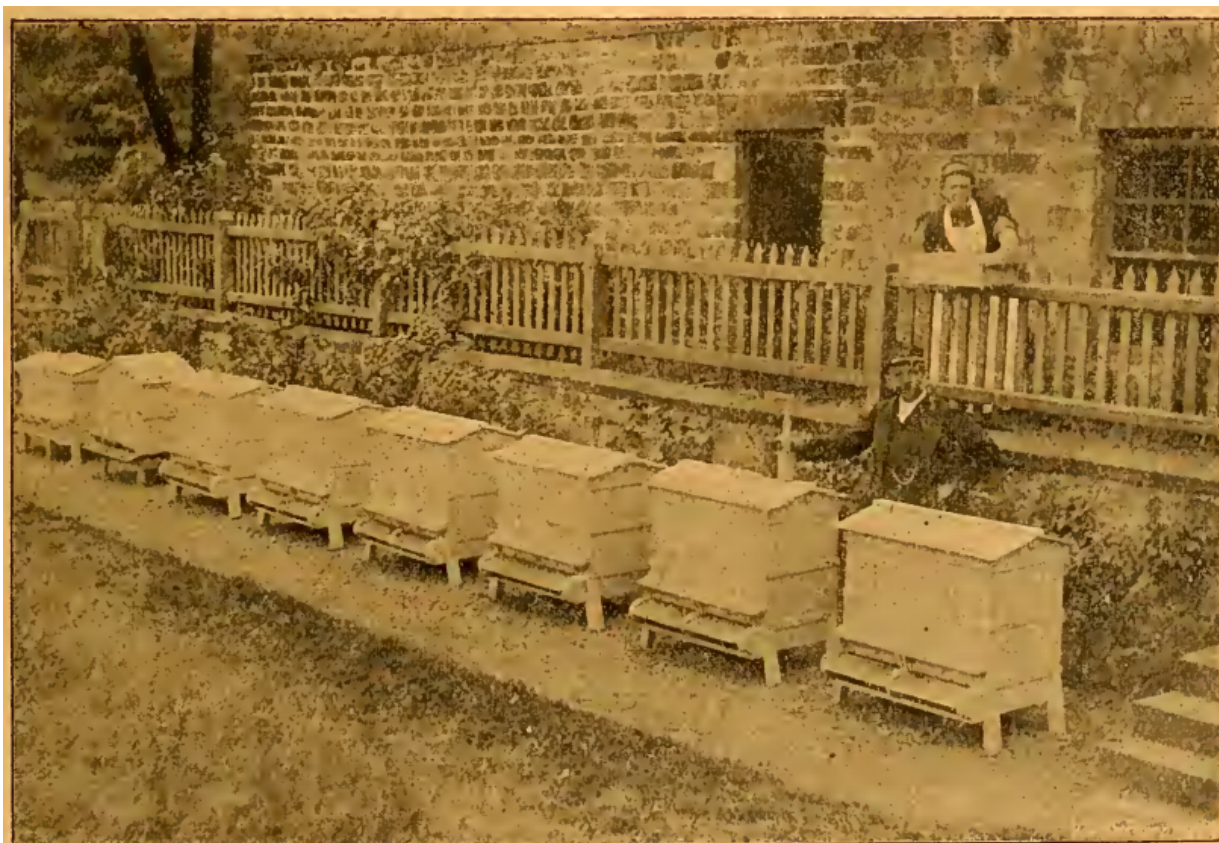
can cover (usually about four frames, but I have wintered such lots on three frames each). We are usually told to unite such lots at the end of the season, but the queens are too valuable to me, consequently I prefer uniting on the Wells system; I may want them the following March or April. Those who wish to preserve a few spare queens in winter will find that putting them up for winter as stated above will prove that when wanted in spring they will be there, and you will have a hive in the best possible condition for future work. I really think that in the case of failure in this system, there is something wrong, either in the management or in the make of hive, or both. If Mr Wells' teachings are strictly adhered to I cannot see how the system can fail. I, at least, am satisfied with it, and I only wish others could make it a success, for without doubt a great deal better returns in honey are got; but for those that make a trade of selling swarms or working entirely for sections the Wells system is no use whatever.—J. Rymer, Levisham, Yorks.

(Nov. 25, 1897). *British Bee Journal, Bee-Keepers' Record and Adviser* **25**:467. Various bee notes from Yorks. [Letter 3069]. The Wells System.—I desire to express my thanks to your correspondents, Messrs W Loveday, R Brown, and J Rymer, for so kindly and fully responding to my desire for experiences with the Wells system. Their several accounts gave me great interest, and, no doubt, readers along with myself will be much obliged to them...

(Nov. 25, 1897). *British Bee Journal, Bee-Keepers' Record and Adviser* **25**:469. The Wells System. [Letter 3075]. Your correspondent, WJ Farmer, who wrote, on p.428, asking for reports on the Wells system, does not seem to be getting many, which I cannot understand, seeing how numerous are the readers who are trying Mr Wells's plan. Mr W Loveday's experience (p.434) differs altogether from my own, as I have had a Wells occupied for three years without a swarm from it. What I have seen about these hives compares most favourably with the single queen stocks. The first year my Wells was occupied I was using very thin foundation for supers, which the bees utterly refused to work out, and not finding out the reason till too late, I got no surplus in consequence. The next year, with fresh foundation, the bees set to work with a will; but a bad year followed, and I only got 40 lb. of honey from the double-queened lot; but from my single hives I got nothing. This year I took 100 lb. from the Wells hive, in addition to having four supers of worked-out comb to start next season with. My single-queened hives only yielded about 9 lb. each. Two of them, however, were swarms and two artificial swarms. The Wells therefore, compares very favourably with these. I ought, however, to say that I do not strictly follow Mr Wells's method; never taking the division board out to remove the propolis from perforations of dummy, yet the bees never fight when allowed to work together. If novices adopt this plan, and do not follow it out carefully, it is unfair to lay the blame on Mr Wells. I have set up one more double-queened stock this autumn, and intend ordering a third Wells hive from the makers, feeling confident that they are the best to use. I hope, however, that other readers will give us their views either for or against. The weather here is very open, bees bringing in pollen daily; this points to late breeding and young bees for the spring. I have sold nearly all my honey in single jars at lid. per lb. retail, a little cheaper for larger quantities, only about 50 lb. of my crop being left on hand.—SH Tollington, Leicester, Nov. 18.

(March 17, 1898). *British Bee Journal, Bee-Keepers' Record and Adviser* **26**:104-106. Homes of the honey bee. The apiaries of our readers. The very neat and orderly little apiary shown in our illustration this week belongs to Mr J Rymer, who, along with his good wife, is seen in the picture. Writing in response to our request for a few particulars regarding himself, Mr Rymer says: —My apiary is situated at Levisham Station, in the Newton Dale valley running from Pickering to Whitby. Being close to the line-side the hives can be seen by those travelling from or to Whitby on the North Eastern Railway. In the early days of railway enterprise this line was worked with horses. My interest in bees, he adds, was first aroused in October, 1891, and in the following spring I began bee-keeping with two straw skeps. Having gleaned what information I could during the winter months from the Guide Book, our two journals, the BBJ, and *Record*, and Webster's book on Bees, I began to work with the set purpose of making my apiary self-supporting, and for the information of others I may tell you, this I have done, and had besides a nice little sum to spare when the seasons have been fairly good. Everything in connection with the bees have been bought with cash received by the sales of honey, including extractor, ripener, wax extractor, heather-press, wood for hives, and a host of other things, all of the best. The only thing I have not charged the bees with is my labour, and for this I consider they have paid me well. Counting each of my Wells hives as two colonies, my two apiaries now number thirty stocks. I make my own hives in the winter time all on the WBC pattern (except one or two I made at first). I have tried other patterns of double-queened hives, but I have had to do away with them, as they were not suitable for the system. For success and ease in working I cannot find a hive to compete with the WBC, and all my hives are giving way to this pattern, and they are as easily made as any other. The measurements from front to back are the same as given in the *Record* for March and May, 1894, the length of the hive and the floor-board (being in two parts) being the only variation, except that the lifts are made with an 11 in. board. Each hive is worked with are worked with WBC section rack, and I find the sections are as clean when filled as when put into the hanging frames—not a stain of any kind on them—and my sections find a sale all over England, goodly numbers being regularly sent to London, Windsor, Newport, Mon., and a good many other places of smaller note. From this latter apiary I obtain all my young queens for my Wells hives and to replace any that do not come up to my requirements. Being close to the Yorkshire moors, we have very little clover honey, our main source being from the heather. My wife—who is shown in the picture—assists me very materially in the preparation of shallow frame crates and section racks, fitting them with comb foundation, four WBC shallow-frame boxes. My apiary is in two parts. The one shown in photo is my Wells apiary, which I close to my house; this part of my stock yields the best returns; indeed, I have never had less than 100 lb. per hive in bad seasons, and in good ones have had 196 lb. per hive. All the double-queened hives are worked for extracted honey only, as I found they were not suitable for section work. I am never troubled with swarms and have not had a Wells hive to send off a swarm for the last three years. With me this system has been a great success. My fourteen single hives, standing in a adjoining field to my house, are kept mainly for section honey, which is mostly taken by visitors to our beautiful dales. These hives cleaning and packing the sections for transit (on Mr Woodley's plan). On this I do not know of a

single section having arrived at its destination damaged after a three hundred mile journey. She is my assistant when putting on crates or taking them off, and, above all, markets nearly the whole of my extracted honey, and, with a heather-press of my own design, presses many a hundredweight of heather honey. She also does a great deal in the sales of honey at our market town, and when I tell you that she has sold half a ton to one gentleman, all put up in 1 lb. screw-capped jars, two years in succession, and has received the same order again, you will agree she does a good deal towards the end in view, viz making the apiary pay its way, and is, I am proud to say, an ideal bee-man's wife. It also will show what can be done by working folks, with a little care. The above is a clear and unvarnished tale of an apiary that has built up itself and I trust will be of some use to those commencing in the craft, and I would add to all beginning, be guided by those old veteran writers in our bee journals, and you will succeed ! It is always a pleasure to hear of those who make a success of bee-keeping, and it is doubly pleasant to learn of cases where the bee-man's better half is as energetic and helpful about the bees as himself. Mr and Mrs Rymer can thus not only secure honey, but manage to convert it into cash, and that without mention of any difficulty in finding a market for their produce. May their good example stimulate other to do likewise.



MR. J. RYMER'S "WELLS" APIARY, LEVISHAM, YORKS.

(March 31, 1898). *British Bee Journal, Bee-Keepers' Record and Adviser* **26**:125-126. Mr G Wells' report for 1897. [Letter 3206]. I had made up my mind to let my bee doings for 1897 pass without notice, but having received requests from BJ readers asking how I had got on with the bees, I ask if a little space can be spared

in BJ for the same . My intention was to have worked seven hives last season, but a friend so wished me to let him have a stock that I agreed, and this left me with but six hives to go on with, each having two queens. The bees, however, were in grand condition by the time honey began to come in. Two of the hives swarmed, after which I made six nuclei from the parent colonies, and from the other four hives I made ten more, making sixteen nuclei in all. Of the sixteen young queens fourteen were successfully mated, and the bees built up into fair stocks of from six to eight frames. At end of August these nucleus colonies were united to the five old stocks which had been gathering honey during the season. Of course the old queens were removed before uniting. Two queens which had only worked one full season were saved, and the other four young queens were fed up and formed stocks of their own. This made me have eight double queened hives to go into winter quarters with, and all were in splendid condition. I shall probably only work seven hives through the present season, but I make it a rule to save at least two spare queens in nuclei each winter, in case of accident or loss to a queen in any of the fully equipped hives, they mostly come handy either for myself or a friend. I examined my hives on Monday last for the first time since they were packed for wintering at end of September. All, save one, are in good condition. In this particular case something had evidently happened to one of the queens, as one compartment was entirely devoid of bees, though the other side was quite crowded, showing plainly that when the bees found themselves queenless, they soon joined those on the other side of the dummy, and united to the bees whose queen was safe, as the combs were very sweet and clean, besides containing about half the food they had in them when packed for winter. My financial position with the bees for 1897 is as follows: —

	£	s.	d.
127 1-lb. sections comb honey, at 9d.	4	15	3
811 lb. extracted honey, at 8d. ...	27	0	8
34 lb. bees-wax, at 1s. 6d. ...	2	11	0
	£34 6 11		
Deduct total expenditure during			
the year	2	6	8
	£32 0 3		
Balance for labour ...			

The season for honey in this district was about a fair average. I am very pleased to see that some of your correspondents have done even better with the double-queen system than I have myself. In fact, this is a thing I have expected to hear more of, as mine is not one of the best districts for honey. I should like to mention, in conclusion, that I have some seeds of the Chapman honey plant, and also of melilotus, which I will send free on receipt of a stamped and addressed envelope. This month is about the best for planting, and if dealt with something like cabbages, the results will be very good for the bees. They will also grow on any waste or uncultivated land. There is one more thing I should like to mention, that is, respecting my address. I find there are now two persons living in Aylesford by the name of George Wells, and, in consequence, my letters get into the wrong hands. Those who write me should address — G Wells, Eccles, Aylesford, near Maidstone, Kent.

(May 12, 1898). *British Bee Journal, Bee-Keepers' Record and Adviser* **27**:186-187. Bees in hollow tree. [Letter 3264]. In reply to ROV (Puckington) (Letter 3237,

p.156) as to time of year I drove bees out of tree, as near as I can remember it was the latter part of May. There is not the least doubt that the earlier it is done the better, before the combs are full of brood, otherwise the bees will be very loth in leaving. If you will allow me, I should like through your columns to thank Mr Wells, of Eccles, for his reply by letter to me, in answer to questions I put to him respecting shallow frames under brood nest. I enclose you my letter to him, also his answer, and if you consider any part of it worth recording, you are quite at liberty to do so. Having only recently taken the BBJ and the Record, I have not been able to see if this subject has been introduced, and very little have I seen written about it in other papers. I should like your opinion, or those who have tried it to state if it has given satisfaction. I have found some who have tried and discontinued it, relying upon top supering to prevent swarming. I have been thinking, why not introduce a crate of shallow frames under brood box, using queen excluder between the two to prevent queen from going down, leaving the bee³ to draw out the comb; when they have done so, remove crate, bees, and all on to the top. By that time I should think they (the bees) would have had their fill of comb building, and be quite content to go on gathering honey, instead of swarming. It seems to be acknowledged on all sides that, if they have a spell of comb building it removes their swarming propensity, and by cutting out all queen cells there would be no inducement to do so. As I am only a novice, I give my idea for what it is worth.—JR, Bacton, Stowmarket. [From the letters alluded to by our correspondent we extract the salient points referring to the subject dealt with, beginning with the query from Mr JJR who says:—

1. Do you use shallow-frames under broodnests of your Wells' hives to prevent swarming?
2. Do you fill with full sheets of foundation, and, if so, what time of the year do you take it away again.
3. In the following year, do you use the combs of this under-chamber for extracting from, and do you have any difficulty in getting the bees out of it? Some writers do not believe in this second chamber?
4. Do you find it answer? By answering these queries, you would greatly oblige one who is this year trying your pattern-hive. In answering the above, Mr Wells says:

—In reply to your questions, I don't use shallow-frames under brood-nests of my hives. I use full sheets of foundation in every case. Nor do I remove it until drawn out and filled with honey, or at the end of the season. I have also no difficulty whatever in working my bees; but I presume, however, that your questions are based upon the use of a hive with shallow-frames under brood-nest, and as I have never tried the plan I cannot enlighten you. When Mr Ford brought out what he calls the Ford-Wells Hive, he kindly sent me one so that I might give it a trial, but seeing that my own hives were so much simpler to work, I have never tried, it so it has stood just as I received it three years ago. But having been asked so many questions about this hive of late, I have now made up my mind to stock it and see how it worked, so I put two stocks into it last Saturday. I put drawn out shallow-combs under brood-combs, as I thought it too early in the season to have so large a space filled with full sheets of foundation. When the season is more advanced I may be able to enlighten you a little. —Yours faithfully, Geo Wells.

(Oct. 13, 1898). Homes of the honey-bee. The apiaries of our readers. *British Bee*



MR. RICHARD BROWN'S HOME-APIARY, SOMERSHAM, HANTS.

Mr Richard Brown, whose apiary forms the bee-garden picture of this issue, is one whom we must define by a closer term than to merely say he is one of our readers, because we rather think that the subject of this short sketch has the interest of the BBJ quite as much as as if it belonged to himself. Anyway, if every reader made similarly effective efforts to obtain subscribers, our list would, indeed, be a long one. But to know that our friend has associated himself with what he believes to be a good cause means – to use a colloquial phrase – going in for it for all it is worth, and to this spirit is mainly attributable to the almost invariable success which attends his undertakings.

As an extensive fruit grower he goes in for the best sorts only, and by his special care in packing and preparing his produce for market has secured a trade with Covent Garden and other centres of the fruit trade such not many in this country can boast of. Ever cheery and contented with his lot, it is a real pleasure to meet him anywhere; for while farmers proverbial grumble about hard times has become a sort of truism, one has but to put the usual query How's trade, to be sure of some such reply as Never better; crops good, price satisfactory, and well satisfied.

All this of course, directly personal, and perhaps a little apart from what pertains to Mr Brown as a beekeeper; but those who, along with the Editors of this journal, have seen our friend at his home, and enjoyed the delightfully pleasant atmosphere of prosperity and contentment surrounding the place cannot fail to see how the employer and his workmen are in accord, and how very far off is the spirit which prompts either strikes or lock-outs in larger establishments. Indeed, it is safe to say that if all men followed the sound business lines adopted in this village workshop – lines in which equity takes equal place with justice – all men would be happier for it.

In these days of keen foreign competition, when many talk of emigration as the panacea for all the evils attending over-population in our towns, and regard with no friendly eye the bringing over of all sorts of agricultural and horticultural produce from abroad to glut the markets to the detriment of the home-grower, Mr Brown resolved upon taking a quiet trip to the Continent in order to see for himself what there was of superiority either in the methods of growing, or harvesting, or preparing for the market that enabled the foreign grower to undersell the British fruit framer. No doubt there was a sly resolve to pick up what was worth bringing away in the memory; but our object in mentioning the matter is to relate what occurred when – on reaching London on his way home – Mr Brown gave us a call at King William-street. Well, said we, are you a convert to foreign methods? Are you going to leave us and emigrate? Emigrate! said he. Why I'll sing God save the Queen and Old England louder than ever! Oh, dear no; we can keep in front of the best of them if we try, and I mean to do my best. The above sentiments are so exactly characteristic of the man that nothing need be added by us. At our request Mr Brown sends the following particulars of his bee-keeping experiences: I began bee-keeping in Somersham in the autumn of '79 by buying half-a-dozen stocks in skeps from the parish clergyman, who was leaving. As I got the lot for £1 4s, I had a bargain. But, like all things, they were not perfection, and the spring and summer of 1880 I dove into the bargain. At the present time I am the possessor of eighty frame-hives, which produced this year (1898), as a bad year, 12 cwt. of surplus honey, all of which has been sold. The apiary seen in photo faces south, but it shows only a small portion of the hives I have on hand. I have also two out-apiaries, with twenty-five hives in each apiary. In the shed next to the manipulating house (where Mrs Brown stands) I keep such accessories as section-racks, boxes of shallow-frames, &c. The eleven colonies seen in the picture were made up of driven bees, two lots in each hive, on the Wells system, of which I am a great advocate. The bee-forage in this part of Hunts is made up of fruit orchards and general agricultural produce. There is also a good being cold and wet only two survived. Not being deterred by a first failure, I kept on, and increased my stocks to six skeps in 1881, and the following year found me the possessor of twelve skeps. I then accidentally dropped on some old literature at an auction sale, and among it an old number of the BBJ I was so pleased with what I read therein that I quickly invested in two frame-hives, and I got friend White to transfer a skep stock into one of my new hives. After this I abandoned skeps except for swarms. I found by keeping plenty of bees in frame-hives there was money in it. Perhaps not large direct profit, but as a fruit grower I found bees of very great advantage for the fertilisation of the crops, and thus, as I extended my apiary, so I extended my purse and got hold of a hobby that breadth of coleseed, mustard, and turnip grown for seed here, so that when the fruit blossom is over the bees work on these continuation crops. Then comes the clover, and after that the bees are revelling in buckwheat, on which the bees work till late in autumn. Being an owner and occupier of land, I have greater facilities than many bee-keepers, and I always keep my eye open for any crop that is not in touch with my bees. In this way I become acquainted with farmers, and tell them how greatly it is to their advantage and benefit, as well as my own, to have bees working on their crops. I find from experience that more friends are made through bee-keeping than any other branch of agriculture. It has been my good fortune to be the means of getting honey classes introduced at the shows of four

horticultural societies by speaking up in the interest of bee-keeping to those who had the management. I also find it a great help in this direction to take an observatory hive—as I generally do when I am exhibiting horticultural produce. There is always a crowd of interested onlookers at a frame of comb with live bees and their queen, so any of our craft who care to take the trouble may soon help to swell the ranks of bee-keepers at a show by talking to them about our busy little workers and what they can do for us. It is also an excellent way of educating the masses in the wondrous ways of the bees and the healthfulness of good British honey. I sometimes wonder on reading in your pages about bee-men not being able to find a market for their honey. Why, I don't have the slightest trouble in selling all we can secure. In 1895 I sold 1 ton 5 cwt, wholesale and retail, and in 1897 I had to buy from friends to keep up the supply to my wholesale customers. It should, however, not be forgotten by all who wish to create a permanent market how necessary it is to be particular about grading their honey, and more than all not to send an inferior sample to a customer. It is sure to cause loss in the end if honey of poor quality is sold as good. This, I think, is most important to all sellers of honey. I find it easy to keep the same customers for years by dealing fairly with them, and re-commend the same plan to all brother beekeepers. The same course of action has been my rule ever since I started business on my own account, and as it has answered with me, it will do so with others. In my case it finds me envying no man and perfectly content with my lot in life. Providence has blessed me with health, sufficient of this world's wealth to satisfy all my needs, and a good Queen Bee to share it. So far as my public work, my neighbours have made me churchwarden and sidesman for the parish, trustee of a public charity, and a Parish Councillor, besides returning me at the head of the poll as one of the managers of our School Board. My bee-keeping experience extends to nearly twenty years, and I hope to continue a bee-keeper so long as I live. My knowledge of the craft has been attained by close observation, helped on by the *Bee Journal* and its worthy Editors, who, I trust, may live long and continue to be honoured by all bee-men worth the name.

(Dec, 15, 1898). *British Bee Journal, Bee-Keepers' Record and Adviser* **26**:493-494. Mr Geo Wells at Wooler. Lecture on the Wells hive and system. [Letter 3500]. In the BBJ of December 1 it was announced that Mr Geo Wells, of Aylesford, Kent, would give a course of lectures in various districts of Northumberland and Durham during the present month. On Thursday, December 8, Mr Wells visited Wooler, called the metropolis of the Cheviots from its being situated near the foot of the Cheviot Hills. The lecture was given in the Mechanics' Institute to a large audience, GP Hughes, Esq, FRGS, occupying the chair. Mr Wells gave a very clear definition of his hive and system, and showed various appliances, which he fully explained. He also dealt at some length with the question of foul brood among bees, observing that he was pleased to hear that it was not such a serious matter in Northumberland as in Kent and elsewhere. He had been informed both here and at other places around that there were no known existing cases, a thing which we ought to be sincerely thankful for. He further urged every one present to become a member of the N and D Association to strengthen it in its work, and that, as the Association had only begun its work in the district quite recently, he was authorised to say that Mr Jas Waddell was the local secretary, and would be glad to receive the names of all who might wish to become members. At the close

of the lecture Mr Wells invited questions from any one desirous of obtaining information on the double-queen system. Owing to this district being suitable for gathering surplus from both clover and heather honey, the Wells hive and the method of working were severely criticised by some among the audience. Its size and weight were considered objectionable and unsuitable for removal to the heather by cart over rough, hilly roads to the various stands amongst the hills. One bee-keeper said, As this district seems more adapted for sections (especially when working for heather honey), he would ask if, instead of fitting the drawer at bottom with shallow-frames, could the same be fitted with sections 1 In reply, Mr Wells said, I generally notice that my shallow-frames, when filled with comb drawn out from foundation and ready for removal from drawer, are more or less discoloured, which discolouration would prove very objectionable to working for sections. Various other questions were answered by Mr Wells to the best of his knowledge, but he added a few words to say that, as he lived in a district which only produced flower-honey, he regretted his inability to enter into or to express any decided opinion regarding the best way of working for the heather honey. The meeting closed with the usual votes of thanks to chairman and lecturer. — Cheviot, Wooler, December 10.

(May 11, 1899). *British Bee Journal, Bee-Keepers' Record and Adviser* **27**:184. Mr Wells' report for 1898. [Letter 3674]. As a bee-keeper for twenty-seven years past, and a constant reader of the BBJ for a good part of the time, I—like our friend Woodley—cannot see where Mr Wells gets that big cake of wax from his bees. I have also been more than surprised to notice that none of your readers have commented on Mr Wells' report for 1898, and I venture, therefore, to make a few observations on it. Now, suppose we grant that Mr Wells from the combs containing his 490 lb. of extracted honey will get 7 lb. of cappings. Granting also that he got 20 lb. of wax from the goodly number of old combs melted down — £s mentioned on p.144 of BBJ for April 13 —one would think that he would have to melt down every comb in his apiary of seven hives before he could get so heavy a cake of wax as the one mentioned, viz 35½ lb. This being so, I for one would be much obliged if Mr Wells would help me and many others who have been in the dark so long as to the weight of wax that may be got from a few hives. Mention is also made in the report under consideration of the poor returns got by other bee-keepers in Mr Wells' locality last year compared with his own, but I think the failure has resulted from bad management as much as anything, for we all know that bees require to be fed in times of scarcity before you can get good results, and this is where, in my opinion, our friends in Kent have failed. I also think that Mr Wells' average of 84 lb. per hive is a poor one, bearing in mind the way he makes up his stocks every season. — Alex Patello, Forfar, May 8. [Our correspondent has, we fear, overlooked the fact that—as Mr Wells explains—his own poor return in surplus honey for 1898 was accounted for by the bad weather for most of the time last year, and only gives the far worse returns of his neighbours in order to show the superiority of the Wells system by comparison. —Eds.]

(April 13, 1899). *British Bee Journal, Bee-Keepers' Record and Adviser* **27**:144, 146. My bee-doings for '98. Mr George Wells' annual report. [Letter 3636]. Some of your readers will remember that I have been in the habit of distributing free

seeds of the Melilotus and Chapman honey plants to those bee-keeper who care to send me a stamped and addressed envelope for the same. I may say I have distributed a large quantity this year, and I have no more applicants to serve at present, still I have some seeds of both kinds left, and as it is time the seeds should be planted, those who require them should send at once. In accordance with my annual custom I herewith send you a brief account of my bee-doings for the year 1898. Well, as is my usual practice every spring, I joined up my stocks so as to reduce the number of hives to seven. Two queens being, of course, in each of the seven hives. This operation of joining up is done about the middle of April, and in this part of Kent the season of 1898 opened most favourably, the bees having gathered some very nice honey; but the weather soon changed and we had a great deal too much wet, which lasted until the best time for honey-gathering in our district had gone by. Not only so, but when the change did at last come, the weather was too dry for honey yielding for more than a day or two at a spell; but whenever a change occurred and there was any to be got, my bees lost no time in bringing it home. In this way, then, at the end of the season I found myself with 100 very fair sections of comb honey and 490 lb. of extracted, the total yield thus being a little over 84 lb. of surplus per hive. I also melted down a goodly number of old combs, and these, together with the cappings, brought my wax cake up to 35½ lb. in weight. Some of the sections were sold at 1s., and others as low as 6½d. each, while the best of the extracted honey realised 9d. per lb. The remainder varied from 8d. down to 6d. for the darkest. I may, therefore, safely estimate the whole at 7d. per lb., and this makes my financial results work out as follows : —

100 1-lb sections at 7d. £2 18 4

490 lb. extracted at 7d £14 5 10

3½ lb. beeswax at 1s. 6d. per lb. \$2 13 3

£19 17 5 Deduct expenditure during year. £2 11 0

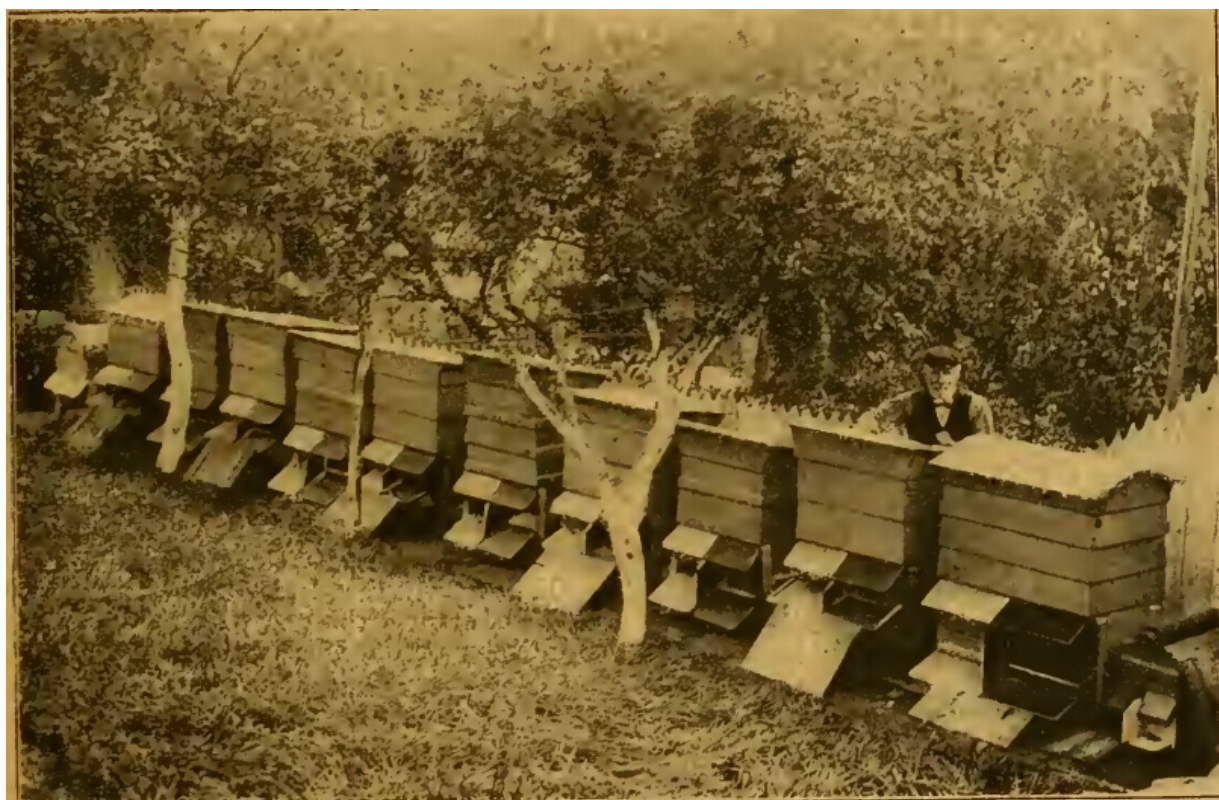
Balance for labour £17 6 5 bring one penny less than an average of £2 93. 6d. per hive.

Now, with your permission, I will compare the above with the results got by other bee-keepers in the district : —In arriving at these results let me say I drove about a dozen skeps for friends, and from them the average could not, I think, exceed 7 lb. of honey per skep, and the honey, too, in every case was very dark in colour. I also found many bee-keepers owning frame-hives, who had taken very little surplus in '98, while others got none at all, and some were obliged to feed their bees to keep them from starving. I know of two cases where the bees were left unfed, and they died right out in June. In all these cases only single-queen hives were kept. In two instances where the bees were worked on the two-queen system fairly good results were secured, but neither bee-keeper did so well as I did myself. I have now eleven hives in my apiary with two queens in each, but the number will shortly be reduced to seven by the usual process of joining up. Geo Wells, Eccles, Aylesford, Kent.

Eds BBJ (July 6, 1899). *British Bee Journal, Bee-Keepers' Record and Adviser* **27**:262-263. Homes of the honey bee. The apiaries of our readers. The picture on opposite page will, no doubt, arouse more than ordinary interest from the fact of its bringing readers (who have heard much of Mr Wells and his hives for some years past) into almost visible touch with the neat and well-ordered little apiary

and its owner. Having—along with our esteemed senior Editor, Mr Cowan— spent an enjoyable day with Mr Wells a few years ago, before the system had been quite so much talked about, and, without let or hindrance, personally opened and inspected the hives seen, we can testify to the good bee-keeping evidenced in every hive in the apiary. Without any pretension so far as acquaintance with the highly-cultured or scientific side of the craft, Mr Wells knows what to do and how to do it; and his bees are, apparently, kept as orderly in their behaviour as is everything else we saw. When, therefore, one sees that only the wooden railing seen behind the hives divides the apiary from neighbours who are not themselves bee-keepers, without annoyance or damage done, it proves more plainly than words how much depends on the management of the bee-keeper so far as making the pursuit possible when in such close touch with what may be nervous neighbours. We dwell on this aspect of the bee-garden seen because of it being a case in point when considering the question of keeping bees under conditions that some would deem impossible without great damage to neighbours. For the rest, we may say the garden is a model of perfection, excellently arranged, and we doubt if there be another plot of ground in the kingdom which, in proportion to its size, yields so profitably in honey, fruit, flower?, and vegetables. Along with the photo of the original home of the Wells' hive we were favoured with the following particulars regarding it:— The hives stand on a slab of concrete about 5 ft. wide, half of that space to the front being covered with cocoanut matting which makes a good floor for tired bees to alight upon. It will be observed that all are double-hives, adapted for working bees on what is now generally known as the Wells System. In the end of each leg on which the hives stand is fixed a stump of iron, to prevent rotting and also to stop insects from finding their way into the hives. The photo was taken in May last, and shows the hives as they will stand until the end of the present season. Only seven of the hives seen are occupied, viz those having a board reaching from the ground to the flight-board. The miniature hive on the extreme right contains a couple of nucleus colonies, with two combs in each, ready for addition to all the other hives when I have time. It will be noticed that the flight-board and porch to each right-hand compartment is painted black, while those to the left are white, the different colours assisting young queens in recognising their own home. By these simple means I rarely have a young queen mistaking her hive when returning from her mating trip. No doubt some will consider that the space between each hive (about 1 ft.) looks close, but I find no trouble arise from that. The three plum trees—with whitewashed stems—standing about 2 ft. away from the front of the hives, afford excellent shade for the hives from the hot sun, and supply me with abundance of fruit from year to year. A sending away to a customer. It will be seen that the unoccupied hives have their floor-boards lowered, with the front blocks removed, in readiness for a nucleus colony in each compartment when the hives are divided after swarming. They will then be allowed to build themselves up into stocks for wintering and for next year's work. The nearest large hive on the right is somewhat different in construction to the rest, inasmuch as each compartment of the brood-nest takes ten frames, while the others only hold seven in each of the two compartments. It also has a space under each brood-nest made to take a box holding eleven shallow-frames; this box giving the bees room below in case of over-crowding above, and thus tending to prevent swarming. I purpose making the same large bed of crocus, about 12 ft. wide, extends from end to end of the ground in front of

the hives, but the photograph only shows their long grassy tops. In spring, however, the ground is covered with many thousands of blooms, giving the bees abundance of pollen and some honey just at the right time. The partition fence at the back of the hives and about the same height, between the hives and which I am seen standing, divides my garden from my neighbour's. I may say the photo sent is my own taking, one of my daughters mounting the ladder in an adjoining field and removing the chip of camera, placed 11 ft. high, when I gave the word. I think that what I have said is sufficient to make the hives in ray apiary understood, so far as needful, by any one interested in it.



MR GEO. WELLS'S APIARY, ECCLES, NEAR AYLESFORD, KENT.

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(March 29, 1900). *British Bee Journal, Bee-Keepers' Record and Adviser* **28**:127-128. Mr G Wells's report for 1899. [Letter 3934]. As a reader of the BBJ for many years past, I would like to say how helpful it has been in all matters concerning my bee-keeping. Indeed, whenever I have got into difficulties requiring sound advice, it has always been kindly tendered and accepted with advantage to myself, so that in thought, if not in words, I have been thankful for the help thus given me. But what a constant succession of new ideas keep suggesting themselves to one's mind in connection with bees! The little labourers are not only interesting in a high degree, but so useful in various ways, that it seems to me we shall never know or fully appreciate their great value to all mankind. I have thought it well to say this much in order to show that it is not from failing interest in the pursuit of bee-keeping that the annual report of my bee doings—which you have been good enough to insert for some years past—is delayed beyond the usual time. On the contrary, the bees afford me as much pleasure now as ever they did, and that is saying a good deal; but business has occupied me more fully in 1899, while the help I have had in bee-work has been less than formerly. Consequently, my bee-keeping accounts have not been quite so fully written up as before; but I have sufficient data to make sure that my report will be very little wide of the mark in the weight of surplus honey secured; while the items of expenditure and the amount of beeswax extracted from cappings and old combs are, I know, perfectly correct. The weight of wax I get from year to year seems to rather puzzle some bee-keepers who read the BBJ with regard to the way I manage to secure so much, but I don't quite know how to make things more plain than I have hitherto done, except to say that I have still the wax produced in 1899 and the previous year by me, and both lots can be seen as they are for sale as per advertisement in your columns this week. The wax cake for '98 is all in one piece, being the produce of cappings and old combs combined; the wax of last season is, however, in two cakes, that from cappings being kept apart from the wax got from old combs. I may add that the wax referred to above has been inspected by a good many BJ readers, among them our esteemed old friend, John Walton, of Honey Cott, Weston. Coming then to my report for 1899, let me say I started the spring of that year with six hives, all double-queened—or better known as Wells hives. The season in our part of Kent was, I think, rather above the average, my own take from the six hives mentioned being 1,040 lb. of extracted and 100 1-lb. sections, together with 56 lb. of beeswax. The honey was sold out rather earlier than usual, the lowest price obtained being £3 per cwt. for extracted honey in bulk, but a good deal was sold at 9d. per lb. Most of the sections realised lid. each, but a few not well filled ones were sold at a less price. My bee account for the year 1899 stands thus:—

Without saying that the above is correct to a penny, as a few small items were missed in booking, I can vouch for its being practically an accurate account of the year's results, which show an average of 190 lb. of surplus honey and 9 lb. of wax per hive, the cash average thus amounting in value to £5 13s. 7d. per hive.

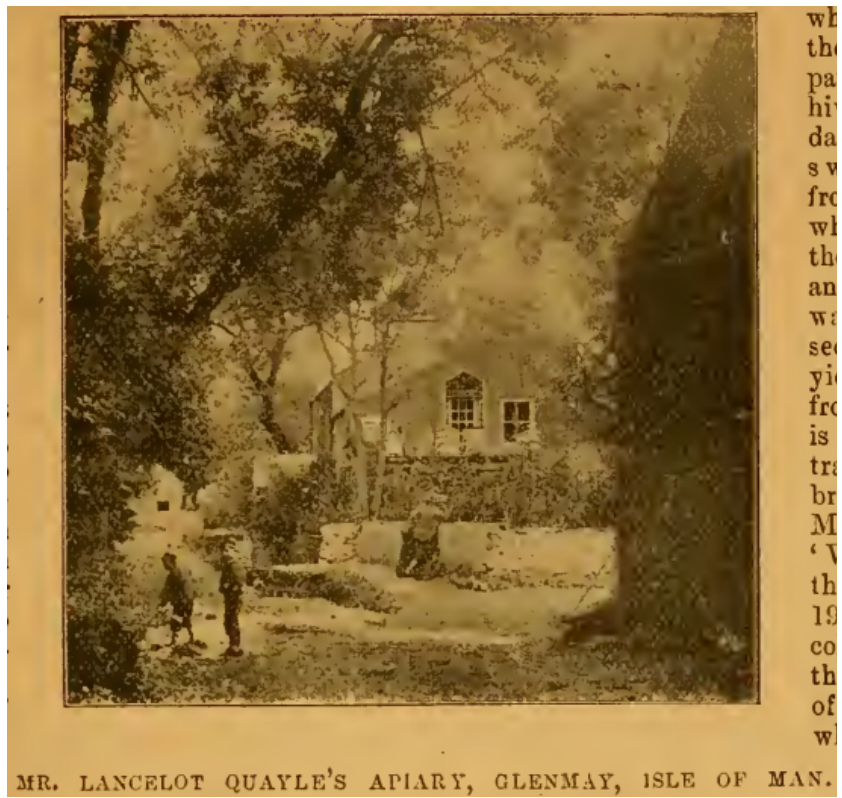
Probably some will say this is nothing extraordinary for double-queened colonies, compared with what has been obtained by single-queen stocks in some localities, but my results can only be fairly arrived at by comparing with what has last year been secured in other parts of Kent, similar to, and no better than, my own. If this is done I think my harvest will stand well by comparison, while it is certainly good pay for a hobby so full of interest and pleasure as bee-keeping. The crocus beds in front of my hives are now a mass of bloom, and the bees are revelling in the flowers whenever a favourable day occurs. I have not done any examining of the hives, but the bees appear strong and healthy, and judging by the numbers visiting the water trough they are raising brood fast. — George Wells, Eccles, Aylesford, Kent, March 23.

Wells, G (Dec. 27, 1900). Mr Geo. Wells's annual report. *British Bee Journal, Bee-Keepers' Record and Adviser* **28**:508. Correspondence. [Letter 4183]. Having now finished up all bee-work and business for the year, I send—in accordance with my habit for years past—a short account of my doings for 1900, as I have reason to know that some bee-keepers are expecting to see my annual report as usual: — The bees started work in real earnest about the end of March and stored more surplus honey from the fruit bloom than I ever remember before. Then came some wet and dull weather, during which time very little was added to the surplus-chambers until the second crop of sainfoin came on, when they brought in honey more rapidly; following this the Melilotus (or Bokhara clover), along with the Chapman honey plant came into flower and surplus-chambers advanced very rapidly for a time; but, taking the season altogether, the harvest has been much below the average in this district. Some few bee-keepers have secured a fair amount of surplus, while the majority seem to have got very little and a few have failed in getting any at all. From my own six hives (double-queened ones of course) I took seventy-three well filled 1-lb. sections and 618 lb. of extracted honey, or a total of 691 lb. I also got 19 lb. of beeswax. All the comb honey sold at 10d. per section, and of the extracted honey about half was sold at 8d per lb. and the remainder went in bulk at fid. per lb. About one half of the beeswax realised 2s. per lb., the remainder being still on hand. My financial account with the bees therefore stands as follows:—

353 lb. extracted honey at 6d.	... £8 16 6
265 lb. „ at 8d.	... 8 16 8
73 1-lb. sections at 10d. each	3 0 10
9 lb. beeswax at 2s. per lb.	0 18 0
10 lb. „ not sold (say 1s. 6d.)	0 15 0
	<hr/>
	£22 7 0
Deduct total season's expenses	... 2 18 6
	<hr/>
Balance for labour ...	...£19 8 6

Or a net profit of £3 4s. 9d. per hive. The honey used in my own house and that given away to friends is reckoned in with that sold at 8d. per lb. In view, then, of the general reports of the past season in Kent I have every reason to be satisfied with what my bees have done for the year 1900. — Geo Wells, Eccles, near Aylesford, Kent, December 13.

(Jan. 3, 1901). *British Bee Journal, Bee-Keepers' Record and Adviser* **29**:4-6. Homes of the honey bee. The apiaries of our readers. The two views of Mr Quayle's apiary shown on next page will naturally arouse more than ordinary interest, because of depicting the, actual scene of the most notable honey-takes from single hives we have yet been able to record. To those whose privilege it is to have visited Glenmay it will be a permanent reminder of the beauties of the place and all readers will like to see it. We add nothing to the full notes sent by Mr Quayle, who writes as follows: — My first remembrance of bee-keeping is in connection with a dozen or more skeps which my grandparents kept in the same garden where I now keep some of my hives. I sometimes took part in hiving the swarms, and well remember the old custom of rattling a tin can—or some other musical device—to cause the bees to settle. I also assisted at the yearly operation of smothering the bees with brimstone. A good many persons in this neighbourhood kept bees in skeps in my younger days, but the number is now greatly diminished, the bees having in most cases died out. I fear that foul brood — unknown to the bee-keepers themselves—was the main cause of this, although the bee-manipulations were almost wholly confined to the respective hiving and smothering operations mentioned above. My real interest in the craft was first aroused by reading an article on bees in the Boys' Own Paper. Later on I paid a visit to that veteran Manx bee-keeper, Mr Henry Corlett, of Ramsey, who kindly showed me through his apiary, and explained the method of working the modern frame-hive. In the spring of 1887 I obtained a frame-hive, and put a swarm therein on June 15 following. This swarm yielded over 50 lb. surplus the first year. I also obtained a copy of *Modern Bee-Keeping* and for a beginner I consider that work an epitome of useful, practical instruction. For my part, I believed its teaching, and implicitly followed out its directions, in every case with more or less success. If I am not growing tiresome, I should like to tell you an experience I had with foul brood, which may induce other bee-keepers to relate their experiences. The Wells hive — behind which I am seen standing — was badly diseased in one of its compartments in the spring of 1899, and at the end of May I decided to starve the affected bees and put them on clean frames. In my attempt to do so, the bees (a good strong stock) joined of themselves to the excellent colony which occupied the other compartment of the hive. A few days later a large swarm issued from that side, which I hived in the empty half and soon after supered. I secured a good yield of honey from it, and there is now not a trace of foul brood in the hive. Moreover this Wells hive in the past season of 1900 yielded more honey than the average of any hive in the apiary.



MR. LANCELOT QUAYLE'S APIARY, GLENMAY, ISLE OF MAN.



My hives are arrange to take twelve or thirteen standard frames (parallel with entrance) in brood-chamber, as I consider hat a good queen requires this number, and by providing super room in advance of requirements I am seldom

troubled with swarms. I do not, however, think this type of hive is the best possible. My ideal of a hive is one about 15 in. square on the top and 12 in. in depth. This would afford the cubic space for breeding that I consider best, besides affording a good supering surface for conserving the heat of the hive. I find that in a changeable season the outside combs are often more slowly filled and sealed owing to the larger surface being less adapted for economising the heat arising from the brood-nest. The honey harvest here does not commence as a rule until the third or fourth week of June, but continues quite to the end of August; thus owing to the late start made I am enabled to get all stocks ready for the honey-flow when it comes. This is, I think, one of the main reasons why I am able to secure such a good average take of honey. In the year of my first record take in 1897 (vide BJ of October 21, in that year) nearly all my crop was got from white and alsike clovers (we have no sainfoin and very few limes). In the year 1899, when I did better still, the bulk of my crop was a blend from clover and heather. I have no doubt that there are many places in the United Kingdom equally favourable for honey production as Glenmay; witness the famous 'take' reported by your correspondent DMM, of Ballindalloch, Banffshire, besides others which have been noted in your columns. The great point is to have every colony in readiness for work when the honey harvest commences, and then to provide ample storage room for all the bees can get. This prevents 'loafing' while honey gathering is at its best. Bee-keeping is a science I love. Not only has it been a source of profit, but it has also opened out new fields of knowledge to my gaze, and enlarged my circle of friends, for T can now count among these many British bee-keepers with whom I have been brought into contact personally and by letter. I have also much enjoyed the visits of brother bee-keepers who during their holidays have visited our own dear Elian Vannin with its green hills by the sea.'

(Jan. 24, 1901). *British Bee Journal, Bee-Keepers' Record and Adviser* **29**:37. The past season in Yorkshire. Some results from Wells hives *v* single stocks. [Letter 4221]. The enclosed report for season 1900 may be of some interest to bee-keepers who consider the Wells hive a great nuisance on account of the bees swarming therefrom. I have again worked through a full season without a single swarm from any of my Wells hives, although five of them were away in the country about three miles from my home, and I had to work between the two places. The only stock in my apiary that swarmed last year was one single-queened colony, which I quite expected, because it was rather neglected and partly on account of a few cold days coming about the time it should have had my attention. I have great confidence now after this test in sending Wells hives away into the country without fear of swarming, but perhaps I might be caught napping on some extra good flow of honey. I must say, however, that three of the Wells hives mentioned below, and one of the single ones, have not swarmed for the last three years. I should like to thank Mr Peebles, through your journal, for his kindness towards a brother bee-keeper in sending me drawings of his heather-honey press, which I find, after a few seasons' work, a splendid press. I can recommend the same with every confidence. I am pleased to say nearly all my honey is sold, having only about 150 lb. of pressed heather honey left, and 26 lb. of beeswax.

			Total.
(a)	Wells Hive	Extracted Honey	98
		Pressed Heather	54
(b)	Do.	Extracted Honey	118½
		Pressed Heather	60
(c)	Do.	Extracted Honey	46
		Pressed Heather	49
(d)	Do.	Extracted Honey	49
		Pressed Heather	52
(e)	Do.	Extracted Honey	85
		Pressed Heather	50
(f)	Do.	Extracted Honey	61
		Pressed Heather	47
(g)	Do.	Extracted Honey	72
		Pressed Heather	54
(h)	Do.	Extracted Honey	126
		Pressed Heather	60
(i)	Single Hive	Extracted Honey	31
		Pressed Heather	27
(j)	Do.	Extracted Honey	30½
		Pressed Heather	10
(k)	Do.	Extracted Honey	23
		Pressed Heather	18
(l)	Do.	Extracted Honey	28
		Pressed Heather	26
(m)	Do.	Extracted Honey	23
		Pressed Heather	11
Total lb.....			1,309

All my extracted honey I sold to a chemist, who told me they had previously bought foreign honey, but found, now that his customers could buy English honey at a reasonable price, they preferred to do so. I can assure you these remarks pleased me very much, and I felt quite proud to be a bee-keeper. ps—I have great pleasure in sending a small subscription towards the Bee-keepers Defence Fund. I trust we bee-keepers will not allow another Basingstoke Case to be shelved without a struggle.—JH Horn, Besdale, Yorks, January 21.

(Jan. 31, 1901). *British Bee Journal, Bee-Keepers' Record and Adviser* **29**:42-43. The Wells System. [Letter 4226]. The results of working hives on the Wells system—given in the report of Mr Horn of his takes of honey in the season of 1900 (p.33)—to my mind, possess more interest as showing the chemist's preference (along with that of his customers') for British honey than in demonstrating the superiority of the Wells system over the plan generally adopted. The figures certainly show an increase in favour of the former system, but not in proportion to the amount of inconvenience experienced by the average bee-keeper in dealing with two stocks at one and the same time. I, in common with others, look for Mr Wells's report each year with interest, and we all thank him for publishing it (on p.508 of BJ for December 27 last). The respective figures of Mr Wells and Mr Horn show about the same average for work on the double-queen plan, while Mr Horn's results from single hives are about equal to my own for last year, and show about the same amount of increased yield in favour of the one Wells hive that I worked for honey. I have, for the sake of comparison, worked two stocks on the double-queen method since Mr Wells brought it to notice, besides turning the system to account in other ways; but the opinions formed of it in the earlier days, viz its

unsuitability for general adoption, becomes more fully confirmed as each recurring year's experience is added and the figures compared. To the inexperienced bee-keeper I therefore say, be cautious in trying the plan. I think it must be clear to most of your readers that the sum given in Mr Wells's report as expenses for the year's working does not include many items that most of us have to meet. Size of Sections.—In his contentions against the 1-lb. section now in use, I note that the Rev RM Lamb says (on p.35), 'If the bees, as we see, do not build combs for honey invariably of a regular thickness, why, when, and where do they build extra thick combs? Now, if it is your rev correspondent's experience that bees do not build thick combs when instinct shows them that that comb will be used for storing honey, I can only say his experiences do not agree with mine. I have removed many colonies of bees from buildings, and have noticed that as the bees need more room—as, for instance, in a good season following a poor one—such combs as were built thick in the previous year are then wanted for raising brood, and are pared down to the required thickness for brood. In the hives, too, I notice that when comb is wanted for honey-storing the cells are lengthened out, and if at another time those same cells are needed for brood-rearing they will be left at the required thickness for the purpose. Take a small box or a glass super as an illustration. I have known a bell-glass 4 in. or 5 in. wide to be well-filled with only a single comb from 3 in. to 3½ in. wide, simply because, it seems to me that the first use the bees intended to make of it was to store honey. — Wm Loveday, Hatfield Heath, Harlow, Essex.

(Jan. 31, 1901). *British Bee Journal, Bee-Keepers' Record and Adviser* **29**:47. The Wells System. [Letter 4235]. Writing under the heading Some Results from Wells hives *v* single stocks (Letter 4221, p.37), Mr JH Horn says: I must say, however, that three of the Wells hives mentioned below and one of the single ones have not swarmed for the last three years. Will JHH tell us in the BBJ why they did not, or what he did to prevent swarming? He might also state the cause of the great difference between two of his Wells hives, viz (c) and (h); the former (c) with only 95 lb., the latter (h) gives 186 lb, very near double. The advantage of the Wells' hive over the single one is shown very clearly. Sixteen stocks in eight Wells hives average 67½ lb. of honey each, while the five single ones average only 45½ lb. each. I am much interested in everything connected with the Wells, having made and stocked one last season, my reason for troubling Mr JHH—WCH, South Devon, January 27.

(Feb. 7, 1901). *British Bee Journal, Bee-Keepers' Record and Adviser* **29**:54-55. Wells hives *v* single stocks. [Letter 4240]. In reply to WCH, South Devon (Letter 4235, p.47), re my working of Wells hives, I would first recommend your correspondent to procure Mr Wells's pamphlet and study every detail. It should be understood that I make no claim to having improved on the Wells hive. Some beekeepers, no doubt, adopt different entrances, and others make dummies unlike the original one, described by Mr Wells carefully and accurately. But why try so-called improvement, which in nearly every case brings about a failure? If a bee-keeper wishes to try experiments, let him try it at his own expense, but not at that of Mr Wells. The above advice I also give to all who make a start with the Wells' hive; because if the starter thoroughly masters the system he will succeed, but neglect in details causes the Wells hive to become a nuisance instead of a

pleasure combined with profit. In my own practice, let me say, all my brood-frames are filled with full sheets of Weed light brood-foundation, each bottom corner only being cut away to allow for a few drone cells. Each of my Wells hives holds ten frames on one side of the perforated dummy, and nine on the other, besides two solid dummies. The hive measures 30 $\frac{3}{8}$ in. inside measure, and being double-walled, the entrance extends right across the front, with slides and movable wood-block for use when required. The surplus chambers are loose inside, two covering the full length of brood frames, and I also consider it not safe to have less than six of these for each Wells hive, but four will suffice in most seasons. Cover to go over all is made of 11 in. wide $\frac{1}{2}$ -in. pine. In working shallow-frames I use extra wide metal ends and full sheets of drone-foundation (Weed). Tops of frames are covered with extra-strong American leather cloth, with two chaff-packed bottomless boxes 2 $\frac{1}{2}$ in. deep to be covered with canvas. These are much easier removed than quilts and do not blow about if windy. If weather is warm I remove these outside until it becomes cooler. I never allow the bees to be cramped for room in advance, and this is my sole aid in preventing swarming. Referring to the difference in the take from (c) and (h) as mentioned on p.37, if he will look up my report in BJ of April 12 last year, and call (c) No.5 and (h) No.13 in comparing the two reports, he will find the explanation. I have received letters through the post asking me why I keep single stocks when the Wells hive gives me so much better results? My reason is I have two crops to consider, the clover and heather; and in carting the bees to the moors I like the single stocks for packing between the six Wells hives, which complete my load and leave nice room for ventilation; but I could not pack nine Wells hives on the same space and keep the hives all within the sides of my cart. Bee-keepers that go to the moor on rough roads will understand this. Mr Wm Loveday, on p.42, objects to the Wells hive as being inconvenient. I think he cannot have had much experience or else the construction of his Wells hives is faulty. Among the advantages I claim for Wells hives for taking to the moors are: —

- (1) A double hive for same standing room ' (one shilling) as a single one;
- (2) saving room in the cart and time in handling two stocks at one lift; (3) the gain in returns compared with single stocks, even when counting one Wells hive as two stocks, my own average when reckoned in this way being 67 $\frac{1}{2}$ lb. from each division of the Wells, against 37 $\frac{1}{2}$ lb. from single hives. The gain in take from the Wells hive properly managed, as given and explained by WCH, just suits the bee-keeper's purpose. —JH Horn, Bedale, Yorks, February 4.

(Feb. 7, 1901). *British Bee Journal, Bee-Keepers' Record and Adviser* **29**:54-55. Wells hives *v* single stocks. [Letter 4240]. In reply to WCH, South Devon (Letter 4235, p.47), re my working of Wells hives, I would first recommend your correspondent to procure Mr Wells's pamphlet and study every detail. It should be understood that I make no claim to having improved on the Wells hive. Some beekeepers, no doubt, adopt different entrances, and others make dummies unlike the original one, described by Mr Wells carefully and accurately. But why try so-called improvement, which in nearly every case brings about a failure? If a bee-keeper wishes to try experiments, let him try it at his own expense, but not at that of Mr Wells. The above advice I also give to all who make a start with the Wells hive; because if the starter thoroughly masters the system he will succeed, but neglect in details causes the Wells hive to become a nuisance instead of a

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(Feb. 7, 1901). *British Bee Journal, Bee-Keepers' Record and Adviser* **29**:55-56. Double-queened hives. The Wells System. [Letter 4242]. Like your correspondent, WCH, South Devon (Letter 4235, p.47), I am very interested in everything in connection with the Wells hive, but my own experience is decidedly adverse to the double-queen system. I have found, after some years' trial, that however strong both stocks may be in the height of the season, one compartment invariably loses its queen, and the bees perish before the advent of the next. Then the quantity of surplus honey from a Wells hive has never in my experience equalled that from two strong single stocks. Even from an early vigorous swarm in a single hive. I have, by using whole sheets of foundation, taken in the same season over a hundredweight of honey, a weight of surplus I have never yet been able to take from a Wells, however strong. But the chief objection I find to the Wells system is

the difficulty in manipulating one stock without disturbing the other, seeing that the work is best done at noon on a bright, sunny day, when many bees are out; and if, say, the work to be done is extracting from the brood-combs, which often become so clogged with honey that the queen has no cells to lay her eggs in, with consequent deterioration of the stock, such work is necessarily prolonged. Although one may subjugate the bees in both compartments, the irritation caused to the manipulator by the return of flying bees from both stocks is too great to endure stoically, and generally results with me in a postponement of the operation *sine die*, which is, of course, bad bee-keeping as everything to be done in connection with bees must be accomplished at the proper time, and any delay or procrastination is fatal. So with regret I have been compelled to abandon the Wells system and adopt only the single hive in my apiary, nor do I personally consider the extra harvest said to be derived from the system to be commensurate with the additional trouble and vexations involved. I enclose my card.—Multa Gemens, Essex.

(Feb. 14, 1901). *British Bee Journal, Bee-Keepers' Record and Adviser* **29**:64, 66. Some Essex notes. Wells Hives. [Letter 4250]. In reply to Mr JA Horn (Letter 4240, p.54) let me say my objection to the Wells hive is its unsuitability for general adoption. My own results have been equal to those of Mr Wells, and I have also succeeded in preventing swarming, but with some years experience of bee-keeping on the double-queen plan in my own and other apiaries, I should fail in my duty if I did not caution inexperienced bee-keepers against courting failure by keeping bees on the Wells system. Having moved a good deal among bee-keepers, I am able to say that nothing does so much harm to the pursuit as the person who gives it up in disgust, and this is just what is likely to happen when a beginner starts by adopting the system in question. I would point out that bee-keeping on Mr Wells's plan for securing surplus honey from the heather in August may, and should, be successful in the hands of an experienced bee-keeper in cases where the troubles of the earlier season are generally absent, but not otherwise. Size of sections. —If producers of heather honey find the section now most generally used unsuitable for their purpose, I see no good reason why they should not adopt one of a size that they find from experience will give a better result. But it seems to me that instead of using a smaller section the desired end would be attained if a rack to hold less of them was adopted. If racks to hold fifteen sections were used for heather honey these would be smaller than the hive, and the heat from the bees below, being thus economised, would assist the bees in maintaining the necessary warmth, while the empty space outside the super allows for more warm covering to the sections. This is a matter of importance in keeping up the temperature in supers. I fully realise that smaller supers would mean extra journeys to the hives at the heather. But the result would be better sections, and more of them completed. I have myself had no experience in heather-honey production, but the conditions are almost exactly similar to those existing when we have an early spring honey-flow in this district. No pains no gains.—Your rev correspondent who writes under this head (Letter 4238, p.53) does not appear to know that at exhibitions held under the management of the BBKA and most of the associations affiliated to the parent society, honey in any stage of granulation is ineligible in a class for liquid honey, and *vice versa*. Under the present rules all run or extracted honey has to be

shown in clear liquid condition, unless a class is provided for granulated honey. The question arises, what is the most suitable word to use in speaking of bringing back granulated honey to liquid form. I think re-liquefied is preferable to clarified, because the latter conveys to the mind of the uninitiated the impression that the honey has been tampered with in some worse way than merely warming-up. While quite agreeing with your rev. correspondent in saying that granulated honey can be brought back to a liquid state without rendering it less palatable, great care must be taken, or any competent judge will pass it over. I also agree with Mr Woodley that, so far as is possible, honey should be exhibited in the condition most natural to it at the season when the exhibition is held, but while there are customers who prefer clear honey at all seasons we must meet their wishes. If we can have the classes for extracted honey more fully described in the schedules, viz, 12 jars of granulated honey, 12 jars of honey gathered in 1901 (to be shown clear), and 12 jars of re-liquefied honey gathered in 1900 or any previous year, I think this is all we require. Having considered this question of warming honey from all points, I find that the insertion of re-liquefied in description of the class for old honey to be shown clear will not only remove some doubts, but will, by one word, explain the whole matter to the public.

Spacing shallow frames. — Your correspondent, CA Atchley, who writes in BBJ for January 31 (Letter 4228, p.3), had a disappointing experience through doing the right thing in the wrong way. Had he at first given ten frames in the space where he gave eight the result would have been quite different. It is seldom safe to give empty frames, or frames with foundation only, when using wide WBO ends. It is usual to give ten frames, and when the combs are half worked out to remove two of them. Thus, if four hives are supered at one time, there will in a few days be eight combs to fill a 5-lb. super. By working the wide ends, one behind the two on each side of it, these can be put on at the beginning, and every other frame can have its ends brought forward into position when the two spare combs are removed. The fact of the bees having built their combs outside the frames, between every two combs in the first super, would make it necessary to do the same in the second super, to correspond with the top or bottom edges of the thin combs in the first super, i.e., from the bees' point of view. — Wm Loveday, Hatfield Heath, Harlow, Essex.

(Feb. 21, 1901). *British Bee Journal, Bee-Keepers' Record and Adviser* **29**:79. Echoes from the Hive, South Devon, February 12. — My bees were flying strong and carrying in pollen on Christmas-eve last, and again on January 8 of this year, after three or four days of frost and snow. Judging by appearances, I should think they are very strong. On the 8th of the present month the bees were again flying in great numbers, but I have not had the temerity to look inside any of the hives yet, such as enabled your correspondent, W Scurrah, to report, on p.58, having found some sealed brood on January 12. I gave a large cake of candy to each of my stocks in the autumn, and I find they have still some left. After keeping bees for some eight or nine years, I have never kept an account of what profit they have yielded so far, but I find them a source of great pleasure to me in spare hours. I make my own hives, and have tried the Wells pattern, but do not think it advisable to work two stocks under one roof, as it disturbs both lots each time an examination is made; besides, the hives are too big to handle. I can also get quite as much honey from a single hive, if well looked after, as some can from

a double-queened colony. I remember in Jubilee year taking nearly 100 lb. of surplus from a swarm that came off on May 1. I carried them to a clover field, and from them I took the amount stated. I rarely take note of what weight comes from any single hive—indeed, I do not consider that I look after the bees as well as I should—but I have always a ready sale for my honey.—WHJ

(March 14, 1901). *British Bee Journal, Bee-Keepers' Record and Adviser* **29**:106. Single versus Wells hives. [Letter 4282]. Referring to the letter of DMM, Banff, (Letter 4264, p.87) on single *v* Wells hives, I fail to see where his remarks prove that the latter hive must take a second place. Had the Wells hive been worked on the same ground and within reach of the crop secured by WH Hereford and Mr A Muir, Kirkcowan, and then if the Wells hive failed to give a better result he might then have had just reason for his remarks, but not otherwise. Mr Wells and myself have, I think, many times proved that a single-queened stock cannot give the same return if worked side by side with a Wells hive and collecting from the same crop. Having just received Messrs Boot & Co.'s price list, I notice they are open to receive orders for Mr Lamb's new tall section. I am inclined to favour these sections, but prefer to leave these and the Wells hive to be worked by bee-keepers who fancy them. I might also mention it does not pay me to work for clover sections; but I am open this summer to take up clean drawn-out sections from healthy stocks for the moors.—JH Horn, Bedale, Yorks, March 11.

(Feb. 28, 1901). *British Bee Journal, Bee-Keepers' Record and Adviser* **29**:87-88. Comments on current topics. [Letter 4264]. Weather.—With us here, weather is the chief current topic. January was a mild and open month, with no snow, and little, if any, frost until the last few days; but February has fairly filled the dyke. In upland districts the storm has been exceptionally heavy and prolonged, with hives nearly buried the greater part of the month; yet down nearer the coast—only thirty miles away — ploughing and other outdoor work has been going on merrily. Commercial Honey. — The note from Selkirk (Letter 4246, p.57) in regard to syrup-feeding opens up a new phase of this subject. I never heard of such a practice, and cannot believe it prevails, unless amongst some of the baser or basest sort found in every calling. Even with them it cannot be made to pay, so they will soon drop it. Any merchant who handles honey in comb would know the adulterated at a glance, and the manufacturer would soon find himself without a market.

Wells *v* single hives. Bedale is evidently an excellent Beedale, and MrHorn is to be heartily congratulated on such a splendid take in a season when most have to complain of small returns, but I question if the results of this or last season will aid in making many Wells' converts. Those who advocate these hives, in recording a large total from a few of them, seem to hug the flattering unctio to their souls that their excellence cannot be excelled, whereas your p.3 year by year teach us another lesson. Here are a few extracts from your back numbers, which I tabulate to make the points clearer:—

Owner.	Total hives.	Total lbs.	Average.
W. H., Hereford	6 single	620	103
Mr. A. Muir, Kirkcowan, N.B.	40 single	4000	100
Mr. Horn, Bedale	8 "Wells"	562	70
Mr. Geo. Wells, Kent	12 "Wells"	1140	95

Looked at from whatever view you please the Wells hives have to take second place. Size of Sections. —Like the Rev Mr Lamb, we have all, I doubt not, a sincere desire to do our best to make bee-keeping a success and bring our results as near perfection as possible, though we cannot see eye to eye with him on this particular point. Recording the results of experience is surely not doing anything inimical to this desire. Yet he considers some of us are not friends of apiculture, because we stand up for the present section. Now, leaving out all consideration of frames for the present, Mr Lamb's whole contention turns on whether our standard section, favoured by the million here and in America, or another thinner one—say the Danzy—preferred by a few hundreds on the other side, is the more perfect receptacle for comb honey 1 I would like to emphasise this point, and then ask your readers to pause and consider on what foundation your reverend correspondent builds his whole argument that a thinner is preferable. It is simply a matter of theory and all evolved out of cloud-land. Here are a few extracts from his recent articles showing this: If so, the problem is, I believe, I think, I assert, I consider, 'Probably'. These and many more are the essence of his arguments used. He never says, I know because I have proved it; or, I can certify from personal knowledge. The entire matter, therefore, is one of polemics on the one side; and the single short note on p.55, sent by Mr McNally, quoting his extensive experience, shatters the whole aerial fabric! Would we get better results if we make any change? Mr Lamb thinks that probably if certain things result we might. Now, I assert from past experience (limited to 1000 sections) that we would get worse, and Mr McNally and others from practical knowledge state the same. If we make any change who will determine what the change shall be? For when we examine the multitude of forms and sizes of sections already on the market, we simply get into a state of chaos. Amongst the many I select the following:—

$4\frac{1}{4} \times 4\frac{1}{4} \times 2$ in. varying down all the grades of breadth $1\frac{15}{16}$, $1\frac{7}{8}$, $1\frac{3}{4}$, $1\frac{5}{8}$, $1\frac{1}{2}$, $1\frac{3}{8}$, $1\frac{1}{4}$. And of the larger sizes we already have: $5 \times 4\frac{3}{8} \times 1\frac{1}{2}$; $5 \times 4\frac{3}{8} \times 1$; $5 \times 4\frac{1}{4} \times 1\frac{5}{8}$; $5 \times 4 \times 1\frac{3}{8}$; $5 \times 3\frac{7}{8} \times 1\frac{3}{8}$; and $5 \times 3\frac{3}{8} \times 1\frac{3}{4}$. Captain Hetherington favours one size,

Captain Hetherington favours one size, Mr Danzenbaker another, while Mr Root recommends a third, and so on ad lib. If we go to America for a new standard, which of the many fads are we to follow? All honour to our brethren across the Atlantic who have given us many excellent guides in bee-keeping, but if we run after all the newfangled notions prevalent in many corners there we would always be changing, and finding too often to our cost that far away birds have fair feathers. Mr Lamb's low standard sections, and disastrously, are surely mere figures of speech. We have not attained to perfection certainly but we frequently

approach it. What mortal can say more? I had an idea that some years ago Mr Lamb believed utterly in extra thick comb, and in your pages I find the following confirmation. He says: I was successful in securing combs more than 2 in. thick. When people have tried my system they can produce the handsomest combs. Nothing in honey production can surpass a well-finished shallow-frame of good honey. My aim is to secure such handsome blocks or bricks of honey-comb that my customers may prefer them to sections. There would then be an advantage all round. The customer would have more honey in proportion to the wax, &c. The above two short quotations are from your volumes of 1894 and 1895, and are dated from Burton Pidsea Rectory. They, to my mind, largely refute all that has been adduced since his meditations appeared. ps.—I had written the foregoing before receiving the *Journal* of February 21, containing Mr Lamb's last lengthy article. I question if it advances the argument one iota, for though he tells us we should avoid Scylla in the shape of the 4¼ by 2 section, he only consigns us to Charybdis, as the discussion has simply shown that a dozen differently sized sections are favoured by him, or one or other of the disputants. Which of them is to be the ideal Moor or New Century one is still in *nubibus*. Several of Mr Lamb's phrases and sentences are evidently writ sarcastic, and I participate in the general shower. My unimportant personality is of no consequence, but my full name and address has appeared in the *Journal* several times, and our junior Editor knows all about me, and can use this discretion in conveying any information he deems necessary to any interested party. Meanwhile I prefer to be known as DMM, Banfi, February 23.

(March 28, 1901). *British Bee Journal, Bee-Keepers' Record and Adviser* **29**:124. Notes by the Way. [Letter 4300]. Wells hives *v* single hives. — The Wells hive, I think, ought to show double the return of a single hive, or equal two single hives, seeing that it is two colonies in a twin hive storing in one super. How any one can contest this passes comprehension.

(April 4, 1901). *British Bee Journal, Bee-Keepers' Record and Adviser* **29**:136. Wells versus single hives. [Letter 4313]. I would recall Mr Woodley's attention to his remarks in Notes by the Way (Letter 4300, p.123) on getting racks of sections tilled in five days. In the season of 1894 I extracted all honey from one continuous surplus-chamber on a Wells hive containing nineteen shallow-frames, and just one week later these frames were all filled, sealed, and extracted again! These facts should go a long way to prove Mr Lamb's remarks on sections being completed in five days. In reference to Mr Woodley's second remark, about Wells' hives *v* single hives, on the following page, how any one can contest this passes my comprehension. If he refers to my report, January 24, 1901 (Letter 4221), he will find the result from Wells hives and also from single hives, the take of honey from my best Wells hive and from four of my best single hives. My best Wells hive nearly beat the take from the four best single ones. Taking three of my best single hives against my best Wells hive, he will find the Wells beats the three best single hives by 25½ lb. of honey. Perhaps after these facts he will kindly reconsider his remarks. How any one can contest this passes my comprehension.—JH Horn, Bedale, Yorks, April 1.

(April 4, 1901). *British Bee Journal, Bee-Keepers' Record and Adviser* **29**:138.

Queries and Replies. [Query 2612]. Working Wells Hives.— Why do the bees join-up in Autumn?—A friend of mine last year bought two Wells hives, but towards the end of the season the bees of one compartment left their combs and joined with the other in both of the hives.

1. Can you tell me how to prevent this? I have a Wells hive myself that I am going to try this coming season, and I wanted to prevent the same occurrence with mine if possible.

2. I enclose cutting taken from the *Morning Leader*. Can you give any reason why the bees mentioned therein should have died; would it be a case of foul brood or dysentery? —P0, Lyndhurst, March 27. Reply.—

1. The general impression seems to be that one lot of bees become queenless from some cause, and when this occurs it is natural for them to join forces with their neighbours, with whom they have worked in a super common to both. Perhaps our friend, Mr Geo Wells will give his views as to the frequent occurrence of similar incidents to the above.

2. The superstition referred to in the cutting sent regarding telling the bee when the owner dies, is a very old one, but none the less a superstition only, and certainly not founded on fact. The death of twenty stocks of bees two months after their owner, if it occurred at all (which we doubt), was certainly not owing to their not being wakened.

(April 18, 1901). Notes by the Way. *British Bee Journal, Bee-Keepers' Record and Adviser* **29**:154. Wells Hives. — [Letter 4325]. With regard to Mr Horn's mention of this matter on p.136, I beg to say that I was not referring to his report re Wells hives, but as a reminder that one Wells hive contains two colonies of bees, and that I consider a fair comparison is between one Wells hive and two single hives. The facts of any system cannot be decided except by careful comparisons for several years, as the general bee-keeper who pays little attention to his bees occasionally has some stocks that far out-vie any others in the apiary. The said stocks are most likely in the pink of condition, ready to take advantage of the honey-flow, while the others may be a fortnight too forward or a week behind the fair, which would make a very considerable difference in the take.

(April 18, 1901). *British Bee Journal, Bee-Keepers' Record and Adviser* **29**:155. Bees in Northants. [Letter 4327]. Though only a poor hand at writing, I send you a few lines to say my bees are all alive and working hard, when a chance offers, on the few flowers about. These comprise snowdrops and crocus, while I have a large bed of white-rock (*Arabis alpinus*) as full of bloom as I ever saw it. For nearly a month past it has been flowering plentifully, and promises to do so for month to come. The bees are very busy on it, as they are on the blossom of the box, which, latter is in full bloom with us. I have eleven ordinary frame hives and two Wells hives, besides eleven stocks in skeps. With regard to my Wells hives, I am like the bee-friend who wrote about them in BBJ of April 4 (Query 2612, p.138). Like him, I cannot understand why the bees of both compartments so often join up, leaving one part of the double hive tenantless. One lot did this in the winter of 1900, and another has this year followed suit. All my frame-hives have plenty of food at date of writing, and there are plenty of bees in most of them; but the skeps are short of stores, and I have had to keep them going with soft candy for some time pa3t. Some of the skeps are very weak. The season of 1900 was the worst I have

experienced since the memorable one of 1888. My whole take was not much over 150 lb. of extracted honey, and no sections. But, bad as this is, I can hear of many bee-men in my district who have done far worse than myself. One man, a gardener, owning about a dozen hives, has lost them all through not feeding last autumn. Many others have had losses from the same cause. My own regular plan is to leave the bees plenty of their own stores, not taking all away, as some do, and giving nothing in, return. I also think; we should provide the bees with a few flowers to suck at, and of these there is none, I think, that equals the white rock, for I often find the bees so numerous that I could not count how many were at work on a square yard of it in bloom. It is also so easy to increase one's stock of the plant by dividing the roots and letting it spread of itself. I often think we bee-keepers owe you much for the kind hints given in BJ so different to the time when I owned my first skep. I was twelve years old then, and am sixty-eight now. We never thought of anything beyond the brimstone pit in my early days; nor did we ever forget to tell the bees when a relative died. I had strict instructions once to go to each hive and tap until the bees came out, when I told them my uncle had died the day before. I often now smile at the simple way in which I believed in this old notion. — Geo Brealey, Grendon, Northants.

(May 23, 1901). *British Bee Journal, Bee-Keepers' Record and Adviser* **29**:203. A lady's bee-keeping. [Letter 4362]. I wish to express to you the great pleasure I have in reading your BBJ every week, and the immense help it is to me. I have kept bees for five years now, and they are a source of both pleasure and profit. I have had as many as eight colonies at one time, but am now reduced to half that number, having disposed of two stock, joined two which were weak in numbers last autumn, and lost one during the winter. It is of this last I wish to write. The queen of the colony, I discovered last summer, was a drone-breeder, but owing to illness in our family I was unable to attend to my hives as usual; it was therefore left to take its chance. There were only a handful of dead bees when I overhauled this hive two months ago, and not being able to clean the hive at the time I closed the entrance after throwing away the dead bees and some comb. Now comes the curious part of my story. When I did turn that particular hive out for a thorough spring cleaning I found a charming little home inside, in the shape of a wasp's nest about as big as a small apple, the cells full of egg?, while a second nest was begun on the adjacent frame! It really was so pretty I was quite sorry to take it away; but it rejoiced the heart of our schoolmaster, who has given it an honourable place in his museum. How the queen-wasp got in is a mystery to us all. The hive is closely stopped now against all intruders. Why does one side of a Wells hive invariably do better than the other? I see many of your readers echo that question. Mine is stocked with Carniolans, and the swarm put in last year is far and away ahead of the other. To be sure, it is the warmest side of the hive. [We cannot say. — Eds.] This is a very fair district for honey, I should think. First of all comes the gorse, and I really do not think any other county has such gorse as we can boast of—acres and acres near the moors, and such perfume! Heather, a few miles away, in abundance, and clover blooms with us about mid-June. Of course, there are spring flowers all around, and a few limes later on in the year. I shall never forget my first experience in driving bees. I had never seen such a thing done before, but had diligently read up the subject until I thought myself letter-perfect. One day, when hunting for harvest decorations for our church, a

farmer whom I met told me of some hives he was going to sulphur to get rid of; but at my earnest entreaty he consented to let me try my prentice hand on driving instead. I shall never forget my terror lest something should go wrong. I knew so little about the subject, and the farmer still less. However, the weather was accommodating, the bees more so, and everything went off in first-rate style. In fact, the owner told me I must have charmed the bees, and in spite of my earnest denial, people around here say it still. I turned the bees into their future home early the following morning, having left them under an umbrella in the garden because it rained. Next year they rewarded me with several sections, and so huge a swarm that one skep would barely contain them. Since then I have helped many other people, on one occasion getting the bees out of an old potato-box, where they had been undisturbed for two years. I remember we took over 1 cwt. of wax and honey. I use a home-made solar wax extractor, and would not be without it on any consideration. We have had a few bee-demonstrations since I first began my hives, but I consider I owe all I know to your BBJ and the Guide Book. I have lent them to several people. Please excuse this long letter. My pen runs away with me when I get on the subject of bees.—(Miss) ML King, The Vicarage, South Molton, North Devon, May 21.

(June 6, 1901). *British Bee Journal, Bee-Keepers' Record and Adviser* **29**:224-226. Homes of the honey bee: the apiaries of our readers. Our friend Mr Middlemass, seen on next page, is a reader who, to use an expressive common phrase, fills the bill' as a bee-keeper of the best sort; one who loves his home, his garden, and his bees, and wins prizes at important shows for honey and flowers; who makes his own hives, knows how to prepare his honey for market, and has no difficulty in selling it. Need we say more, except to express our pleasure—after reading his final par about himself—at his possessing a good bee-man's good wife? In compliance with your request I send a few particulars of my bee-keeping experience. I have now used the frame-hive for about fifteen years, having previously seen a good deal of the old-fashioned skep. The district where my apiary is located is not a particularly good one for clover honey, so that I cannot come up to the standard of some readers whose bee-gardens have been depicted. As a rule I find two racks of sections about sufficient for my surplus of one season, though occasionally I do put on three racks for an extra strong colony. You may therefore say dues for every Wells taken. Within the space inside each row of hives may be seen flowering plants, such as roses, dahlias, gladioli, &c, and with these I used to go in for a good deal of exhibiting at flower shows, but now the flowers take second place, with honey first. During very hot weather, however, they make a fine shade for hives. The latter are painted four different colours, and stand in rotation—red, white, green, and stone colour. This plan of using widely different colours is most useful for young queens safely mating; I scarcely ever lose one now. Strange to say, my red coloured hives often do best. The glasshouse seen on the right of photo.



Mr Middlemass Apiary, Stanford Cottages, Alnwick, Northumberland.

I work on the storifying system. It makes one wish to be in a district like Beedon, so that I might, as our friend Woodley does, take off sections in eight days after putting on! It will be seen by the photo that my hives are placed to look in three directions, although most of them are facing south; the entrances of the others fronting east and west. The hives are nearly all of my own make, for I am a bit of an amateur carpenter. I went into winter quarters last year with thirty-three hives, including three on the Wells system, with which I get on very well as a rule, for each Wells hive generally averages more than two single ones. Of course I always count each Wells hive as two. When at the moors I also pay double is a tomato-house which I use a good deal during the season for bee-keeping appliances. Of course our main source of honey is heather, and, in consequence, the hives are all made so that they can be easily packed for travelling about nine miles to the moors. They are all made to take frames of standard size and are single-walled; each body-box holding ten frames. I go in mostly for comb-honey, and have not only exhibited a good deal but have been very successful on the show-bench from the Dairy and Royal downwards to the smaller shows. Regarding the disposal of produce, it can be truly said that I never have any difficulty, although a great many bee-keepers on a small scale about our district cut prices sadly, not a few selling their clover sections at 6s. per doz., whereas I am cleared out at nearly an average of 9s. per doz. for glazed sections. I am always very careful to grade my sections and put them into the market in as clean and neat condition as possible. I sell most of my produce wholesale in the northern towns, and having a good trade among the higher classes I believe in

sending out a good article. By so doing one may expect orders. I always extract or press the contents of all unfinished ones. The figures seen to the right in photo are my better-half, oldest son, and myself. I need hardly tell you that I land most of the glazing and bottling on to my good wife's shoulders, and she does it up right well.

(Aug. 22, 1901). *British Bee Journal, Bee-Keepers' Record and Adviser* **29**:337-338. [Query 2710]. Working the Wells hive for comb-honey. —

1. Could you let me know how a Wells hive is worked for the production of comb-honey?

2. What is the partition between the two stocks like? Would perforated zinc do?

3. What other differences in structure (apart from size) are essential in a Wells hive?

4. If the partition were replaced by a dummy, would the two stocks live peaceably with entrances so near each other?

5. How would the following queens usually be placed in order of merit—Cyprian, Carniolan, Italian, all hybrids, and the ordinary British queen with a strain of Italian in it? —A Robertson, Benview, Dumbarton.

Reply.—

1. We know of no difference in working the Wells from an ordinary hive, save that in the Wells plan the two lots of bees work in a super common to both.

2 and 3. If interested in the Wells system, you should invest six stamps in obtaining Mr Wells' pamphlet, giving his own methods. Perforated zinc will not answer as a Wells dummy.

4. Yes.

5. We prefer the Italian-British hybrid. The others are simply matters of personal choice.

(Oct. 3, 1901). *British Bee Journal, Bee-Keepers' Record and Adviser* **29**:398

[Query 2732]. Working Wells hives.—Would you kindly give your opinion on the following? —I bought a double or Wells hive, one accommodating two queens and two swarms. I thought the double hive was already fitted up and complete for a season' work. At the beginning of August I noticed the bees of one compartment robbing the other side, and fearing something wrong I had a look among the combs, and then saw plainly what was up, for neither queen nor brood could be seen in the part being robbed, and the bees were carrying all stores into other side. The two stocks seemed to have joined up owing to their having acquired the same scent I suppose through perforated zinc and working in the super together. I therefore ask: Would you advise me to get a stock of driven bees and unite them to the few left in the queenless half, or should I let them go with the other swarm and make an extra strong stock to winter on?— Sunnyside, Gateshead, September 19.

Reply.—It is so common to find the bees in one compartment—after becoming queenless—joining forces with their neighbours in' the other half that it can hardly be called robbing when this occurs; it is merely an amicable flitting next door, and may be regarded as such. Any attempt to re-establish a stock in the deserted compartment just now would probably lead to real robbing and perhaps worse, so just let the few bees left behind join the others in their own time, and leave one compartment—after closing it up — empty till next season.

(Feb. 27, 1902). *The British Bee Journal and Bee-keepers' Adviser* **30**:88-89. Some notes on bees, hives, and frames. [Letter 4707]. The past winter in this district has been a cold and dull one, so that the bees have not flown much. This may prove beneficial later on, through not wearing the old bees out, and thus helping to give stocks a good start at brood-rearing in the early spring. The bees of one stock I discovered on December 1 to be restless and humming a good deal, which made me conclude that they were queenless. I happened to have two nuclei wintering in a WBC hive, with a perforated dummy between, so one queen was removed and given to the queenless hive. I at the same time removed the perforated dummy which had separated the two nuclei, and thus both lots, now united, will make a good stock. My stocks at the time of writing seem all right, but, of course, we are not quite through the winter yet. My Carniolans, generally, seem very bad-tempered when swarming, and I would like to know whether this is usual with this race of bees, because at other times they are very quiet, and can be handled without the use of either smoker or veil. The Carniolan bee has, in my opinion, some very good qualities. I believe the queens are more prolific than our natives, and I have certainly had much larger swarms from the Carniolans than from blacks. I note in the BBJ recently some correspondence on the subject of larger frames than our present standard frame. For my part, I believe that any alteration in this respect would be a great mistake. Apart from other reasons, we should require to use deeper brood-chambers, &c, which would cost much more, as 11-in. board costs more in proportion than the ordinary 9-in. stuff, and is rather difficult to obtain free from shakes, &c. Those who prefer more than ten frames in the broodnest can easily make new hives to hold as many as they desire, or they could use a shallow-frame chamber either above or below the broodnest. This would give a broodnest equal to the laying capacity of the most prolific queen. I have this past season given the Wells hive a good trial, and found it fairly satisfactory; but with me it does not give more surplus-honey than two ordinary stocks. I have six more ready for the coming season, and hope to give this system a good trial. I have also just finished making up six non-swarming WBC hives, which I shall give a trial in the coming season; also three ordinary WBC hives. These are all fitted with Mr Walton's floorboard feeder. This, I think, is a good idea to save time, as it is not necessary to remove roofs, quilts, &c, in feeding.—HS Churchdown, near Cheltenham, February 19.

(Feb. 27, 1902). *The British Bee Journal and Bee-keepers' Adviser* **30**:89. Queen breeding by selection. [Letter 4708]. Referring to the letter of Rev W Head (Letter 4690, p.66), it appears that some misapprehension, or otherwise a wrong impression has got abroad with regard to my remarks on queen-breeding by selection. It may tend to make the matter clear if I refer your correspondent to my letter, from which he quotes (Letter 4111, p.420, vol.28); he will there find that all my stocks are not located in single hives. In order, therefore, to prevent any further misunderstanding, let me say my apiary consists of three separate divisions, each worked for a separate object. The system adopted in one division cannot possibly be applied to the other. Each must be treated to meet the object in view. The WBC division, which contains only hives of that particular type, is worked for section-honey from the heather bloom — the only source of saleable honey this district produces. In my Wells division — i.e., the one containing

double-queened stocks only — each queen is confined on ten brood-frames always. These Wells' hives are not worked for honey in the same form, and for obvious reasons must receive totally different treatment. When I tell you that those ten Wells hives (containing twenty of the best queens I can produce) have never given me a single swarm for eight successive seasons, the most sceptical must admit there is something here in the shape of a definite practical result. The question is, What is it? With this explanation I think my letter will be more clearly understood than the remarks of your correspondent appear to convey.—J. Rymer, Levisham, Yorks, February 19.

(April 3, 1902). *The British Bee Journal and Bee-keepers' Adviser* **30**:136. My experience of a Ford-Wells hive. [Letter 4737]. The British Bee Journal commends itself very highly to me on account of the articles being, in the main, written by practical bee-keepers, so that all your readers have the benefit of their varied experiences. In that connection I trust a few notes on the above subject may not be without some value, although I do not pretend to write as an expert: —I first began bee-keeping forty-seven years ago, but there have been two breaks during that period when circumstances prevented me from indulging in that pursuit, which, in my case, is a recreation. Being rather credulous, I became fascinated with the glowing accounts given in your pages of the results obtained from the style of hive known as the Wells or double-queened hive, and I became the possessor of a Ford-Wells three years ago, getting it from a first-class maker. Its arrival was the beginning of troubles. First of all it was damaged in transit and had to be repaired. On putting a swarm in each compartment of the hive respectively the bees of half of the swarm put in last joined the first one, whereby the remainder became proportionately weak in bees. Next, when the first rain came, I found the roof leaked so badly that quilts and combs were soaked. I then made the roof watertight and thought my troubles were over, but I was mistaken. In due course it, with others, was taken to the heather, and, on cycling there some time after, I found that the roof and quilts were blown right off by the wind. The swarm first put in were working as if nothing had occurred, but in the second lot one-half of the bees were non-existent. However, as the frames of the deserted division contained several drawn out combs and some honey, I put therein a driven lot of bees and gave the latter a supply of food, but on examination in the following spring I found the bees dead. They had apparently succumbed through rain getting in at the roof-fillets, To remedy this defect I had new and deeper fillets put on, and hived another good swarm in the empty compartment in June. This was the season of 1900 and a bad year. The bees did not do much good though they gathered sufficient stores for wintering. In the spring of 1901, however, I found the bees dead from the same cause as before, viz water again getting in. The first swarm had also suffered severely. As soon as possible I moved the bees and comb³ into a new hive, and they did splendidly last year. I may say that among other faults the dummy board at the back also got warped, causing a draught between it and the door, and in consequence the bees did not winter well, the mortality during the winter being out of all proportion. From first to last I did not get a single pound of honey from the hive, and my loss was not less than £6. The moral is obvious. -S Nairn, NB, March 29.

(April 3, 1902). *The British Bee Journal and Bee-keepers' Adviser* **30**:138-139.

Queries and Replies.[Query 2820]. Transferring bees to Wells hive. —Though a bee-keeper for sixteen years, I have only been a constant reader of the *British Bee Journal and Record* for twelve months, and I am often much amused with the letters of some who have only been in the craft a fourth of that time writing about queen rearing, and dealing with other abstruse subjects quite beyond my reach. I have a Wells or twin hive, one compartment of which went down about two years ago, and I have worked it as a single hive ever since; and having bought a healthy stock in straw skep, I wish to transfer the bees into vacant end of the Wells hive, putting in perforated partition. How early may I proceed? Both stocks are strong. I would like to still retain stock in skep. — JW Yarn, Yorks, March 29.

Reply.—If you wish to stock the empty compartment of the Wells hive and still retain the stock in skep as stated, there can be no transferring. The only plan is to make an artificial swarm by driving a portion of the bees and queen from the skep, and hiving them in the Wells hive in the usual way. The bees left in skep will then raise a queen and go on as before.

(April 10, 1902). *The British Bee Journal and Bee-keepers' Adviser* **30**:145-146. The Ford-Wells hive. Another bee-keeper's experience. [Letter 4744]. The notes by your correspondent S (Letter 4737, p.136) of his experience with a Ford-Wells hive may be of some value if only they give other bee-keepers the opportunity of stating the results that have been obtained from this hive. Being the possessor of a Ford-Wells my experience may interest some BJ readers, and especially your correspondent who has failed so lamentably. I purchased my Ford-Wells in the spring of 1898 from Mr EH Taylor, Welwyn, who, I believe, is the sole maker of this hive. The hive arrived undamaged, having been well crated before despatch it was impossible for it to get broken in ordinary traffic. After unpacking, I thoroughly examined it and found neither flaw in the material nor fault in the construction; in fact, it was built of excellent material and the workmanship was of the best. As soon as the hive was painted (I painted the roof inside as well as outside), I transferred two stocks from single hives into it, and after four successive summers' experience I can say that the hive has worked admirably, and after no time has one lot of bees left their compartment, and joined the other. Neither have I found one lot dead, while the roof, after four years' trial, is still watertight. My lowest take from this hive in one season was 80 lb., and that was in the bad year of 1900. I have introduced queens, and raised queens in both compartments, always with success. I have also only once had a swarm, and that was my own fault in neglecting to put the supers on. I find the stocks build up quicker in the spring in a hive of this type, owing to the heat produced by the two colonies enabling me to spread the brood without fear of being chilled. I thus get a strong force of workers ready to take advantage of the first honey-flow. On examining the hive on April 2 I found seven frames of brood (not patches) in one compartment and six in other, so that there are thirteen frames in all, and only the perforated dummy in centre to separate them, so that it is, therefore, reasonable to think that with April-like progress the bees will be ready for the shallow-frames by the time the apple-trees are in bloom. If your correspondent will tack a piece of zinc on the roof and make it watertight, and tie the roof on if in an exposed position, get a new dummy board (sliding back wall I presume he means), to stop the draught. Then put a couple of stocks in that have some go in them, tier up with shallow frames at the right time, and the bees will fill them if

there is honey to be found within two miles —Arthur H Homersham, Slurry, Kent, April 5.

(June 26, 1902). *The British Bee Journal and Bee-keepers' Adviser* **30**:254. Queen mating. [Letter 4810]. The following may be of interest to some of your readers as illustrating the period of time which may elapse between the hatching [sic emerging] and mating of a young queen. On March 31, on examining one end of a Wells' hive, I found two frames of brood and two sealed queen cells, but no eggs. I was unable to examine again until April 13, when I saw a young queen. I saw this queen fly first on April 15, and on fine days up to May 23, when at 4.15 pm she returned with no apparent sign of having mated. It was fine on the afternoon of the 24th. but I did not see her on that day. On May 27, I found there were eggs laid regularly in two combs. On June 4, sealing of worker brood had commenced. According to the above, this queen must have been forty-seven or forty-eight days old when mated, and was flying at intervals for a period of thirty-nine days. It is said that bees take no notice of a virgin queen. I have seen them apparently drive one back on a cloudy day, and often seen them feed one on the alighting board. I have lost three queens this spring, which makes me think there is something in the observation of your correspondent, John Berry, i.e., that queens air themselves in the spring. Farmers tell me here that there will be very little white clover this year; the grass is high and will cover it. —GF O'Fflahertie, Netteswell, Harlow, Essex, June 19. ps —I had three swarms yesterday morning, all the stocks were working well in supers, one had two boxes of shallow-frames on.

(June 26, 1902). *The British Bee Journal and Bee-Keepers' Adviser* **30**:259 Queries and Replies. [Query 2899]. Stocking Wells hive by dividing.—Can I adopt the following plan to stock a Wells hive? I propose to place a swarm in the hive, and after the bees have drawn out and filled eight frames of foundation with eggs and brood, to introduce the excluder dummy and place four combs of brood with four extra frames of foundation on either side, and then cage a fertile queen on the queenless side. Is this feasible? If so, how soon would it be wise to liberate the queen? Your valuable opinion on this matter will greatly oblige. — Alex L Grimshaw, Ashton-on-Mersey.

Reply.—We think the success or failure of the plan stated will be very much a matter of chance, seeing that unless the bees can be got to work separately as two stocks you will not easily get one half the colony to cross over, so to speak, and accept an alien queen while their own mother bee is in the next compartment. As a method of dividing a stock your plan is crude, and we think it will fail for the reasons given.

(July 3, 1902). *The British Bee Journal and Bee-Keepers' Adviser* **30**:262-263. Swarming vagaries. [Letter 4815].

- 1 On May 29, at 2 pm, the bees swarmed from one end of a Wells hive (the other end of the hive being empty). This swarm was safely housed in a frame-hive.
2. On Friday, June 6, a second swarm issued from the same stock, and was put into the other end of the Wells hive. This swarm was not there the next day, and most probably have crept through in some way to the other bees.
3. On June 10 another swarm came out, and was hived in a small frame-hive, but this swarm also disappeared.

4. On June 14 a fourth swarm issued, and this was again put into the small hive last referred to, and has remained there, and is apparently settling down to work. So that I have had four swarms from one hive. Nos. 1 and 4 are doing well. Nos. 2 and 3, as I have said, disappeared, and I suppose, for some reason or other, they returned to the parent stock and came out again, forming swarm No. 4. Is this the explanation, as No. 4 was a large swarm? A few days after the fourth swarm had been settled I noticed that the parent hive from which the four swarms came out, had an enormous number of drones flying in and out, and I, therefore, procured a drone trap. I caught two traps full and two partly full, and I found one trap full contained 660 drones. So that altogether I shall have destroyed from this hive about 2000 drones, and this after four (or two?) swarms had gone from the parent hive. I should like to know if there is anything wrong or irregular in this matter of the drones—on the part of the bees in producing so many, or on mine in killing them. —JC Stott, Sheffield, June. [We feel pretty sure that none of the swarms actually made off or decamped. As regards the superfluous drones, you should get rid of three-fourths of the drone-comb now in the hive, and that is all you need trouble about, the rest being quite normal. — Eds.]

(Oct. 30, 1902). *The British Bee Journal and Bee-Keepers' Adviser* **30**:436-437. North Yorkshire notes. [Letter 4926]. The reading of bad reports I presume will now be getting monotonous, but as our bad seasons should be chronicled as well as the good ones, I venture to give an outline of the way bee-keeping has fared in this part of the country. Without doubt, the year 1902 has been one of the worst in this district for many years. From the early spring to May 20 the weather was more like winter than early summer as may be than the opening days of spring. Judged by my notes, which read thus: May 6, cold and stormy; ground covered with snow. May 23, the first bee-day of the season. Then by the end of the month the weather changed to wintry cold again, and so it remained until June 22, when the bees commenced working on the May-bloom, then followed the various later flowers. But besides being a very poor season, it has been a very peculiar one with me. For the past seven years I have invariably had a large amount of honey in July varying in colour from very dark to absolutely black, and in quality practically unsaleable this year, on the contrary, there has not been a trace of dark honey gathered. Such surplus as my own bees gathered in July last has all been good saleable stuff, not only so, but in that month my bees had the best honey-gathering time for July that I have experienced for the past seven years. In plain words, the bees cleared off all expenses for the current year, and left me a little to the good besides. I am sorry to say, however, many hereabouts were less fortunate than myself, for a good few stocks had already succumbed before the favourable weather set in, and in others the bees were so reduced in numbers that they were never able to pull themselves into form. The heather (the sole hope of our harvest) was fully three weeks late. I first noticed bees going to the heather on August 26, and then all seemed to go on well until September 1; but on the 2nd of that month a change for the worse in the weather took place. Honey almost ceased to come in, and by September 13 all was over! Our hopes had all vanished in mid-air! My own surplus was forty finished sections and about 2 cwt. of extracted honey. Not one quarter of my usual crop. Here let me say that my Wells hives on the WBC principle have again shown their superiority in a bad season. Taking the heather harvest—which is acknowledged to be one of the

worst ever known — my twenty single hives gave me forty sections among them — an average of two each; while nine Wells gave 224 lb. of extracted honey, an average of nearly 25 lb. each. Certainly a poor thing in either case. With my remaining Wells hive—I have ten in all—I did a little experimenting. Seeing so many discouraging accounts in the BBJ, I resolved to try one Wells for section work with one queen only. I did this in order to see if those hives could not be utilised for this purpose; and T now give my experience in order that if *Bee Journal* readers found difficulty in working these hives with two queens, they could adopt the single-queen plan and devote them to working for section-honey. My plan was this: I made one Wells up with one queen in her first year, put in two box or hollow dummies to take the place of four frames, then extended the brood -nest up to sixteen frames. This done, I added a section-rack. The result was my securing fifteen sections before the heather season and eight from the heather—twenty-three in all, besides 7½ lb. in unfinished sections. I also took six brood-frames, which yielded other 15 lb. of extracted honey—a total of 45½ lb. for the season. It must be understood, however, that one season's trial does not prove this plan to be good or bad. I simply give results of the first trial, and any one that finds a difficulty in working double-queened hives might try it and give us their opinion on the matter. In conclusion, let me say, although the season has been very poor, it has taught me a lesson or two I shall not readily forget. — J Rymer, Levisham, Yorks, October 23.

(Feb, 5, 1903). *The British Bee Journal and Bee-Keepers' Adviser* **31:59**. [Query 3028]. Bees uniting of themselves in Wells hives. —I happen to possess a colony of bees in a Wells hive which I got some time ago. I am feeding them with candy, a hole being cut through the quilts in the centre of the top of frame?. Somehow in getting the hive home, the candy-box got slightly moved, and when I looked at it last Saturday I noticed that all the bees of both compartments had got all together in one side of the hive. I presume that in this case there will only be one queen left now. I therefore ask: —

1. What do you advise me to do? In another of my hives I find that the frames in the brood-nest are spaced irregularly, in some places there is 2 in. space between the frames and in others they are close together. The bees have also built the combs and braced all together between the larger spaces.
2. How am I to arrange these frames correctly? Is it advisable to take some of these out and put in full frames of worker foundation as soon as the bees begin to fly?
3. In another hive I have twice seen the larva of the wax-moth. What treatment do you advise for this? I suppose it is nothing so serious as foul brood. I intend when the first mild week-end comes to take the frames out and look them over. Will this harm them?—AH, Sheffield, Jan. 28.

Reply.—

1. Allow the bees to remain as they are.
2. If there are a few straight combs in the hive, you may get the bees to work similar ones as proposed by using frames properly spaced with metal ends.
3. Kill the larva whenever seen. If the bees are strong, they will keep the moth down.

(Feb. 5, 1903). *The British Bee Journal and Bee-Keepers' Adviser* **31:60**. Queries

and Replies Wells (York).— Using the Wells Hive for clover and Heather Districts. —The suitability of the Wells 'hive for such a locality as you hail from (Skelton-in-Cleveland) might, we think, be judged by its results in the hands of a capable bee-man like Mr J Rymer, of Levisham, near Pickering, whose experience has been fully recorded in our pages; but, as a matter of fact, the double-queen (or Wells) system depends for success largely on the bee-keeper himself, as has been fully demonstrated many times over by correspondents of the BBJ.

(July 23, 1903). *The British Bee Journal and Bee-Keepers' Adviser* **31**:294. The Rymer System. [Letter 5182]. Mr Rymer has demonstrated that bees give more clover honey in the Levisham district with a brood-nest of twenty frames than when restricted to a brood-nest of ten frames. This, it seems to me, is the most significant feature in Mr Rymer's successful experiments. If bees at Levisham succeed better on twenty combs, why should not similar results follow in more favoured districts? Everything appears to depend on the prolificness of a young queen. Mr George Wells, of Aylesford, demonstrated the same thing, with the difference that he extended his brood-nest laterally and made use of two queens in each hive. If it is a fact that queens can lay 3,000 eggs per day, a queen will soon fill a ten-frame brood-nest, and if given, in addition, ten sheets of brood foundation, either at the sides or top of the brood-nest, she could fill those additional ten frames in three or four weeks. I cannot speak from experience, but it seems that Wells hives might be more successful with one good queen than with two, and they would swarm less. When the present standard hive was adopted brood-foundation had not been invented, or, at least, was not in general use; and without the aid of brood-foundation Mr Rymer's twenty-frame hive would have been impossible. I have often noticed the present size of the standard brood-nest criticised in the *Bee Journal*, and it may be that the matter will not rest where it is for ever. [There is no Standard hive and no standard brood-nest. — Eds.] Mr Rymer was surprised to find that his clover-crop increased with a twenty frame brood-nest, but he deprives them of ten frames three weeks before the heather harvest. Is it not possible that there would be another pleasant surprise in store for Mr Rymer if he allowed the twenty comb brood-nest to remain intact throughout the heather harvest? If the Rymer system does not lead to a twenty-frame brood-nest all the year round, but continues as at present with its difficult manipulations to be performed—in July to restrict the queen, and in early August to take out ten of the combs—I think it may be found that a brood-nest extended laterally would be easier to manage, as the queen excluder could be dropped in the centre of the twenty combs without looking for the queen. The hive afterwards to be prepared for the moors by taking out ten combs, moving the then reduced brood-nest to the centre, and filling the side spaces with surplus receptacles, as well as placing surplus-chambers on the top of the restricted brood-nest. If a swarm came out of a single queen Wells hive such as I suggest, how easy it would be to hive the swarm in the usual way, divide the twenty frames by inserting a Wells dummy, and thus get (by taking the necessary precautions) two young queens mated, and send a two-queen Wells hive as well as a good swarm to the moors. — John N Kidd, Stocksfield, Northumberland, July 17. [We print the above communication as written, but we cannot ourselves recall any part of Mr Rymer's system as applying to a clover district or to clover honey at all. It seems to us that the whole of his efforts are devoted to preventing

swarming and breeding bees right up to the middle of July, at which time the clover harvest has ended. Again, with regard to the Wells system, we do not remember having heard of Mr Wells allowing a brood-nest of more than ten standard frames to one queen. — Eds.]

(July 30, 1903). *The British Bee Journal and Bee-keepers Adviser* **31:304**. The Rymer method. [Letter 5196]. Referring to BBJ of July 16 and 23, and the question of stopping swarming, I have been much interested in the matter, being in a somewhat similar case. On p.286, Mr Rymer says, I tried working a box of shallow-frames under the brood-nest, and this reduced swarming to a certain extent, but finding the shallow frames below often contained brood and eggs when removed to their place overhead, I altered my plan, &c. The above is exactly my experience with the same method, i.e. box of shallow frames under the brood-nest, and swarming still takes place. This season I have three single hives and a Wells treated in this manner. Results: — On 22nd inst examined them; in the Wells the bees made no use of added frames, either for surplus or brood, but one compartment of the bees swarmed. In the single hives (I will call them Nos. 1, 2, and 3) No.1 I found four out of the nine frames had hatched brood, worker and drone (no unsealed brood). I inferred from this that the queen had returned to the brood-nest. The other five frames were full of honey (18½ lb.). In No.2 there was brood, both sealed and unsealed, and less honey than No.1. No.3, judged from external appearances, was in the same condition. I let them alone for the present, to come out about three weeks hence. I work for extracted, not section honey. There are two boxes of shallow frames on each hive, with queen excluder on the top of each brood-nest below the shallow frames. This thought occurred to me. Remove the excluder, and thereby give the queen access to the supers, which were empty (I had extracted their contents), and I did it at once—right or wrong. Should the queen lay in those combs (drone cells), what will the result be, worker or drone, or both I have noticed drones being cast out.—WCH, South Devon. [Worker bees are not likely to be reared in drone cells, so that you may look for drones only if eggs are laid at all. — Eds.]

(Aug. 13, 1903). *The British Bee Journal and Bee-keepers Adviser* **31:329**. [Query 3197]. Joining up stocks in autumn.— I have had bees for this last five years, but owing to lack of time early in spring I have not had my stocks strong enough to secure much surplus when honey flow came. This season, having more time, I had all my hives (six in number) pretty strong, but as an experiment I ran two swarms together (minus one of the queens) in the end of May, into a hive containing eighteen standard bar-frames, with a queen-excluder inserted at the tenth bar. Thus leaving the remaining eight bars as a surplus chamber. I also had a rack on the top containing eighteen shallow-frames, which are now well filled and nearly all sealed over. This is the only hive I am likely to get any surplus worth speaking of from this season. I would be glad of your advice in the following :—

1. Should I run the remainder of my stocks together into a similar hive now, or should I keep them as they are till spring and then put together?
2. Is there any danger in putting two queens into a hive so constructed?
3. Would you advise me to keep all bees in an ordinary hive of ten standard frames? I have read the Guide Book and also your paper for four years, but I

cannot remember seeing anything to assist me in this matter, so I have ventured to write you. I may say the whole of my knowledge about bees (which is not great) I have learned from the Guide Book and your paper. Thanking you in anticipation. — Inquirer. Reply.—

1. If bees are strong now it would be best to defer doubling up till spring.
2. If queens are not kept apart by some device, one will be destroyed and even parted by excluder zinc. It is undesirable to have two queens in one hive, except on the Wells principle.
3. Yes; with ten to twelve frames, according to district.

(Sept. 24, 1903). *The British Bee Journal and Bee-keepers Adviser* **31**:386.

Packing bees for winter. Reserving both queens in Wells hives. [Letter 5247] Now that the time has come when we are about to prepare our bees for the winter, I think it will not be out of place to say a word as to packing of Wells' hives so as to preserve both queens and save the disappointment that so often occurs of losing one queen during the winter, as I myself have experienced it. My plan is as follows:—Take out the closure board from one end of hive, draw all the ten frames back to outer end, then place the closure board removed from the end in the middle beside the Wells dummy, pack down snugly, and all goes well. Other methods may be used, and one that might suit many better than the above would be to have a dummy board to take the place of the Wells dummy, which is removed altogether, but either plans will prevent the queens worrying one or other to death, or the bees killing one or other, as the case may be, when they are clustered so closely in winter. That is the main point, and the bees do not lose much warmth by it, as they still have a warm board to cluster on. — Chas. Garner, Soham, Cambs, September 16. [Without being over-sanguine with regard to the efficacy of Mr Garner's plan we will be glad to have the results after a further trial. The loss of one queen in winter is a very weak spot in the double-queen system. — Eds.]

(Oct. 1, 1903). *The British Bee Journal and Bee-keepers Adviser* **31**:392-393.

Packing bees for winter. Preserving queens in Wells hives. [Letter 5248].— Referring to the letter of Mr C Garner (Letter 5247, p.386) in which he gives his plan for preserving both queens in Wells hives, I scarcely think that the loss of one queen is caused through her being killed by the queen next door. As a rule, the bees propolise the perforations in Wells dummies, consequently the queens cannot reach each other. In my opinion it is entirely unnecessary and undesirable to use perforated dummies at all; a thin ¼-in. unperforated dummy will do better and save the bees time in closing up perforations. It should be metal-bound to prevent warping. Except that Wells hives are too large for one man to lift, they possess many advantages over single ones. Small lots of bees build up quickly in them. I got an average of 58 lb per colony from my Wells hives this year, and the bees had all the comb to make too, being new lots. They had only foundation supplied them, and were, of course, fed in the early part of the season. I had only five colonies in them in working order for the present year's honey-flow, and these five gave me 288 lb. of honey in shallow-frames. The remainder was obtained from small casts which have now in these hives worked up to the position of established stocks. Painting Hives Inside and Outside.— Some time ago a correspondent recommended Hall's Sanitary Distemper for

painting the interior of bee-hives. I have just tried Hall's Washable Distemper for outdoor use. I painted my six Wells hives with it in three hours with a fair-sized painter's brush, using the colour known as Portland cement. It is much easier to use than ordinary paint, and only requires mixing with warm water, the brush, after use, simply needing to be washed in water. All colours can be obtained, and I intend to paint the alighting-boards of my Wells hives each a different tint to prevent the queens mistaking their own hives when returning from the mating trip. If this Distemper paint stands as well as is stated, it should be the best paint for hives that I know of, and the cheapest for the purpose. Bee work in Cornwall.—Down here in Cornwall many operations in bee-keeping which would be then unsuitable up north may be performed very late in the year. Queens mate all right in August, and bees may be fed with liquid food to a much later period than is advisable elsewhere. We get plenty of wet weather but not much cold, and for that reason bees need a larger supply of winter stores because of their remaining active much longer. They also require to be kept breeding as late as possible, such, at least, is my experience. I have obtained my bees from four different counties because I think a mixture of blood strengthens the race and helps to prevent foul brood. Anyway, I am well satisfied with my present stocks and should have a splendid strain of bees for the future work. With one lot purchased in straw skeps the wax-moth was imported in great plenty, but I think I have cleared them out now by constantly overhauling the colonies and killing the grubs. I cannot find any now. I do not, however, intend to buy any more bees in skeps without personal examination first, and not then if I can help it as skeps are a very great nuisance in every way.—WJ Farmer, Truro, September 25.

(Nov. 5, 1903). *The British Bee Journal and Bee-keepers Adviser* **31**:445-446. Some East Kent notes. [Letter 5282]. Along with the rest of bee-keepers I have to deplore the wet season, especially 80 the latter part of July and the first fortnight of August, and although May and three weeks of June were so wet that nothing in the way of surplus was stored, the few fine days during that period being only just sufficient for the requirements of the broodnest, I am sure that the loss was more than counter-balanced by the wealth of bee-forage (the result of the early rain) available when the weather cleared. No honey was stored in supers until after June 21, and then for about a month, with the exception of a few cold, dull days, ideal bee-weather prevailed. Unfortunately the third week in July brought thunderstorms, followed by persistent and continuous heavy rains, with only intervals of a day or so on which field work could be done. To me this was particularly disappointing, as there were good second crops of sainfoin, and in a wood close by an abundance of wild sage blooming profusely, on which the bees were working vigorously whenever weather permitted. So that there were tons of honey—so to speak—waiting to be gathered and nothing between it and the supers but want of sunshine. However, I ought not to complain, as 1903 has proved my best year, having secured an average of 106 lb. per hive; the produce of my little back-garden apiary yielding me a profit of about £10. Quality of honey and colour better than anything I have ever previously secured, all of it being light grade when tested by the BBKA coloured glasses. My Ford-Wells hive gave me five dozen shallow-frames of honey, amounting to about 140 lb., one half doing double the work of the other, the queens being unequally matched, one utilising the whole of the twelve standard frames for breeding and five of the

shallow-frames in the lower sliding chamber, before the main honey flow, while the other did not enter the lower chamber at all, and was late in filling the brood-nest proper; thus emphasising that with bees you may get honey, without them you never can. One twelve-frame single hive supered with standards gave me 120 lb. This hive has always given a good return, whether it is due to using standard size combs in supers, or to having twelve frames for broodnest, or to its being a hive of the WBC pattern, or — and here 's the rub —to its being stocked with a remarkably good strain of bees, I can't say; but the queen is a home-raised Italian each year getting the brood-nest packed with bees and brood before the main honey-flow. If we are to secure large surplus takes we must have a mighty army of foragers at the right time. I do not put any faith in the fact of having used standard size combs in supers, as I feel sure they would have done equally as well had shallow-frames been used. Profitable swarming. — Only one hive swarmed, and I felt rather annoyed at first, but it proved a blessing in disguise. June 17 was che date. On June 11, Col Walker's article appeared in BJ on Swarms do the Work. So I decided to work the swarm on the principle described there. As for want of room my hive stand leas than 2 ft. apart, it was impossible to operate as directed, by placing the hive for the swarm at right angles to the stand from which it issued. So I did, in my opinion, the next best thing. In the evening I took five frames of sealed brood with the adhering bees from the old stock and put them in a hive that stood in the row, first cutting out all queen-cells; filled up with empty combs; took the super of shallow-frames off the old stock (almost empty) and put it on the hive for the swarm, covered down snugly with quilts, and then ran the swarm in. In ten days' time the 20,000 or so of bees in the five frames had hatched out; the bees that were adhering to the frames, being mostly young bees, stayed with the swarm and strengthened it in just the same way as if the swarm had been set on the old stand later, as suggested to catch the flying bees. The result was 60 lb. of boney, which would probably have been doubled had the weather held fine for another fortnight. The old stock cast —eight days after the top swarm—about three pints of bees. I put them into a hive on four frames and they and the old stock have worked up to established colonies, have stored their own cupboard to repletion, and gone into winter quarters in fine condition. I beg leave to tender to Col Walker my best thanks for his practical and timely article on June 11. — Arthur H Homersham, Sturry, near Canterbury, October 24.

(Nov. 26, 1903). *The British Bee Journal and Bee-keepers Adviser* **31**:479-480. [Query 3282]. Queries and Replies. Moving surplus chambers in November.—I shall be obliged by your advice under the following circumstances: —On the 3rd inst I bought a Wells hive stocked on both sides with bees. On getting ray purchase home I examined the hive, and found above the brood-chambers, on both sides, crates, or body-boxes, filled with standard-frames of comb, some of them containing honey mere or less sealed. Being anxious to get all the bets down into the brood-chamber below, I took the first chance and lifted off the boxes of standard-frames, with many bees thereon, and put them into two spare hives by the side of the Wells hive, thinking the bees would leave them and house themselves in their proper home. But during the latter part of the same afternoon a bee-keeping friend called, and he told me the bees would in all probability remain where they were placed, if left to themselves; so he kindly assisted me to

hive them by shaking the bees off these frames in front of the Wells hive and drove them in, placing the quilts over the brood-chamber, and making all comfortable. Since then I have been grieved to see the great number of dead bees accumulating on the grass near the alighting-board. I see bees repeatedly hustling out of the hive in a moon-struck sort of manner and settle on the grass; they crawl about a short time, and then die. I cannot make out whatever can be the matter with them. My friend looked down between the frames, and said he was of opinion there was plenty of food, and that I need do nothing more to them but shade out the bright light during snowfall until February. The hive and its contents are very heavy, so that I am inclined to believe what he said. The roof is thoroughly watertight, and everything, so far as outward appearances are concerned, seems healthy and comfortable. There is no unpleasant smell in the hive, which I understand is the case when the hive is diseased; and there is nothing to be found, on examining the little corpses, to indicate disease. I feel anxious to do something to prevent this distressing process of dying off, and should be grateful for your advice, fearing that if this kind of thing goes on there will be no bees left for the next spring. Would it be advisable to place a cake of candy under the quilts over each colony? Thanking you in anticipation for your advice.—ASB, Anerley, November 21.

Reply.—The proper course would have been to remove the quilts from the upper body boxes and drive the bees down with smoke; then lift out the frames one by one and shake or brush the bees from each comb as removed into the box without removing the latter until all the bees had gone below into the brood-chamber. On such cold days as we have had lately bees are half torpid, and cannot take wing at all; therefore, methods that would be quite proper in warm weather are useless when bees are unable to fly owing to the cold. We cannot understand the bees leaving the hive to crawl about and die, unless care was not taken to return the bees of each upper chamber to their own side of the Wells hive. Your bee-friend should endeavour to explain this latter trouble by making an inspection of the respective compartments of the double hive and see if all is right there. Many things may become clear after inspection that are impossible to explain from a distance.

(Dec 3, 1903). *The British Bee Journal and Bee-keepers Adviser* **31**:490. [Query 3286]. Removing surplus chambers in November. —I think you have rightly diagnosed my case, when you state on p.480 that care was not taken to return the bees of each upper chamber to their own side of the Wells hive. I must plead guilty. Like most criminals, however, I have an excuse to make, having read somewhere that the worker bees in a Wells hive all mix together, and, as far as the characteristic odour is concerned by which bees distinguish each other, form one colony. I am happy to state that since I wrote you the evil of which I complained has diminished, either by all the strangers being expelled, or by the bees deciding to forget and forgive and let bygones be bygones. I suppose even the hatred of bees for those of other colonies is not an undying one. You do not appear to advise me as to the introduction of cakes of candy under the quilts. Kindly enlighten me; and also as to the introduction of laths over the frames, or the bee-way described in this week's issue. I have nothing of that sort at present. The afternoon when the bees were shifted was, for the time of year, a particularly fine and mild one.—ASB, Anerly, November 27.

Reply.—If there is any uncertainty regarding the supply of food, candy may be given below quilts, and renewed as required; but with ample stores no candy is needed.

(Dec. 10, 1903). *The British Bee Journal and Bee-keepers Adviser* **31**:499. [Query 3287]. Artificial swarming and Wells hives.—I have Mr Cowan's Guide Book, and note the directions for making three colonies from two, and have been wondering how to proceed when the two colonies from which it is desired to make a third, are located in a Wells hive. Supposing the five frames of brood and eggs are removed from the stronger colony into a single hive, the Wells hive removed to a new situation, while the single hive takes the place of the latter. Will not the flying bees on returning, some belonging to one side of the Wells hive and some to the other side, all strive to enter the single hive? The consequence of this would be, I imagine, what Artemus Ward terms a fite. What is the proper procedure under these circumstances? I do not mean after the battle has started, but before there is any *casus belli*. — AEB, Anerley, December 5.

Reply.—The use of hives holding two stocks of bees, as the Well does, creates a condition of affairs not contemplated in the Guide Book, nor have we had any practical experience of such conditions. Nor is there any proper procedure we know of. On the other hand, we do not think that very serious trouble would arise, in view of the fact that the bees in both compartments of a Wells hive so often join forces of their own accord. However, under the circumstances we will invite Mr Wells to say what he would do in dealing with your query, and publish his reply in due course.

(Feb. 4, 1904). *The British Bee Journal and Bee-keepers Adviser* **32**:50. [Query 3315]. Stocking Wells hives.—I will be glad if you would advise me as to the best course to take in the following case: I have two hives, each of which takes eighteen standard frames, and in November last I decided to use them as double queened hives on the Wells' plan. In carrying out the idea I divided the hive into two parts, holding nine frames. I then got two stocks of driven bees, one for each compartment, and put them in one of the hives in question, but the other has only one compartment occupied. I would ask:

1. Do you recommend me to get another stock of bees for the vacant half, or would it be better to help the single colony now in possession to become strong by stimulating in spring, and when sufficiently populous to divide the combs and bees, and add another small lot with queen (which I now have by me) to the queenless half?

2. If the latter plan is best, when do you advise me to do it? I purpose uniting by getting second lot with queens on to a shallow-frame box and setting the latter above top bars of the Wells hive, with excluder zinc between.—GS, Newcastle, Staffs, January 28. Reply.—

1. Put another stock in vacant half.

2. If new stock comes from a distance the bees may be added whenever convenient.

(June 9, 1904). *The British Bee Journal and Bee-keepers Adviser* **32**:223-224. The Wells hive. [Letter 5540]. As the result of my experiments with the double hive, I am of opinion that it possesses a very great advantage over single hives, because,

owing to the warmth of two stocks, even weak colonies build up with extreme rapidity, and are very far ahead of the best single ones early in the season. I find it is quite unnecessary and useless to perforate the partition dummy. The first Wells hive that I possessed was one I made myself. It had a fixed partition perforated with the usual holes, which the bees sealed up completely. The entrances were at the opposite ends. I found that under such conditions I could at any season of the year turn the hive right round so that the bees of A went into the hive of B and vice versa, without the slightest tendency to fight on the part of the stocks. I think that it makes very little difference whether the bees are allowed to mingle in the supers or not. I sometimes allow them to do so, and sometimes work each super independently, and am of opinion that either plan will answer almost equally well. It is alleged that bees in Wells hives are more liable to become queenless in winter than in others. I do not think so. I lost two colonies myself this year out of twelve in these hives, and could not account for it until yesterday, when I discovered that the sides of each of these hives had bulged slightly outwards in the middle, leaving a free passage for the bees between the end of the Wells dummy and the side, and of course under such circumstances the loss of one of the queens was almost sure to follow. I may state that the loss occurred in one case after I had removed the dummy for the annual cleaning of the hive. Propolis which formerly filled the space between dummy end and side of hive was thus removed and left the free passage way to my loss. If attention be given to this one point of making a secure division between the two colonies I am sure that the proportion of losses in double hives is no greater, but probably less than in single hives. Double hives have only one drawback, and that is the extra weight, which requires an assistant if we wish to lift them *en masse*, but this is not often necessary.

(June 16, 1904). *The British Bee Journal and Bee-keepers Adviser* **32**:235. The Rymer method. [Letter 5547]. On May 16 last a hive, being crowded with bees on ten frames, was given a second brood nest of ten frames containing full sheets of foundation. The bees took to this chamber immediately, and within a week the queen was laying there freely. Good behaviour was expected from this colony in the way of no swarms. On June 22 last, wishing to give a class of boys a practical lesson in bee-keeping, I examined this twenty-frame colony in their presence, and discovered eleven queen-cells, some nearly mature, four in the lower and seven in the upper chamber. There was also a large quantity of drone brood along the bottoms of the frames, and about 15 lb. of honey stored in upper chamber. This does not speak well for the Rymer Method of preventing swarms in this district, and I should advise all bee-keepers adopting the method to be on the look-out. However, mine may be an exceptional case. Another strong colony in a Wells hive had the brood nest gradually enlarged, by splitting every nine days till it contained eighteen frames, and was then supered with five shallow frames, and another five added at the end of a week. The result of this continual yet gradual enlargement, as shown by frequent examinations, reveals no queen cells, fifteen out of eighteen frames full of brood, and good work in the supers. I believe that to control the swarming one must not only give room, but give it gradually in the centre of brood-nest or super, and then the bees will make use of it at once. A third lot, a swarm of this year, was hived on May 30 in a skep, and in six days' time this was supplied with shallow frame super, as the bees had no room. They

did not enter the super, so I reduced to four frames, and today they are quite busy on them. We have a five-frame observatory hive in the school window. The frames are taken out and shown round the class, and although occasionally a bee alights upon a child there have been no stings. I should like our friend, who last year spoke about the class of noisy children during bee-keeping lessons, to be present when going through this hive with a class of children. He would hear nothing save occasionally an exclamation of wonder or delight drawn forth by the sight of a comb thickly covered with bees or the recognising of the queen or eggs amongst the moving mass. In conclusion, I wish all beekeepers a successful season, and hope others experimenting with the Rymer or other methods of preventing swarming will give us the result of their experiments. — Charles Mosley, Aberdare, June 8.

(July 21, 1904). *The British Bee Journal and Bee-keepers Adviser* **32**:285. [Query 3492]. Swarms uniting in Wells hives. —Italian *v* British Methods of Packing Swarms. —Would you be good enough to advise me in BBJ under the following circumstances: — I had two swarms of bees in May from advertisers in BBJ Messrs Malan Bros, Italy, put in a Wells hive, and they have gone on so well that I ordered, and received on July 5, two more swarms. These also were hived in a double hive, and seemed to be all right, but an examination two days later revealed the fact that both swarms had united, and one side of the hive was empty! After an exhaustive search I was convinced that I had lost a queen, only one being present, though how, when, or where this accident occurred is a mystery. I knew that it was useless to divide them, so ordered another 1-lb. swarm, which I intend to place in the vacant compartment of the hive. The position will, therefore, be 4½ lb. bees in one side, 1 lb. in the other, and I want you to tell me how I had best proceed to equalise them, so as to have about the same number of bees each side of the perforated division-board. They seem to be working well; and on arrival of second lot I propose to remove a couple of built out-combs from the established lot to give new-comers a start. I should also add that I consider our bee-men have something to learn from, those on the Continent. Italian bees arrive by post beautifully packed on combs, hardly a dead bee, no returning of boxes, etc; whereas, English bees (at least, what I have bought) come by rail in heavy, cumbrous boxes, packed up as if they had got to be sent to Australia; in one case it cost me 1s. 6d. to send the empty swarm-box back! Thanking you in anticipation for this, and also previous help. I send name and address, and sign myself — Probationer, Worcester, July 15.

Reply. —You can do nothing by way of equalising numbers beyond giving a means of intercommunication to the bees in each compartment. This might be managed by placing a partly-filled rack of sections from one of the first-named May swarms (now doing so well) and allowing the bees of the 4½ lb. swarm to mingle with those of the smaller lot, as is usual on the Wells system. In this way the 1-lb. swarm might get additions to their numbers; but any attempt on your part to equalise would probably work mischief.

(July 28, 1904). *The British Bee Journal and Bee-keepers Adviser* **32**:294. Bees in Wells hives. Intercommunication between bees. [Letter 5594].—May I impress on your correspondent, Probationer—who writes on p.285—the need for caution in allowing bees to mingle in Wells hives. Your reply to him already suggests this,

but a further word of caution will do no harm. Bees should be at least a full fortnight in their separate compartments before they are allowed to intercommunicate, otherwise they will make disastrous war on each other. He will also do well to examine the partition-board to see that no bees can pass from one side to the other. The queen already lost may have disappeared through this cause. Foul Brood Debate.—Can we not have a little less acrimony, and consider this matter on practical lines alone? Those who differ from us may not be cranks any more than we are ourselves, and may be just as earnest to arrive at a right decision as we are. No one will dispute the vast importance of the subject, and to pass a measure in haste that might press very hardly on all bee-keepers would be a great calamity. If we are to have a Foul Brood Bill, let it be a workable moderate one, with no legal right to upset healthy apiaries at unseasonable times. I am no curmudgeon, and an expert or any other person is always welcome on a friendly visit, but it would, as I have said, be most irritating to have to pull off my crowded supers for a compulsory legal examination. I would urge upon all lecturers the necessity of impressing strongly on all those whom they seek to make into bee-keepers the fact that bees cannot be kept without personal labour and attention. I am always willing to lend a hand to an enthusiastic learner, but I find some who are not enthusiastic, who take up bee-keeping thinking to make a fortune without effort, and who never make any headway at all afterwards. These are they who are a danger to the careful, and a little more enlargement on the difficulties of bee-keeping might do something to keep away these undesirable recruits. Those of my critics who think I am not qualified to debate on foul brood, because I have never experienced it, are surely illogical. Which is best? To keep it away or to cure it? We have foul brood in Truro. This is my third season in Truro, and I have escaped yet. I scarcely hope to escape always, but I neglect no precaution to avoid it. — WJ Farmer, Truro, July 24.

(Feb. 2, 1905). *The British Bee Journal and Bee-keepers Adviser* **33**:49. [Query 3657]. Bees in Wells hives. —As you have so kindly replied to my queries on former occasions in your valuable paper, I am again taking the liberty of asking your advice about two stocks of bees that I have in a Wells hive. Of course, they are separated, each having its own entrance. At the end of the season they both had abundance of sealed stores, and I filled the two-inch space all round with fine dried grass to keep them warm during the winter. Of late I have been observing that the bees in this hive come out much more—even on days when there is no sunshine and the atmosphere not at all genial—than from the hives on either side of them; and considerable numbers of bees have alighted on the ground and perished. Is it probable that they are too warm, or what may be the reason of their being so much more lively than any of the others? I have not examined the combs of late, but expect that they still contain plenty of supplies. I would highly esteem any advice or guidance that you could give me in next issue of BBJ. I send name and sign — Novice, Bridge of Allan, NB, January 30.

Reply.—It is, of course, possible that the two lots of bees, if clustered together with only the perforated divider between, may form a stronger and warmer lot of bees than single stocks in ordinary hives, especially when packed all round as stated, and the bees may, in consequence of the extra warmth, fly abroad when the other hives are quiet. But we should take the first chance of a warm day to examine the combs, and see how the bees look on them. This inspection would do

more to explain matters than our views from a distance.

(Feb. 9, 1905). *The British Bee Journal and Bee-keepers Adviser* **33**:58. [Query 3663]. Queries and Replies. Working with Wells hives.— I should be glad if you will kindly favour me with a reply to the following inquiry in your valuable paper, the BBJ. Would you advise letting one strong stock of bees occupy both compartments, i.e. the whole double brood-chamber of a Wells hive (twenty frames)? At present only one compartment of the hive is in use, the other half being filled up with warm quilting. I send name and sign — Wells, Hertfordshire, February 2.

Reply. —Unless a second lot of bees with queen was hived in the second compartment, we should leave the latter unoccupied, as it now is. The whole principle of the Wells hive is to have two queens at work—each one using one compartment as a ten-frame brood chamber—and allowing the progeny of both queens to work in a super to which both lots of bees have access. If the whole twenty frames are used as a brood chamber, the probability is that a good portion will be used for honey storing.

(Feb. 16, 1905). *The British Bee Journal and Bee-keepers Adviser* **33**:66. Bee notes by a beginner. [Letter 5797]. I began to think of keeping bees early in 1902, so first of all invested in the Book of Bee-keeping, by Webster. I read this through several times, and found many difficult points becoming clearer as I re-read the work. A neighbour who possessed a skep promised me a swarm, so I hastened to follow the advice of having the hive waiting for the bees, not the bees for the hive, and, in view of the future, purchased a WBC hive, veil, smoker, feeder, and other accessories. Having painted the hive well, and carefully set it out level, I waited patiently for the bees, but in vain, as they never swarmed. The time was not wasted, however, as I read all I could and made myself thoroughly conversant with the construction and working of my hive. I visited the Royal Show at Carlisle, and spent a lot of time among the bee-keeping exhibits, learning much that has been useful to me since. In the spring of 1903 I bought two stocks of native bees in boxes—not on frames. One of these stocks I placed above the frames of the WBC hive, and the other I allowed to stand as it was. All was going on nicely, and the bees had just commenced to draw out the foundation in the frame-hive, when, one hot July day, I carelessly left the roof off the hive, and the sun's heat melted all the comb-attachments. This caused such a wholesale destruction of bees as I do not wish to see again. I set to work, cut out the brood-combs and tied them into the frames; not an easy task for a beginner, but I managed it. This was such a setback that I got no surplus from that stock, though they gathered sufficient for their own needs, and for those of another lot which I drove and united to them in September. The stock in the other box swarmed three times. Twice we hived the swarm, but both times the bees returned to the parent hive in the evening. The third time they clustered at the end of a branch of a tree more than 20 ft. from the ground. After trying in vain for two hours to get near the swarm we left off to have dinner, and on returning to our task found the bees had gone back to their old hive. A bee-keeping friend helped me later on to transfer them into a Wells hive which I had had given me, and they swarmed no more; but my troubles with them were not over by any means. Several times in August I examined the frames, and, finding no brood,

concluded they were queenless. So I sent for a queen, but the dealer to whom I wrote neither sent a queen nor returned my money. Judge of my surprise, when, after a fortnight's absence from home, I looked in again and found a nice patch of brood! This stock yielded no surplus, but they gathered sufficient stores for wintering on. In January, 1904, I began to take in the BBJ, and soon afterwards bought Mr Cowan's Guide Book and Honey Bee, which have been exceedingly useful to me. Last season I was not altogether free from misfortune, losing a fine swarm from the WBC hive early in June. I took the stock out of the Wells hive, as it needed some repairs, and put them into a single hive. This stock did not swarm, although I saw several queen-cells capped over. I can remember how pleased I was when I first saw a queen bee, having quite despaired of ever being able to find her among the hosts of workers. The calm way in which one is directed to find the queen and remove her has caused me no little amusement, after having hunted all through the hive and never caught a glimpse of her. I had a visit from our Association expert in July, and from him gathered much valuable information. I told him I was thinking of changing my strain of bees, as they were very vicious; but after he had looked in the hives he advised me to put up with a little bad temper, as they were doing very nicely. Although 1904 was reckoned a bad year, I took over 90 lb. of comb-honey from my two stocks, which quite satisfied me, as I expected none from the WBC hive after losing the swarm. My home is in a valley near the fells, and there are acres of heather within half a mile, but last year the honey from this source was a negligible quantity, owing to the cold, dark weather of August and early September. I disposed of forty-eight sections wholesale at 10d. each, but most of the others were unsaleable owing to the admixture of honey-dew. Last September I drove three skeps and put them together in one side of the Wells hive, with my No.2 stock in the other, as I was told they might winter better in the double hive. I now wish to put them into two hives of WBC pattern, and shall thank you to let me know when will be the best time to transfer, and also if I should place one hive on each side of the Wells, put the bees in, and then take the Wells hive away. I am looking forward to the coming honey season, which I hope will be a good one. There is no foul brood just here, but I have heard of it at places about five miles away, and trust it will come no nearer. -JWP [The two stocks may be put in separate hives any time during March or April. If the bees of both compartments of the Wells hive are clustered together on both sides of the perforated divider, it will be advantageous to leave them as they are till the weather becomes settled and warm, as they will now be mutually helpful in promoting breeding by clustering together for warmth. — Eds.]

(May 11, 1905). *The British Bee Journal and Bee-keepers Adviser* **33**:188. [Query 3736]. Dealing with bees in Wells hives. —I have to thank you again for past kindnesses in replying to my inquiries. I am much interested in many of the inquiries and replies contained in your journal from week to week, and will esteem very highly your reply—in first paper, if possible—to the following. I have two stocks in a Wells hive, and would like to get honey from them instead of hives and swarms this season. How often would I require to examine them and remove queen-cells? This is my first trial of the system, and would like to do it as thoroughly as possible, so as to be successful if I can. — Novice, Bridge of Allan, May 8.

Reply. —Stocks in Wells hives are dealt with in same manner as those in single hives, except that the frames should lie examined as seldom as possible because of the risk in getting the bees of both compartments before the time for supering arrives.

(July 13, 1905). *The British Bee Journal and Bee-keepers Adviser* **33**:277-278. [Query 3818]. Uniting bees in Wells hive. On a former occasion I consulted you regarding the removal of queen-cells from two swarms in a Wells hive (see pp.188, 200). I have carried out the system, I think, successfully thus far. You suggested that sometimes the bees seemed to give up the idea of queen-breeding. Not only so, but, in my case, one of the colonies seems to have given up the idea of even producing workers, so that when last examined (about a week ago), there was practically no brood, and the whole ten frames were almost filled with honey. Both colonies have, section-racks on, but this particular colony has not done much in them; the other has done better, although also well stocked with honey below. Now, what I would like your advice about is — Would it be expedient to remove the perforated division-board, and as many of the frames of honey as thought advisable, and substitute a few full sheets of foundation, and unite both lots into one colony? Would there be any danger of them swarming unless one of the queens was removed? I will consider it a great kindness if you will tell me in your next issue what is my best course, and will wait for your advice before taking any step. I send name for reference. —BMB, Bridge of Allan, July 7.

Reply. —If you take the precaution to remove the worthless queen that has ceased breeding before uniting the bees of both compartments, it will no doubt be advantageous, to take the proposed course. Nor need there be any fear of 'the bees swarming if they have comb-building to do.

(Sept. 21, 1905). *The British Bee Journal and Bee-keepers Adviser* **33**:378. Queries and Replies. In praise of the bee. [Query 3897]. Queen killed in September. —I am fairly young at the craft (though not quite a beginner only, as the term is usually understood), but this season I have tried a Wells hive, stocking it first with a strong colony, which swarmed in July. The swarm I placed in second compartment of the Wells, and both stocks have evidently done well until recently, when I found the first stock deserting their half of the hive and crowding into the portion where I had placed the swarm. Finding today the bees had practically quite deserted the first half, I decided to place the lot in a WBC, so as to winter them better. On completing my work, I found the enclosed queen on the ground, apparently just dying, and so I ask: —Is she the original queen, or the young one they have reared this season? Is it the one they have by all appearances deserted, or have I accidentally injured her while manipulating? If so, I shall, of course, have to introduce a new queen at once. It will be difficult to decide if they are without a queen as the hive is so very much crowded with bees, and there is plenty of brood and eggs. I may say I am not by any means struck with the working of a Wells hive, and had decided to discard it and use only the WBC Thanking you in anticipation. —SF, Bramhall, September 14.

Reply. —The queen sent is an adult hybrid, and may be the original or a young one reared this year. The wings are torn and jagged as if she had been balled by her own bees during the transferring operations. We can see no trace of her being injured by yourself. In any case, you should introduce a good young queen at

once to so strong a stock in order to start well next year.

(Oct. 5, 1905). *The British Bee Journal and Bee-keepers Adviser* **33**:397. Some bee experiences. [Letter 6046]. A stray swarm of bees came to my place on June 22. When examining the frames of this swarm on July 10 I found nearly a score of queen-cells just started. We had a severe thunderstorm on the previous afternoon, dark clouds obscuring the sun, with heavy rain coming down and causing the bees to rush home in thousands, and as I could not find a queen, my impression is that the sudden storm was in some way responsible for the death of the latter. About ten days afterwards I found there was a fine lot of sealed brood in the hive, so decided to divide the frames, and transferred one-half into each of the two compartments of a Wells hive, with an outside entrance-divider 7 in. wide and height of hive. Both lots had about an equal number of queen-cells, and both seemed to do well; but, after examining the frames again on August 25, I found one lot had a drone-breeding queen. Later on I put both close together with a perforated separator between, and about a fortnight ago removed the latter, thus uniting the bees. There was a considerable number of drones among the last-named lot, with a few drone-cells sealed over, and although the bees are carrying in pollen to day (September 30). there are still some drones in the hive, I have no doubt that the storm of July 9 caused the death of very many thousands of bees. I know that mine stored very little surplus afterwards, though up to that time they seemed to be doing very well indeed. My method of extracting wax from, old pollen-combs is to get a tin of about 2½ in. deep, of such size as will easily fit into a cooking-range (square or oblong). I next get another tin to slip into this, say ½ in., but with a wire-strainer bottom. I pack this full of comb edgewise, but upside down, with about 1 in. depth of water in lower tin, to keep the combs from burning. As the wax melts and runs downwards, the cells will crumble away one by one, and every particle of the wax drains through. I have tried all the methods of extracting wax, but the above succeeds best with me, even for rendering cappings. Of course, a roasting-oven is preferable, as you can regulate the heat so as not to burn the honey draining from the cappings. — Frank Jarvis, Bucks, September 30.

(Jan. 11, 1906). *The British Bee Journal and Bee-keepers Adviser* **34**:14. Wells Hives. —My colonies in these useful hives got rather out of hand this year, though they have usually done well. A couple swarmed and entered the neighbouring wells, which in turn swarmed next day. I caught one queen issuing and removed the Wells to a new station and got a fine swarm returning to a swarm box placed on the stand with the queen caged. On examining the Wells removed I found queens in both divisions and no queen cells. So it would seem that two queens had been in one hive for a night. In the mix up only one queen was lost, but I could not determine how. Honey. —There are no cultivated fields nearer than two miles of me, and the honey gathered is of three distinct varieties, or blends, viz —Hawthorn, natural clover, heather, or blends of the first and second, or second and third. The crop, as you may guess, is not a large one. In general 20 to 25 lbs. per hive. This year the average worked out at 42 lbs. per hive run for honey. The beet hive yielded 26 lbs. of hawthorn, 52 of clover, and 26 of clover and heather. Then stocks were removed to the heather 8 miles away. The cartage cost me 16s., but it was good outlay, as I got 140 lbs. of pressed

honey, a score of well-filled saleable sections, and the body-boxes literally packed with stores, so that almost for the first time in my experience I have not needed to feed. When Doctors Differ.—Good authorities differ as to what is the best size of a nucleus, some advocating full size standard frames, some half frames, and some tiny frames on the Swarthmore plan. I would not like to rush in the face of any successful method, but with me the Swarthmore hives 2s. 6d. each are not suited to the locality. Full frames are most expensive in bees, and though I have generally had three full frames to each, mating was not always successful. I have tried to work out a size that will be neither too large nor too small, one that gives three frames of comb from a single shallow frame, that is, my nucleus frames are the same depth as a shallow frame, but only 42 ins. wide inside —so that ten mating-boxes could be combed from a crate of shallow frames'. Small hives with single walls—6 in. square inside sloping roof, and detachable bottom—hold four of these frames. Three are sufficient, but a fourth can be added -f necessary. This letter is already too long, so I will defer sketch and measurements till another week with further consideration of the subject —DV, Dunaskin, January 6.

(Feb. 1, 1906). *The British Bee Journal and Bee-keepers Adviser* **34**:49. [Query 3204]. The Ford-Wells hive.—I should be glad of your advice as to how I am to manage a Wells hive, which I bought second-hand in the autumn. I understand about keeping two stocks in the hive with a perforated division, but

(1) should there not be a floor-board under the brood frames, and therefore over the shallow-frames below? Outside there are, in this hive, two sets of entranced, one to the brood chamber, and one to the shallow frames. The back of the hive opens for the lower half, so that the shallow frames can be withdrawn *en masse*, as in a bottomless drawer.

(2) should there be a moveable floor-board between the two sets of frames, B and S? and

(3) should it, in the honey season, be of perforated queen-excluding zinc, like that over the brood combs? I think it is a Taylor's Wells hive. —Drallop.

Reply. —From description given it is plain that the hive referred to is that known as the Ford-Wells hive, a full description of which, along with the method of working, appears in the maker's catalogue, which we advise you to write for. The address is Mr E Taylor, Welwyn. Herts.

(Feb. 15, 1906). *The British Bee Journal and Bee-keepers Adviser* **34**:64-66.

Homes of the honey bee. The apiaries of our readers. In Mr Hall we have a bee-man who is yet in the experimental stage, and as experience is the best of all teachers—as we have ourselves found out—we shall be glad to have results later on. His useful notes read as follows: — I have now been a bee-keeper for over seven years. My interest in bees was first aroused by hearing a lecture, given in our local schoolroom, when I was about twelve years of age. Soon after this I tried my hand at making a hive, which, as I had never before seen or handled a properly made one, was, of course, all wrong, and has to be knocked to pieces. When about sixteen, I began to take the BBJ and two years after, having seen into a neighbour's hive, I made another attempt at hive-making, the result of which you see in the fifth hive from the shed in photo. I had now an empty hive, but no bees, so in the following May I bought my first stock of bees in the hive painted red in the picture (the third from shed on right). I got it home alright, and

about two days afterwards had my first peep into a stock of live bees. The following autumn I bought a driven lot of bees, and so stocked which I am giving a trial. I may say that I have never lost a stock during winter yet, but this year I am trying Mr Simmins's plan of wintering, namely, feeding up practically solid in the autumn, and with sticks under quilts, and then leaving the bees alone, without candy, until spring. The above mentioned gentleman argues that bees naturally hibernate during winter, and if artificially fed during winter they lose much of their vitality for early summer. The argument seems feasible, so I am trying it. I have never yet seen the inside of any other hives but my own, with the exception of two, which were bought by a friend of mine who knew nothing about my home-made hive. I then bought the WBC hive shown; next followed the Wells, always stocking them with driven bees.



MR. A. HALL'S APIARY, MANY PITTS, MARFON, BLACKPOOL, LANCs.

The winter of 1903-4 I occupied with hive-making, and managed to knock up five more. One thing in particular regarding the Wells hive may interest your readers. I must say that although so much abused, it is my favourite and I have secured more honey from it than any other two hives in the place. I work for extracted honey only, and I have eleven hives, all of which, with the possible exception of one, are headed by queens of last year. I have also an excellent manipulating and storage house, part of which is in the picture, and all necessary appliances. Three of the hives shown are headed with White Star Italian queens, to bees, so I had to work them for him. One being found very bad with foul brood, was destroyed; the other is alright, so far, for the winter. I am glad to say that with care I can keep my apiary free from disease, which I have learnt to understand from painful experience. Being a market gardener by trade, I cannot devote very much time to my bees, but as experience is gained I think I get more and more enthusiastic in our hobby. Regarding the sale of bee produce, my chief difficulty is in getting enough of it to sell, and that at rather a different price to what I read of in your journals. In conclusion, I can only say that I have obtained all my information

from your BBJ and Record, along with the Guide Book and Simmins's Modern Bee Farm. I am afraid I have made my notes too long, but if I have you can condense them. Wishing you every success for your publications, long life and happiness for yourselves.

(May 10, 1906). *The British Bee Journal and Bee-keepers Adviser* **34**:187. Queries and Replies. [Query 3279]. A lady bee-keeper's queries. — Will you kindly reply to following questions in the BBJ? Last summer, two separate swarms from a neighbour's hives left his garden and of their own will entered two of my hives. I had to pay for the bees; not only so, but I found the man unreasonable about them. I therefore ask:—

1. What was the cause of their coming, and what can I do to prevent his bees from doing the same again?
2. Can you tell me where to purchase a Wells hive, and does it answer when working entirely for sections? I now work my hives wholly for sections, but would be glad to know if it is more profitable to work for both sections and extracted honey, and if I decide to do so, what quantity of honey should be left in the body-box as food for the bees?
3. Can I get both sections and extracted honey from the same hive, or must one or the other be chosen and adhered to?
4. I am afraid there is something wrong with three of my hives, and am sending a sample bit of comb for your opinion if there is foul brood in it.
5. Does our native bee extract honey from red clover and the blossom of the field beans? Is there anything to pay for above advice please let me know the amount. I send name and sign — North Connel, Argyllshire. May 1.

Reply.-

1. The only thing you can do to keep stray swarms from entering empty hives is to keep the entrance closed against intruders. Some bee-keepers are unjust enough to prepare their empty hives for swarms and leave the entrances open as decoys for swarms belonging to neighbours.
2. It is quite common to see Wells hives advertised for sale in our prepaid columns; in fact, one such appeared last week. But most leading dealers stock these hives. You would, however, be wise to gain more knowledge of modern bee-keeping before trying the Wells system of working. In experienced hands it answers for any form of honey.
3. Most bee-keepers regulate their methods of working according to their market, but it is well known that a far heavier yield of honey is got by the extracting system compared with sections. It is quite easy to secure both comb and extracted honey from the same hive, if desirable to do so.
4. The comb sent shows foul brood of old standing.
5. The ordinary brown or native bee works on the field bean, but does not gather honey from red clover, though it frequently works on the second crop or aftermath of that plant, which is usually mixed with alsike or hybrid clover. We make no charge for advice given in the BBJ, but it would be a profitable investment for you to procure a copy of the Guide Book, seeing that the above queries are so elementary in character as to make it clear that modern methods are beyond your present knowledge.

(July 19, 1906). *The British Bee Journal and Bee-keepers Adviser* **34**:284-285.

Cappings of comb. By LSC. Two queens in one hive (p.272), —If two swarms become accidentally united, and against the wish of their owner, they may be separated by hiving them at once in a large receptacle, such as a Wells hive with the division removed. If a comb be placed at each end the probabilities are that the next morning will find the swarms clustered separately upon them.

The Alexander Plan (p.273). —If there is an excluder between the tiered hives, how can the queen lay in nineteen frames? Perhaps this should read nine, the tenth comb being already occupied by brood.

Queen not taking wing (p.274).—This queen, or another, took wing all right the following day, or when she was a day older. Much water may run under the bridge in a day, and, in the case of a hive prepared to throw a cast, much may happen in twenty-four hours.

(Aug. 23, 1906). *The British Bee Journal and Bee-keepers Adviser* **34**:837.[Query 3389]. Uniting bees in Wells hive.— As a constant reader of your valuable paper, I should be glad of a reply to the following: —In the last week in June I introduced a virgin queen to a four-frame nucleus colony. Fourteen days later I examined the combs and found the young queen laying. I then added two more frames, and in a week's time there was sealed brood therein. I then united the colony with a queenless nucleus in a Well's hive, one side of which was occupied by a strong stock. This nucleus had previously, been supplied with a virgin queen, but she had disappeared, and I noticed that the bees from the other part of the hive were passing freely into the adjoining compartment (perhaps robbing). Now, after a fortnight, I find the second queen has also disappeared, without having laid any eggs since uniting. Very few bees remain, and they have built queen-cells which at present are empty, and they have nothing but sealed brood in the combs. I therefore ask:

1. Is there any possibility of the bees raising a new queen?
2. Do you think it likely that they had been destroyed by the bees from the other part of the hive? I sign myself — Drone, Kent, August 6.

Reply.—

1. We think it more than probable that the same thing would occur again if you make another attempt at giving a queen to the bees in question.
2. It would be easier to answer this query if we had the Well's hive and its bees under personal observation; but, judging from the particulars given, it seems clear that the bees of both compartments of the hive are fraternising comfortably, and may be taken as one family with one mother bee at the head of the colony. If you wish to stock the Wells with another colony, it should be done by shutting the second compartment off for a time, and then introducing a new lot of bees into it.

(Sept. 20, 1906). *The British Bee Journal and Bee-keepers Adviser* **34**:377.

Queries and Replies. [Query 3404]. Swarms building queen-cells in Wells' hive.— May I ask you to answer me the following question through your valuable BBJ? In July I hived a large swarm in a frame hive. They have done exceptionally well, but I have been unable to account for two queen cells found on a comb I was examining last month. I don't know whether there are any other queen-cells on combs, not having examined. The bees were placed on frames, some fitted with full sheets and others with half or quarter-sheets of foundation. I have been bee-

keeper for a number of years, but have never known of a similar case previously. I don't think they have thrown off a swarm nor re-queened, and so I ask;—

1. What do you think of the case?

2. I had a very strong swarm from a Wells hive, each compartment of the hive being on twelve frames in brood-box, and eight standard frames in supers. About three weeks later, in examining the hive I found the bees had left the compartment which had swarmed, and joined with its neighbours, both lots being busy removing stores from one to the other. This also puzzles me. Another case I wish to state is that one of my swarms, placed on ten full sheets of foundation, gnawed away the wood from under top-bars of several frames (unwired), causing the foundation to drop down during the next day. Removing this, I found that the combs seen in these empty frames were built-out sooner than when full sheets were put in. I state this because lately I have noticed that differences of opinion exist with regard to the value of foundation. Could you give me name and address of a skep-maker, as I wish to have some special skep-supers made? Awaiting your reply, I sign myself, Bienenfreund, Padiham, Lanes. Reply. —

1. We should say it is simply a case of the bees re-queening themselves, that is if the cells seen are more than partly-formed ones.

2. It is quite common for the bees of (both compartments of a Wells hive to join forces when one lot becomes queenless, as they not seldom do in these hives.

3. It seems to us physically impossible for bees to gnaw away wood, as stated, and so cause foundation to drop down in a few hours, as alleged. Consequently, there must be some other way of accounting for the fall of foundation. Any appliance dealer would give you the name, etc., of a skep-maker if you send stamped postcard for reply.

(Mar. 14, 1907). *The British Bee Journal and Bee-keepers' Adviser* **35**:108. [Query 3482] Wells hives for swarms. Will you be good enough to tell me if it would be practicable to use a Wells hive for two swarms, supposing the swarms came from two different stocks at different times?—WH Baverstock, Woking, March 9.

Reply.—Yes. The two compartments of the Wells hive are supposed to contain two stocks of bees; and by using the perforated divider the bees of both lots are more or less of the same odour. Consequently, when a large super is given, the bees (but not the queens) of both lots fraternise, and work as a single colony.

(Oct. 10, 1907). *The British Bee Journal and Bee-keepers' Adviser* **35**:407. Wells Hives. [Letter 6860]. These hives have been found by many rather awkward to use, owing to their size, but more especially because of the difficulty of moving one stock irrespective of the other. My experience is that if they are of the loose outer-ease type it is a very easy matter to overcome the latter difficulty. The inner bodies only require to be sawn in two, thus making two good separate hives in one ease, or two ordinary single bodies may replace the Wells body. Wells hives so used are extremely convenient and handy, while they are also specially valuable where doubling or uniting is practised; indeed, for practical work they are in most cases more convenient than single hives.—AHB, St Day.

(Nov. 7, 1907). *The British Bee Journal and Bee-keepers' Adviser* **35**:443-444. The quiet season. Some retrospective bee-notes. [Letter 6883]. The quiet season may now be said to have fairly begun. Bees are at rest, or should be, and we are at

liberty to discuss the many interesting points brought forward during the season in the BBJ and other papers. We are now looking ahead, as it were, to the bee-season of 1908, and all that is likely to be of benefit to us then should be kept to the front during the winter months. All bee-keepers worthy of the name must have already laid the foundation on which next year's success can be built by making the most of the opportunity to prepare their bees for safe wintering. From Ussie Valley, in the extreme North, our cheery friend JM Ellis, in bidding adieu to the season of 1907, anticipates success in the season to come. Friend Farmer, from the other end of the country, informs us that his annual drive is over. With lightning despatch—in the twinkling of an eye, as it were—without commotion, the apiary has been transformed from an infected area into a place altogether lovely in its purity and immunity from disease. May we congratulate brother F and his lightning operators on their record-breaking performance, and may it not be necessary in 1908 to repeat it. Startling developments are reported from the Far West, and Mr WE Alexander's long-expected explanation of how to introduce any number of queens to one colony at the same time demands more than a passing notice. Briefly, his method is as follows:—The stock to which the bevy of queens is to be introduced is made queenless and broodless at one operation. The queen is placed in a travelling or introducing cage quite alone, and the eggs and brood are set over another strong colony. A pint or so of the bees are shaken into a box 5 in. or 6 in. square, with wire netting on two sides, to prevent suffocation and allow of the bees being fed. A hole is bored in one end, to run in the queens. The hive is then half-filled with empty combs, on which the bees are allowed to cluster till sundown, the bees in the box being then removed with the queen into the house, care being taken not to place them too near each other. After five or six hours the bees in this box are placed within reach of some thin, warm honey in such a way that they can eat their fill without daubing themselves with it. After they have gorged themselves, the box is given a little shake, and as many fertile queens as desired are run in by the hole in the end. This is closed, and the bees and queens are again placed in reach of the food till sundown. The queenless bees in the hive are now given all they will take of the same food. The cover is next removed from the box containing the queens with the attendant bees, and this is placed alongside the cluster on the combs in the hive. The hive is then closed, and the bees and queens allowed to join up quietly. They are left undisturbed till next day, when the brood-combs are returned. The whole business is thus ended. By closely following the above plan Mr Alexander declares not one queen in a hundred will be lost. On first hearing of the success Mr A has achieved in this direction, one is apt to jump to the conclusion that this will be a very great advantage to bee-keepers in general; and I hope it may. But a little reflection shows so many difficulties in the way of its adoption that I doubt whether the method can be applied to any advantage in this country. In the first place, the bee-keeper would need to have on hand a large batch of early-raised queens, ready mated, to introduce some weeks before the honey-flow was expected to begin. Their introduction just before or during a honey-flow would militate against the storing of much surplus by the queens filling every available cell in the brood-chamber, and producing more brood than the progeny of the original queen could attend to, and at the same time fill their supers. In America the conditions are widely different from ours, as we have, as in 1907, often a honey flow of only a few days' duration. If Mr Alexander or any other bee-keeper

can find means by which the bees can be induced to keep more than one queen in the hive over winter, the case might be very different, as then the balance of population would not be jeopardised at the critical moment, when every bee that can be spared is wanted to work in the supers. Since the system was announced in the American papers, I have been trying to solve the difficulties connected with it, and must frankly admit with not very encouraging results. It is quite possible, I have found, to introduce several queens to a stock in more ways than one, and quite easy to keep them there so long as food is supplied with a liberal hand, or while a honey-flow is on. When the income is withdrawn all queens but one disappear, and the colony settles down to its normal condition. Several bee-keepers report the same result in the American papers; and when once a number of queens are accepted by a colony, it is not easy to see how the method of introduction can affect the after-treatment of such queens by the bees themselves. However, Mr A seems sanguine of success, and we must wait the result of further experiments on his part. He says that in no case where a stock had two or more queens have such stocks ever attempted to swarm. This seems contrary to what we might expect, and this fact alone would prove the system to be a great advantage where spare queens are on hand; but to the average beekeeper, who cannot winter his spare queens or rear them early enough, it would be too expensive as a means of swarm-prevention. The reason why stocks having more than one queen do not swarm is not apparent, but it may be that Mr Alexander's system of introduction throws the bees into a condition so nearly resembling that of swarming that they are thereby robbed of all inclination to swarm for the season. Things might be very different if a number of queens were wintered in the hive. One cannot but think it is a waste to keep a number of queens in one broodnest, which a single queen might keep well filled with brood. Under the system queen-rearing should be a flourishing branch of our craft, and we need never harrow our feelings by killing our old queens, as we could allow them to live as pensioners in their daughters' hive. Let us wish Mr Alexander success in his labours.—GW Avery, Armathwaite, SO, October 28.

(Nov. 14, 1907). *The British Bee Journal and Bee-keepers' Adviser* **35**:456-457. Plurality of queens. [Letter 6895]. Around the Alexander system of keeping a number of mated queens in one hive, as detailed by Mr Avery in BBJ of November 7 (p.443), there naturally centres an exceptional amount of interest to all bee-keepers. The chief points of advantage appear to me to be its help in prevention of swarming—which came as a surprise to Mr Alexander — and its method of retaining surplus queens. Other advantages claimed for the system are open to question. Dr Miller mentioned in his *Stray Straws* that Mr Alexander had successfully wintered five queens in one stock up to date (February, 1907). We in England have for many years been acquainted with a plural-queen system in the Wells hive, which is now falling into disuse, mainly, I think, on account of the heavy, cumbersome hive, the single hive being so much easier to handle. Yet some valuable lessons were learnt from that hive. But the Alexander method opens up new ideas worthy of trial, and no new hive is required; therefore the outlay is not great. I have wintered a single-comb observatory-hive, and it is surprising to see how close bees can cluster, emphasising the spying the best packing for bees is bees. If, then, we could unite the results of two queens of the Wells system into one compact cluster, as is done on the Alexander method, it is

worth trying for wintering if it shows stronger stocks in spring. It is hardly necessary to mention the great advantage that would accrue to the apiarist who is located a distance from his bees if he can completely control swarming. It is clear to most of us that Mr Alexander's location and the race of bee he works with may lend themselves to his system. Yet, even with our variable climate and varied flora, we may in some measure succeed with his method; so it is worth a trial. There are those who say it is contrary to Nature; which may be true in a limited sense. In the progress of civilisation and in improving breeds by selection the life habits of various members of the animal kingdom are constantly changing, and it is quite possible that we may succeed in changing the habits of the bee to a certain extent sufficient for our purpose. It may be that in the very multiplicity of queens there is safety from balling. Two years ago I studied the balling question closely, and found that in the early spring manipulation, if a stock had been fed a little so that there was some unsealed food in the combs, the bees were unwilling to break into their sealed store. Consequently a stock with a greater number of field workers at home are not able to fill their honey-sacs so quickly as when there are plenty of unsealed stores, and there is thus less risk of balled queens, because filled bees show practically no fight to apiarist or queen. This is in line with Mr Alexander's method of introducing plural queens. I have introduced two queens into a hive, and they have been at once accepted, but in twenty four hours the queens were fighting! I have also seen two active laying queens in a stock, one above and one below a queen-excluder, making one powerful stock. Again, two queens—mother and daughter—have been found laying side by side in my apiary. I have also seen two queens successfully introduced by mistake. A singular thing occurred to me the other day. I had by me a laying queen without attendants, when it chanced that a strange bee alighted on the open cage. The piercing cry of terror that came from that queen surprised me; so loud and prolonged was it that my daughter in the next room remarked, Father, are the bees balling that queen? It was accompanied by the curling of the abdomen to ward off attack. After a pause this solitary worker showed fight, and would soon have killed the queen but for my interference. In conclusion, I say the Alexander method of preserving queens is beset with difficulties, and few will be the number that succeed; yet it is worth the effort. — Joseph Gray, Expert and CC Lecturer, Long Eaton, November 7.

(Dec. 5, 1907). *The British Bee Journal and Bee-keepers' Adviser* **35**:482. Notes by the Way. [Letter 6917]. The question of keeping more than one queen in a hive at the same time is apparently occupying the minds of our Transatlantic cousins to a considerable extent just now. There is no doubt that several queens can be safely introduced to one colony, but where aged and failing queens and young ones only just, beginning to lay are introduced to one colony, I do not believe that 3 per cent, of the stocks so treated would be found with more than one queen in each at the end of a month after introduction. On the other hand, I think it quite possible that if there are two good queens in the same hive, say, at the end of April, that colony would build up faster than one headed by a single good queen. There must, however, be some method used for keeping these queens apart, along with the certainty that there is a good strong colony of bees in the double-queened hive, otherwise the brood-nest will only expand slowly. The duplicated queens may deposit eggs enough, but if there are not sufficient nurse-bees to

generate warmth and to carry on the growth of the larvae to maturity it will be lost labour for the queens. I am quite convinced that we have not changed (nor are we likely to change) the instinct of the honey-bee, although some may fancy it can be done by continual selection of certain points — say, the non-swarming instinct in a few stocks—year after year. But when we have about got those superior points fixed there comes Dame Nature in a merry mood, accompanied by bright, sunny days in May and June, who will as with a wand disperse our labour of years in a few days, and the swarming instinct will reassert itself in those bees which for years have almost ceased to swarm at all —will swarm themselves to death, if I may use a common term, or at least become queenless. To those of our readers who may be inclined to try the plural-queen system I would say, if you have spare queens give it a trial, but if you have to purchase queens to experiment with, Don't—unless you use queen-excluders or a Wells dummy, i.e., a thin board pierced with holes; but if you have only ten-frame hives, I opine one good queen will fill your hive with bees and brood by the first week in June, and it is only in very early districts that bees take to supers before June, and a hive overflowing with bees at the end of May would be useless if the honey-harvest did not open till about June 10, when white clover is just bursting into full blossom. —W Woodley, Beedou, Newbury.

(Dec. 5, 1907). *The British Bee Journal and Bee-keepers' Adviser* **35**:486. The poor season of 1907. [Letter 6923]. It would appear from Mr Wakerell's report, in your issue of November 14, of the discussion on The past season's work (p.452) as though I also had experienced a disastrous year with my bees; but although I did not do quite so well as last year, I managed to obtain 173 lb. of very good honey from the supers of four stocks. One of the hives had also more than enough stores left to winter on, but the other three had to be fed up rapidly. Referring to Mr Ellis's Something New in the same issue (p.456), I exhibited and explained at the Croydon meeting a very simple device which I have used successfully for several years. It consists of a swarm-box with a lift arrangement which allows one to hive the swarm direct on to the frames, and then, if wished, immediately to transfer it into a new hive, or left for weeks in the box. The lift in that case is used to contain a feeder and warm wrappings. In reply to Mr Gray, also in same issue (p.456), may I say that, having used a Wells hive for four years with every success, I have had no swarms from it, and always obtained more honey than for many other two hives in my apiary?—WG Fischer-Webb, South Croydon.

(Jan. 30, 1908). *The British Bee Journal and Bee-keepers' Adviser* **36**:48. American and colonial papers. Extracts and comments. By DM Macdonald, Banff. ... Dual queens.—In summing up the results of a discussion at the recent convention, *Gleanings* says: —The majority of those present who took part in the discussion seemed to feel that it was practicable to run two queens to a hive, providing they were separated by perforated zinc. Even more could be kept so long as there was general prosperity in the hive: but when a dearth of honey came on all the queens would disappear but one. Even Mr Alexander (p.1496) has to acknowledge that now he can find but one queen in each hive. So this is the end of it all! We, too, have gone through the Wells boom, and, better as a system though it was, very generally one of the queens went a-missing, even with a separation between the two stocks. ...

(Aug. 6, 1908). *The British Bee Journal and Bee-keepers' Adviser* **36(1363)**:311-313. Editorial, Notices, &c. Franco-British congress of bee-keepers. The Congress of Bee-keepers was held in the Congress Hall at the Franco British Exhibition on June 25, under the presidency of Lord Avebury, PC, FRS, when a distinguished company numbering over 250 assembled. The concluding Editorial, Notices, &c. was published on the 6th of August 1908. The influence of more than one queen in the same hive.

This was the final subject dealt with, and in the absence of the French bee-keeper to whom the question was allotted Mr T W Cowan introduced the discussion. He said: —All bee-keepers have from time to time found two queens tolerated in the same hive, and recently there had been much correspondence in bee-papers on the subject.

So long ago as 1890 Mr George Wells introduced the system of having two queens in a hive. By his method the two queens were kept apart by means of a sheet of perforated zinc, and when the stock was ready for supers he placed a queen-excluder on top of the frames and supers above, so that the bees of both compartments had free access to either side. He found that breeding went on so fast that an ordinary hive was too small, therefore he devised what is known as the Wells hive. This is double the length of an ordinary hive and contains twenty frames; it is divided in the middle by a division-board perforated with small holes. Two colonies are put in, one on either side of the division-board, each having a separate entrance, so that at first the bees do not mix. When ready for supering a sheet of queen-excluder is placed over the frames, as already mentioned above, so that the bees of the two colonies intermingle and work in a super common to both. It was found that the bees worked peaceably together because, being in the first place separated by the wooden perforated division-board, they had acquired the same scent and laboured as a united family. Experience also showed that two lots of bees not only wintered better but consumed less food than two colonies in ordinary hives. For the purpose of comparing honey yields Mr Wells worked five hives with single queens and five with two queens in each respectively, and the result was that whereas the single-queen stocks gave an average of 41 lb. each, the double-queen stocks averaged 158 lb., or very nearly double what two stocks with one queen each would give. The year in which this trial was made proved an exceptionally good season, but Mr Wells subsequently obtained an average of 130 lb. from such hives, showing that in the production of honey there was an advantage of having two queens in a hive. There was also less tendency to swarm, and, no doubt, in places where there was a steady flow of nectar the yield of honey was very great. The system, however, has not come into general use for several reasons. First, the hives are large and unwieldy; second, it was found that in winter the cluster sometimes separated, and instead of the two lots keeping close to the division board, one side attracted more bees than the other, so that one colony flourished at the expense of the other; lastly, in operating, bees were needlessly disturbed, and frequently one of the queens was found missing in the spring. On the whole, therefore, it appeared to be a system that could be advantageously worked only by an expert bee-keeper.

The plural-queen system has been tried in America, and Mr Alexander has shown that several queens can at times be made to live peaceably together in the same

hive even without separators, and also that several queens can be introduced at the same time if certain precautions are taken. The principle is based upon the well-known fact that bees and queens of different stocks possess a distinct odour and that they will unite peaceably if they all acquire the same scent. In introducing several queens Mr Alexander proceeds in the following manner: He prepares a small box which is partly covered on two sides with wire-cloth. The queen of the hive to which it is intended to introduce several queens is removed and placed in a cage, and about a pint of bees shaken from the combs into the introducing-box. The combs are then removed from the colony and placed on some other hive until the next day, when the broodless hive is half filled with combs containing honey but no brood. After the bees have been confined in the introducing-box for five hours and have realised their loss of the queen, they are fed with thin, warm honey, and when all are well filled they are shaken up, after which any number of queens (including their own) can be run in at a hole provided for the purpose. This done, the bees are again allowed to have as much of this thin honey as they can consume, and are then placed by the queenless colony, which is fed with the same honey as that given to the others, some of which is first poured into the combs and then shaken out over the bees so that every bee has partaken of the same food. The cover of the introducing-box is removed at sundown and the box placed alongside of the combs; the hive is then closed up, and by the next morning the bees will have clustered with the queens on the combs, which can then be removed and the original combs of brood returned.

In this way it has been shown that several queens can exist in the same hive during a flow of nectar, but at the end of the season all but one of the queens generally disappear; indeed, Mr Alexander himself admits that here—as he says—he is up against a rock, and does not understand why queens can live together from May to October and then sting each other. I think it probable that during a strong flow of nectar each queen is surrounded by her own group of bees, and in this way the queens are kept apart. Although it is stated that under this plan there is less tendency for the bees to swarm, Mr Alexander's system is complicated, and requires even more skill than that of Mr Wells to work it. On the whole, therefore, I do not think that more than two queens in a hive are practicable or even desirable.

Mr F E Beuhne, president Victoria Apiarists' Association, said: I am pleased this subject has come up for discussion, as it is one in which I have taken much interest for many years. The system as explained by Mr Cowan does not lend itself to our system of bee-keeping in Australia; We allow the queen, or queens, the full range of a storied hive during the first part of the season, and so secure an abundance of workers during the time when the rapid in-take of nectar, and maybe scarcity of pollen, tend to reduce brood-raising.

Like most bee-keepers of experience, I found, cases in my apiary of two queens (mother and daughter) working peaceably side by side in the same hive, and it occurred to me! that this peculiarity might be made use of to increase the strength of a colony, and thus to add to the honey yield. In every case in which two queens were found the mother bee was at least two and a half years old, and on removal of her daughter a queen-cell (in a cell protector) could be inserted, from which a queen would hatch [sic emerge], mate, and commence laying. I

could also repeat this as long as the honey-flow continued. I was equally successful with queens in their third year, but which had previously taken no part in queen-superseding. I further extended this system by the use of a queen-excluder between upper and lower chambers till I obtained two young laying queens in the same hive, one above and one below the excluder. In many instances I allowed two, three, or even four queens to remain in one hive for several months, but I am forced to the conclusion that as a means of increasing the honey-yield the plurality of queens is not a success.

Although I never kill a queen merely because of its age, I get rid of all, young or old, which do not come up to my standard. This process of elimination secures the very best queens, which live three years and over, and ensures the longevity so desirable and advantageous in our worker-bees.

Although the plural-queen system has not, in my case, given the increase of honey looked for, it has provided a means of raising some first-class queens without the use of nuclei and without drawing on my worker force to the curtailment of the honey-yield.

In conclusion, I may say that whenever I have allowed a colony to go into winter quarters with a young queen and an old one on the same combs the old one would be missing in spring. I have, however, on one occasion wintered two old queens together.

Colonel Walker inquired of Mr Beuhne whether he did not find that the addition of a second queen was apt to induce swarming. Mr Beuhne replied that the effect was in the opposite direction.

Mr JB Lamb suggested that the theories of Mr FR Beuhne as to allowing queens to live to an old age would not find favour in England, and said that he had been mentally calculating how many eggs a queen would lay in her life-time if she were allowed to live for four years, and if the honey-flow continued for nine months or longer, as was evidently the case in some parts of Australia. It was estimated that an average queen could lay two to three thousand eggs per day in the height of the season, and under the circumstances referred to the number of eggs laid would be far beyond the half a million usually credited to a queen.

Colonel Walker questioned whether a queen did lay so many as two to three thousand eggs per day, and suggested that though this was possible, it could not be carried out in practice. Depositing eggs in cells was not like discharging projectiles from a machine gun. As soon as the obviously vacant cells—and especially those on a fresh sheet of foundation—were filled, more time was occupied by the queen in looking for empty cells than she was able to devote to laying. Moreover, she could not continue to lay throughout the whole twenty-four hours, but, like other hard-working creatures, had to cease for rest and refreshment.

In reply, Mr Lamb said that Colonel Walker's observations as to the time taken by a queen in laying eggs were doubtless made in an observatory-hive, but he reminded the meeting that a vigorous queen in a strong stock would be working under very different circumstances. He (the speaker) had satisfied himself time after time that a queen could lay three thousand eggs per day by a simple test. He put two frames containing sheets of foundation in a strong colony with a young

queen, the bees being rapidly fed and they worked out the emulation into combs, which were filled with eggs, in three days. As a standard comb contained approximately 4800 cells, it would be seen that over 9000 eggs would thus be laid in the three days. By using a strong stock for the purpose of building combs and raising brood in this way (a system advocated by Mr Simmins about ten or twelve years ago), one strong stock with a vigorous queen would be able to strengthen other stocks in need of assistance. When he (the speaker) worked queens in this way he found it advantageous to keep them only about fifteen months; that is to say, a queen hatched [sic emerged] in June would be deposed at the end of the season the following year.

In answer to questions by Mr Lamb, Mr Beuhne said: Although our breeding season extends over nine months, the laying capacity of the queen is not taxed to its limit, excepting perhaps for a short time just before the honey-flow. The rapid income of honey, due to the immense field force resulting from the brood raised earlier, restricts the queen in egg laying, which at times almost comes to a standstill. Thus, although the breeding season is much longer in Australia, a certain percentage of queens may be fully as prolific in their third year as at any time previous. But I am of opinion that the laying capacity of a young queen is never brought into full play in any hive, excepting by the removal of combs containing eggs and the substitution of empty ones.

Mr W Herrod wished to ask their friend Mr Beuhne the following questions connected with his system of keeping old and young queens in the same hive:—

1. What advantage is gained by allowing an old queen to live along with a young one in the hive?
2. How do you account for bees allowing two old queens to winter in the hive, but not an old and a young one?
3. Do you find queens so prolific as to consider it advisable to keep them till the fifth year, and might not the age of queens so kept have caused the necessity of keeping two queens in one hive to arise?
4. Do you contend that the harder a queen is worked the longer she will live and the more prolific she will be?

Mr Beuhne's replies were as follows: —

1. In my experience, there is little, if any, advantage, so far as the yield of honey is concerned, in having two queens in one hive. A good queen (and I suffer no other to remain) is capable of producing all the eggs a colony can, or will, rear into bees. I find, however, that allowing a queen-cell to hatch [sic emerge] in a colony headed by a three-year-old queen, and permitting the young queen to remain till she is mated and laying, is an easy way of obtaining spare queens almost without any labour.
2. I do not know how to account for it; I only know that such is the case. It appears to me that when an old queen and a young one are present in a hive at the beginning of winter the old queen dies from neglect; whereas when two old ones are present both are equally attended to.
3. I replace all queens, regardless of age, which do not come up to my standard of prolificness; therefore, only a limited number reach the age of three or over. As all queens have to conform to this standard of prolificness, no second queen is needed to assist. However, I sometimes transfer three-year-old queens to nuclei, after I have established a young laying queen in their hive. (The fourth question

was not answered at their meeting.)
This concluded the business of the Congress.

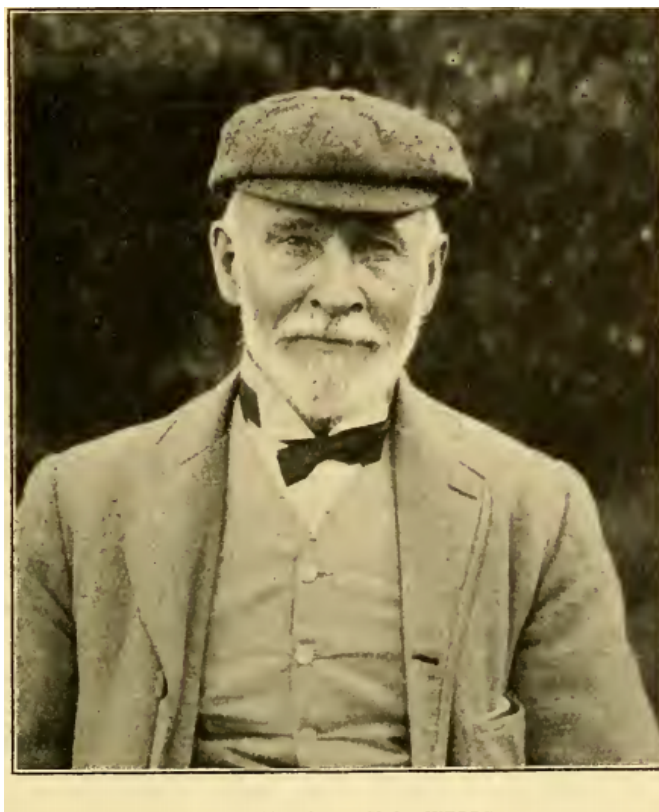
(Nov. 19, 1908). *The British Bee Journal and Bee-keepers' Adviser* **36**:463-464. Out-apiaries, etc. [Letter 7279]. My invitation to experienced bee-men to ventilate the pros and cons of out-apiaries has so far only brought, one response, and I wish to thank your Cheltenham correspondent for the useful information he has given. I note his advice regarding choice of site, and in general I gather that the pick of positions are usually on the various ranges of hills scattered throughout the kingdom, especially where the land is cultivated with a variety of pasturage. These desirable conditions are often too far off to be available, so the only thing left is to choose the best that are within reach. I had hoped that by introducing this topic a useful discussion would follow in the pages of the BBJ, but for some reason even bee-keepers possessing out-apiaries seem reluctant to recommend them. Another matter of great importance, especially to owners of out-apiaries, is the much vexed question of non-swarmling hives. Much has been written by men eminent in the bee-world on this subject, and various other methods of swarm-prevention, such as swarm-catchers, have been advocated, but in practical use there is always something wanting. The matter was dealt with exhaustively in the BBJ twelve years ago (in 1896), but I have no doubt something of practical use has been discovered since that time. Still, the question remains with us, What is the best non-swarmling method or hive in practical use? Methods requiring much manipulation defeat the object in view, because of the labour involved, difficulty of economic management, commotion of colonies, &c, and I contend that a satisfactory non-swarmling method should dispense with all these objections. I tried the doubling system last season, making four stocks into two, with twenty brood-frames each. Notwithstanding my precaution, one of them swarmed, though it had one super on in addition, thus making the cubical contents of hive 3 ft. 1 in. On making up the stock into nuclei, I found seventeen out of twenty brood-frames full, mostly of brood, the other three frames containing pollen and honey; but the super (full of drawn-out combs) had only just been accepted, and there was no warning of further room being required. The doubling method certainly retards swarming, but is not an absolute preventive. I am inclined to try a new plan next season on the doubling principle. I have in my possession two double hives of the Wells type, which have hitherto been fitted with a fixed division-board. I find they have many objections for working in their present form, and I therefore propose having a movable division fitted between the two stocks, which can be removed when the stock box is full of brood and bees. When the honey-flow is about to commence, allow one queen only to take to the whole hive, utilising the queen removed wherever required; this should prevent the swarming of both colonies, whose energies will be spent in surplus storing. By the end of the season the stock will be down to the normal condition of one colony, and in consequence will be more easily manipulated. I am hopeful that this plan will be of practical advantage, and not turn out to be a theoretical myth like many of the complicated arrangements which have been tried. It is evident that improvement in the present non-swarmling method is still needed, and an invention which will dispense with much of the manipulating and the use of too many brood-combs which eventually become pollen-clogged would be a boon to the industry. On looking up my old BBJ. I notice a system advocated by Mr H Seamark — viz a box

of dummies fitted $\frac{3}{8}$ in. apart, ventilated at the back, and placed under brood-chamber. Is this system still in use, or has it been tried and found wanting: At any rate, think we ought to be a little ahead of methods in use twelve years ago.— GW Smith, Swindon. [It has dropped out of use. — Eds.]

(Jan. 21, 1909). *The British Bee Journal and Bee-keepers' Adviser* **37**:30. CC Williams (Hawkhurst).— The Wells System.—

1. This system is not suitable for use by any but experienced bee-keepers, and even these are by no means unanimous in its favour.
2. The Hon Secretary of the Surrey BKA is Mr FB White, Marden House, Redhill.

(April 22, 1909). Eds BBJ. *The British Bee Journal and Bee-keepers' Adviser* **37**:159-160. Obituary. George Wells. We are sorry to have to record the death of Mr George Wells, of Eccles, Aylesford, after a long and painful illness extending over a period of six years. Mr Wells was born at Goudhurst, Kent, and was seventy-three years of age. He was looked upon as the father of bee-keepers in the surrounding neighbourhood, and it was after a round of visits extending about thirty miles that he was seized with the attack of illness which proved fatal. Mr Wells was a regular contributor to the BBJ, and came prominently before bee-keepers in 1892. He was the first to demonstrate the possibility of working with two queens in a hive, as he had done successfully for two years before that time. He made his method known through the BBJ, and, interest being created, he attended a conversation of the BBKA, when, in plain and simple language, he fully described the system to an attentive audience. He introduced what is known as the Wells hive, which under his management produced very good results; but as it required considerable experience and skill in handling, it could only be advantageously used by expert bee-keepers.



Mr Wells was a foreman brick maker, and since his retirement he devoted the whole of his time to bee-keeping, of which he was extremely fond, and acted as expert to Messrs Wakefield Bros, of Maidstone. He was always ready with his sound, practical advice to bee-keepers or prospective keepers of bees. We visited the apiary with the late Mr WB Can in 1893, and were very pleased with the good bee-keeping evidenced in every hive which we inspected. Mr Wells made no pretension to acquaintance with the scientific side of the craft, but he knew just what to do and how to do it, and his bees were kept as orderly in their behaviour as woe everything else we saw. As Mr Wells had many inquiries about his system, he published a pamphlet in 1894, *On the two-queen system of beekeeping*. He was appointed for two seasons lecturer on beekeeping by the Durham CC. Mr Wells leaves a widow and eleven sons and daughters to mourn the loss of a loving husband and father. Two sons and two daughters have been for many years living in South Africa. Much has been written lately about utilising more than one queen in a hive, but beekeepers must always remember that it was Mr Wells who first demonstrated the possibility of doing so.

(July 29, 1909). *The British Bee Journal and Bee-keepers' Adviser* **37**:296. Bee-notes from Bristol. [Letter 7548]. I have just taken in the BBJ again after giving up bee-keeping (owing to circumstances) for many years. One of the first things I note is the great loss the industry has sustained by the death of the late W Broughton Carr. What a worker he was; what an inspiration to us novices in my early bee-keeping days! Surely, one of its most brilliant lights has been removed from the bee-world! What has become of the Wells system? It was just about the time when Mr Wells was expounding his two-queen theory that I lost touch with the craft. Has the plan been found wanting? He certainly did well with it at that time; but no doubt it has been thoroughly tested in the meantime, and its weakness (if any) exposed. However, I have made another start, with one stock, one swarm, and a strong nucleus, and if foul brood keeps away shall soon have a good-sized apiary, I hope. Bees do nothing invariably is as true today as ever. A runaway swarm—a cast, I expect—came over my garden the other day, travelling like a homing pigeon. It would not deign to settle with us, where plenty of low bushes were provided (they were too high for the garden syringe), so some of the younger members of my family followed it until thoroughly exhausted, and they were obliged to give up the chase. But the bees were still going as strong as ever over the elms and housetops. I am afraid the honey-crop about here will be a very moderate one—full of promise in May, but since, with rain and sunless days, wretched. I expect to see a lot of honey-dew gathered, as everything seems swarming with aphids. —FS, Bristol.

(Aug. 5, 1909). *The British Bee Journal and Bee-keepers' Adviser* **37**:310. A Constant Reader (Chatham). — Working two stocks in one hive.—If you want two stocks to work in one super you must use a board between them with small holes bored in it, on the Wells principle. In this way both acquire the same scent, and in the spring excluder-zinc can be placed on top of the frames, and the super on this, allowing both colonies to work together, but keeping the queens apart. A hive made of a Quaker Oats box to hold sixteen frames is hardly large enough for two colonies, and it would be better if made to hold ten frames on each side of perforated board.

(Dec. 23, 1920). *The British Bee Journal and Bee-keepers' Adviser* **48**:620-621. A bee-keeper's good fortune. [Letter 10353]. I have again joined the fraternity of bee-keepers, or rather I have been forced to do so. Having lost my stocks through absence from home during the war, I had decided to wait and see for an opportunity of restocking. However, the unexpected happened, as follows:—On Whit-Monday, my family being away on holiday, two little boys came and said that there was a swarm of bees in the street; going with them I found a swarm of black bees in a low, thick hedge. I cut away all the small twigs until I had them nearly all on one thick stem, which I cut off with pruners, and gently laid it with adhering bees close to a skep which I had propped up with stones to receive them. Meanwhile a crowd had collected, and I received (from a respectful distance) plenty of well meant, but not expert, advice, gratis. Soon all the bees were in the skep, and at night were run into a clean hive, and I again felt the exhilaration of being a proprietor of bees. A few weeks later a boy came to say that some bees were in my garden hedge. These were a mere handful, a cast, but I put them in a clean hive and fed them well, so that though it rained continually they prospered. But more bees were to follow. Early in August a young man came to the door and announced, our field is full of bees! so I went with him, and sure enough the field was alive with bright yellow Italian bees which had not clustered on my arrival, but soon did so in the hedge; they were a very fine, big lot, and must have come a long way, as I can only hear of black and Dutch bees in this neighbourhood. Again did history repeat itself, and I secured another swarm, this time Dutch, which I joined to the black cast, being short of a clean hive, and the Dutch queen was thrown out. Again I was called, and took another stray swarm which a neighbour thought were his, so I handed them over and helped him to hive them and look through his stock. I am now the proud possessor of three good stocks of bees, which I have fed continually owing to the wet season. I would, in the coming season, like to increase my colonies, and am planning a big hive on the Wells perforated dummy system. I have made two thin three-ply perforated wood dummies. I have read and admired Mr Wells' letters in your old journals wherein he replies very patiently to some heckling critics. Is Mr Wells' pamphlet procurable now? Would it be wise to make so large a hive on the WBC plan? What merits, if any, have Dutch bees? I am informed that they swarm too much. I have seldom (you will thank goodness) troubled you with questions, so hope that face may palliate this rather long letter, which I will conclude by subscribing myself— Woodlands, Derbyshire. [Dutch bees are very prolific and too much given to swarming, so far as our experience goes, preferring to swarm rather than work in supers. When they do store honey in supers the comb is well built, and the cappings white and even. Mr Wells' pamphlet is out of print; his hives were double-walled. We trust your good fortune will continue. — Eds.]