

sense of hearing; and that on the supposition that they have not, it is thought that "clanging" which has lasted from the time of Aristotle, is useless, and is now considered so by apiarians; but that you had not been able to decide the point from experience.

The avenues to scientific knowledge are often very narrow, and may exist when we do not at first sight perceive them. Such, I think, is the case here.

For several days before swarming, and more especially in the evening, there may be perceived a very distinct trumpeting sound within the hive, resembling the squeak of a child's penny trumpet, which increases in frequency as the day for swarming approaches.

This is said, by those skilled in bee life, to proceed from the queen bee, and there can be no reasonable doubt that it does. And here I think we have just what we want. The queen is endowed (at this time at least) with the power to emit an audible sound, either from some vocal arrangement (which to my ear seems most probable) or from some external mechanical contrivance, as in the cricket.

From this evidently designed faculty in the queen we may safely and surely infer its correlative—the power of hearing in the others (and understanding it too), either located in some differentiated nerves in an organ of special sense, or spread over the whole or part of the surface.

This settled we may now deal with the "clanging." It would not be a safe or a sound inference, that, because clanging causes bees to settle soon (if it does cause), therefore they like noise.

The far more just reasoning would be, this trumpeting of the queen always precedes swarming, and must therefore be connected with swarming operations. When she flies they fly; where she settles they settle, controlled, no doubt, by her trumpeting. In these movements that trumpeting must be specially useful. But clanging overpowers it, and by confusing all communication, compels a short flight and a hasty settlement. So that instead of liking the noise, they would be more likely to say, "we would have gone further but for that confounding noise!"

I am, etc.,

WILLIAM WILSON.

Sir. John Lubbock, though a very deservedly eminent scientist, and a diligent observer of insect life, will never be regarded as a reliable authority on bees, or their habits, by practical bee-keepers. He has, no doubt, expended an immense amount of labor and time in endeavoring to elucidate the truth of the various theories he propounds, but unfortunately for him some

of the arguments used lose nearly all their weight from want of the practical knowledge which close and constant intimacy with bees and bee-keeping alone can give.

It proves the truth of the adage that "a little knowledge is a dangerous thing" for precisely in the same way, Dr. Wilson—himself evidently not a bee-keeper,—while pointing out what appears sound evidence that bees have the sense of hearing, is himself "all at sea" in the arguments he adduces in proof of his theory. It will be evident to the merest novice in bee-keeping that the doctor has had propounded to him by someone "skilled in bee life," the well-known phenomena of queens "piping" prior to the issue of second swarms or casts, and he has jumped to the conclusion that this "piping"—or as he terms it "trumpeting"—precedes the issue of all swarms; whereas we know that queens never "pipe" before a first swarm comes off, and it is only the young princesses in their unconquerable animosity to each other, which give out the well known p-e-e-p! peep! peep so familiar to apiarians. So far as proving that queens at least do possess the power of hearing, we quite agree with Dr. Wilson that "piping" is pretty conclusive evidence. The loud challenge of the most advanced of the young queens—several of which are on the point of hatching out a day or two after the most forward one emerges from its cell—is instantly answered by the fainter note of a less matured one, and this is taken up and repeated in different keys by others. But when Dr. Wilson says, "this trumpeting of the queen always precedes swarming; when she flies they fly; where she settles they settle; controlled, no doubt by her trumpeting," and all the rest of it, we must set the reader, not skilled in bee life, right, and in doing so we say that in all these propositions he is in error. A queen does not lead off the swarm; when she does come out—often after two-thirds of the swarm is already on the wing, she joins the careering multitude of bees in the air. Again it is not the queen which first settles; she alights on the cluster, as we have often seen, when it is about half-formed; sometimes sooner sometimes later.

The bees cluster more rapidly after the queen has alighted on the spot chosen, but that is all; and lastly, the queen, be she old or young, does not control the bees either by trumpeting or in any way beyond joining the mass of bees where ever they happen to settle. We are sure Dr. Wilson will be pleased to be set right from a bee-keeper's point of view, and that, he no less than Sir John Lubbock, will gladly acknowledge any information likely to assist them in elucidating the truth.

W.B.C.