the object at which it may be supposed to aim or without deliberating as to the best methods to employ. There are many actions of the bee which are carried out by newly-hatched bees, and for which we can see no cause. The difficulty here is that whenever an observer comes across an action which he cannot understand, and for which he can find no method of formation, he throws it into the general pile of "instincts," without further effort to find a cause. Is it not evident that what we so often call instincts are but actions which we do not understand? I believe, and I am not alone in my belief, that every instinct has a physical cause in the structure of the animal or its environment, and unless we do our utmost to arrive at the ultimate cause of these actions we have not finished our problem. There is a tendency for all men to think that when they have a name for a thing, and can use the word fluently, that they understand all the details of the question, but we must constantly avoid this. As an example of this, let us take the duties of the bees at different ages. Briefly, they work as follows: For the first day or two the young bees do not work on account of their weak condition, but they soon take up the duties inside the hive, such as wax-building, nursing the developing larvæ, cleaning the hive, etc. Later, generally when about sixteen to nineteen days old, they begin to fly from the hive, and ordinarily never do any of the inside work of the hive which they did before. Of course, it must be understood that verying conditions may change their actions, but this is what normally happens. Young bees do, of course, fly from the hive in what is called their exercise flight on warm afternoons, but they do not go so far from the hive but that they can be guided back by their sense of smell. Why do they go through this cycle? We can, of course, say that instinct impels them to do all these things, but how much more do we know about it when we have given a name to the impulse unless we look further?

I have not investigated this problem very much, and do not wish it understood that I think that I have arrived at the ultimate and complete cause of this cycle of action, but certain facts seem to me to indicate that there is an organic cause back of all this. The large compound eyes, as well as the ocelli of the young bees, are covered with fine hairs, each one of which is much longer than a single unit of the eye. These hairs are not sensory, as Cheshire claims, since they are in no way connected with the nervous system. I can also see no reason why they should be considered as protective, since the chitinous lens of the eye is very dense and seemingly needs no protection of this kind. These hairs come off gradually, and by the time the bee is ready to fly they are nearly all gone. I do not wish to make the mistake of failing to distinguish between accompanying and casual factors, but I am inclined to the belief that these hairs on the young bees so obscure their vision that they do not fly from the hive to forage because they cannot see clearly enough to do so. As we know, young bees do fly for exercise, but, as before mentioned, only so far that they might be guided back by scent.

Whether my view is correct or most erroneous, all must admit that it is no worse than the position of the man who says that it is all due to instinct, for he doesn't know anything about it, and I profess to know but little.

That bees as well as other animals do certain things instinctively is too evident to be discussed, but what we now need, above all else, in the study of habits is to recognize the fact that the word "instinct" is too often a confession of ignorance, and we must look for other and more fundamental causes where possible.

I have enumerated at some length the difficulties and liabilities of error in a study of the habits of the bee, and if I could but impress on every bee-keeper the fact that these really exist I would be thankful. On the other hand, I know of no more favorable animal for study than