

with typographical errors or punctuated in such a manner as to puzzle even a bee-keeper to understand it, in fact that neither head nor tail could be made of it. Well brother editor, I'll be the head this time and you can be the tail, and if you see that this article is published correctly, we will then reverse the order of things next time, that is if I am to blame. I will now conclude by saying that the combs treated as stated were all wired brood combs four years old or there about, but I see no reason why, with care, unwired combs could not be treated in like manner. For cleansing combs containing small quantities of sour honey which sometimes accumulates if left too long unoccupied by the bees, as they were last season, (I not having swarms to have them on), the spray is a capital way of making them sweet and clean, and also for cleaning the basket of the extractor. Now do not say anything about poor bee-keeping, you know how it was yourself last season.

Stratford, May 19, 1896.

Fertilisation of Flowers.

FROM A LECTURE BY PROF. A. DENDY, D.
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It would appear that there was a time when insects did not habitually visit flowers in search of honey, and when none of them even possessed the long proboscis which is so essential to that pursuit, their mouth parts being adapted simply for biting. At that time, also, such flowers as existed had probably no honey to offer them, and, being on the whole a truthful family, they did not advertise by means of bright colors and strong scents, the possession of an article which they had not got. Still less did they exhibit any of those marvellous contrivances whereby insects are now pressed into their service as pollen-carriers.

Cross fertilisation was doubtless at first effected accidentally by means of the wind, as is still the case in many flowers at the present day, and it is a very significant fact that such anemophilous flowers are always inconspicuous and devoid of scent, as, for example, in the grasses and cereals. In order to secure cross-fertilisation by the wind, however, an enormous quantity of pollen must be produced, to compensate for the immense amount which is lost in transit; so that wind-fertilisation is an extremely wasteful process.

Now suppose a certain species of insect took to regularly visiting a certain kind of flower, having found, perhaps that pollen is good to eat, that some part of the flower itself is good to eat, or even that the flower afforded a convenient shelter. Then, whether the flower was previously cross-fertilised by wind or not, it is certain that cross-fertilisation will be occasionally effected by pollen accidentally carried by the visiting insects. In virtue of this cross-fertilisation the flowers in question will produce as we know experimentally, more numerous and more vigorous offspring, and these offspring will inherit any peculiarities in the parents which make them attractive to insects, and will have some advantage in the struggle for existence over their weaker brethren. Of course, all living things vary to some extent, and no two flowers, even of the same species, are ever exactly alike. Therefore the insects have a certain amount of choice, and they will certainly visit and fertilise those individual flowers which happen to be most suited to their requirements in preference to any others. Thus, if one is more conspicuous than its fellows, it will be most frequently visited and most surely fertilised. It will produce more seed and hand down to its offspring by heredity its own particular advantages.

Thus the flowers are gradually rendered more and more attractive to the insects by the slow accumulation of slight favorable variations, simply because the lucky ones always produce the most offspring, which in turn inherit the favorable variations of their parents. At the same time, the unlucky ones produce fewer and weaker offspring and gradually get weeded out by natural selection. In this way, the secretion of honey, the production of bright colours and strong scents, and lastly, the wonderful mechanical contrivances for making the insects carry away the pollen, are all accounted for.

At the same time many of the flower-visiting insects themselves have undergone slow modification in a similar manner.

Those with slightly longer mouth parts than their fellows obtained most honey, and, being better fed, produced most offspring. These inherited the longer proboscis and so on, until the proboscis was, by natural selection, developed to its present proportions.

It appears then that just as man has, through long ages of more or less conscious selection, produced an almost endless variety of domesticated plants and animals specially suited to his own requirements, æsthetic or otherwise, and differing very greatly from their original wild ancestors, so have insects acted in like manner to-