

that aparies can be cleansed without any medicine, we shall not be surprised. In saying this I do not wish to infer that some who have tried the fasting plan in Europe are not amongst the best and most scientific bee-keepers. Why they do not succeed I am not able to say, but I would like to prove that their foul brood is not worse to cure, if as bad as ours.—D. A. JONES.

### Bees and Odors.

THE following interesting paper on "Bees and Odors" was read by Mr. R. A. H. Grimshaw, at *Conversazione* of the British B. K. A., Feb. 24, appears in the *British Bee Journal* of March 12.

"I must ask your indulgence if in this paper I deal more with the question of odors than with the distinct connection we know exists between them and the honey-bee; that point needs no elucidation, it stands as a plain matter of fact. The visits of insects are required by some plants—they secrete perfumed nectar, which has the effect of attracting the insects, with the results we all know of. There is, however, an aptness to confuse the words odor, perfume, scent and smell, and from this I will not attempt to exempt myself. Shakespeare tells us 'The rose by any other name would smell as sweet.' Moore says:—

'You may break, you may shatter the vase, if you will,  
But the scent of the roses will hang around it still.'

And so on through the innumerable works of preceding and subsequent writers, the words are used somewhat indiscriminately.

The scent of the violet stinks in the nostrils of the fox-hunter, because it draws the hounds off the scent—mark the word—the *scent* of the fox. Now, if there is one smell above another that is an abomination, it is that of a fox; yet the odor from the bruised leaves of the St. John's Wort (*Hypericum*) is identical with it, and is the most delicious perfume to some insects. Many plants are the color of putrifying animal matter, emitting the same smell, the color and smell serving to attract such insects as are necessary for the cross-fertilization of the plants, while they repel undesirable visitors. In other species the very exquisiteness of the perfume is protective against an enemy. In a rough survey of animate nature—or rather the animal kingdom—we observe the power of odor as an important factor, insects, birds and beasts being drawn towards others of their kind, or from or to suitable or distasteful plants, by be-

ing able to distinguish the attractive or repelling odor provided.

We should, strictly speaking, never take upon ourselves the responsibility of branding any odor as agreeable (attracting) or disgusting (repelling) excepting as it refers to our own sense of smell, for all, even the vilest to us, are intensely agreeable to some other animal, and the converse is also quite true. Take oil of cumin or aniseed as an example; the aroma of these is so much beloved by horses and some other animals that they are used as taming media. Some insects delight in putrefactive odors, but to others they are an abomination; every plant or animal bearing a distinctive odor is valued and sought after by some living thing, which uses this means for its discovery.

All odors are attractive in most directions, absolutely repellant ones are few in comparison. Plants, as a rule, are provided with protective appliances, mechanical arrangements against robbery—such as hairs, spines, folding doors kept tight by springs, barriers of sticky wings where leaves join stems, etc.; but I am sure the scents given off by small-distilling cell-contents are not nearly of so protective a nature as is commonly supposed. It cannot well be so when we remember that ever odor given off by plants and flowers is an elaborate secretion of its cells, generally—nearly always—identical with the essence of the whole plant—its active principle, in fact. It may be all very well to say the plant will repel certain visitors by the odor of this essence; in some cases I admit it does so, yet I contend this is chiefly accomplished by the other means I have named, and that the portion of essential principle which is diffused in the air is mainly attractive in its office. The plant giving off odor loses some of its substance, which floats in the air—with the wind, of course; the bulk of this matter is (for want of a better word) wasted, exactly as is the case with the clouds of pollen-grains which never fulfil their office, but are absorbed and used again in the great laboratory of the soil we live on. (A similar fate seems to overtake the countless drone bees, which appear to us as having lived in vain.) Such substance, then, of the plant as is thus received by a desired organism produces what may be termed a pollination of odor, the scented cell-contents absorbed by the receiving organism, having successfully played their part; but in nearly every case, I wish you to notice, this reception is in animals given by the breathing apparatus, by inhalation. The atom-like cells of odor, with their own peculiar and characteristic chemical properties, strike responsive chords on certain cells as they pass