

state of things. In the first place the Government ought at once to increase the pay of all its scientific officers, such as the Astronomer Royal, the Director of Kew Gardens, and especially the Curators of the British Museum referred to in your article.

Secondly, the Universities, as bodies specially interested in the advancement of learning, and having (at least in the revenues of the Colleges) immense resources at their disposal which could legitimately be devoted to such purposes, ought to lose no time in largely increasing the number and the emoluments of their scientific professors, as has been so long and ably urged by the Rector of Lincoln College.

Lastly, certain still more strictly scientific bodies, who have in their own hands the appointment and pay of their fellow-workers, are especially concerned in showing their appreciation of their services, as it may fairly be taken as a standard by which the other cases may be judged. It is gratifying to find that in some of these bodies a liberal spirit is spontaneously showing itself, as in the case of the one with which I have the advantage of being associated. The Council of the Zoological Society is another example, although even here it takes time to shake off the narrow spirit of liberality or economy which has so long prevailed in such matters. We think nothing (and very properly) of paying a judge or a bishop 5,000*l.* a year, but a fifth part of that sum for a first-class scientific man still seems to many a preposterous extravagance. There are many societies which, being mainly supported by scientific men themselves, are unfortunately without the means of doing justice to their officers, however much it might be their wish; but I cannot conclude without referring to one body which I think really might be expected to set a better example—a body composed solely of scientific men of the highest character, who have the nearly uncommenced use of a large sum of public money to spend in carrying out a great scientific object; I mean the Meteorological Committee of the Royal Society. Whatever the committee may do personally in the way of suggestion and guidance, the real efficiency of the operations carried out under their care must depend upon the chief executive scientific officers. The committee, in fixing the proportion of the 10,000*l.* annually placed at their disposal by Parliament, which is devoted to the remuneration of these officers, afford, I am afraid, an illustration of what I stated in the beginning of this letter, that scientific men are not the best fitted to take care of their interests or those of their class. Eight hundred and four hundred a year respectively for the Land and Marine Superintendents of the departments, are considered by the committee as sufficient remuneration for such responsible posts. If a body of the first scientific men in the land think it is so, who can wonder that very unscientific Lords of the Treasury should be of the same mind. Doubtless it was with some fear of the same Lords in their eyes, that the committee fixed the lowest possible standard at which they thought they could get the work done. Happily for themselves and the country, they found competent officers willing to undertake it; but from such a body a different line of action might be expected; they should lead, not follow, the instances of Chaocloles of the Exchequer in such matters. If scientific men are reluctant to speak on such topics for themselves, the lovers of Science among men of influence, wealth, and position, are the more bound to speak for them.

July 21

W. H. FLOWER

Habits of Ants

SOME months ago (vol. vii. p. 443) I sent you an extract from a letter from Mr. Hague, a geologist residing in California, who gave me a very curious account of the terrifying effect on the other ants of the sight of a few which he had killed on one of their paths. Mr. Traherne Moggridge saw this account in

NATURE, and wrote to me that he had heard from a gentleman who had lived in Australia that merely drawing a finger across the path deters ants from crossing the line.

Mr. Moggridge tried this experiment with some ants a Mentone with similar effects. I therefore sent the letter to Mr. Hague, and asked him to observe whether his ants were alarmed by the smell left by the finger, or were really terrified by the sight of their dead and dying comrades. The case appears curious, as I believe no one has ever observed an invertebrate animal realising danger by seeing the corpses of a fellow species. It is indeed very doubtful whether the higher animals can draw any such inferences from the sight; but I believe that everyone who has had experience in trapping animals is convinced that individuals who have never been caught learn that a trap is dangerous by seeing others caught.

Here follows Mr. Hague's letter, fully confirming his former statement.

CHARLES DARWIN

"By a somewhat singular coincidence the first reappearance, since last winter, of any ants in the room where I then observed them occurred on the day when your last note arrived,—that is, after an interval of several months. Then a few were observed about the tumbler at the middle of the shelf and the vase at the other end from that whence they were first driven, although they all came from a hole near the base of the mantel, directly beneath the vase which they avoided.

"Acting on Mr. M's suggestion, I first tried making simple finger marks on their path (the mantel is of marble) and found just the results which he describes in his note, as observed by himself at Mentone, that is, no marked symptoms of fear, but a dislike to the spot and an effort to avoid it by going around it, or by turning back and only crossing it again after an interval of time.

"I then killed several ants on the path, using a smooth stone or a piece of ivory, instead of my finger, to crush them. In this case the ants approaching all turned back as before and with much greater exhibition of fear than when the simple finger-marks were made. This I did repeatedly. The final result was the same as obtained last winter. They persisted in coming for a week or two, during which I continued to kill them, and then they disappeared and we have seen none since. It would appear from this that while the taint of the hand is sufficient to turn them back, the killing of their fellows, with a stone or other material, produces the effects described in my first note. This was made clear to me at that time from the behaviour of the ants the first day that I killed any, for on that occasion some of them approaching the vase rose below, on reaching the upper edge of the mantel, peeped over and drew back on seeing what had happened about the vase, then turned away a little and after a moment tried again at another and another point along the edge with the same result in the end. Moreover, those that found themselves among the dead and dying, went from one whitening ant to another in great haste and excitement, exhibiting the signs of fright which I described.

"I hardly hope that any will return again, but if they do, and give me an opportunity, I shall endeavor to act further on Mr. M's suggestion.

"JAMES D. HAGUE"

San Francisco, June 26

Fertilisation of *Viola tricolor* and *V. cornuta*

ALLOW me to thank Mr. Kitchener for his correction of my spelling. What I object to in the word "be-pollen" is the harsh combination of syllables, which I should have thought would be offensive to any ears, whether scientific or not. The word "pollen," used as a verb, would be free from this fault, and would be objectionable chiefly from the possibility of confusion arising from the novelty of its use in this sense. Neither of these objections could apply to Mr. Kitchener's term "be-dust," but why coin a new word when a simpler one exists ready-made? Does not the ordinary English verb "to dust" equally give the exact meaning of *bestäuben*? I cannot, however, agree with Mr. Kitchener that it would be more expressive than "pollinate," as, unlike the Germans, we do not habitually use the word "dust" as a synonym for "pollen." I have no wish to dispute Mr. Bennet's conclusion that *Viola tricolor* is very commonly fertilised by "very minute insects of the *Thrips* kind," but only to