

few remarks upon a passage in Mr. Romanes' very interesting book on "Animal Intelligence." At p. 188 he says: "Bee-masters who attend much to their bees, so as to give the insects a good chance of knowing them, are generally of the opinion that the insects do know them, as shown by the comparatively sparing use of their stings." If by this he means that the bees recognise and become accustomed to the scent of persons who attend much to them, I quite agree with him, but I do not believe that their recognition goes any further. I keep two apiaries at a considerable distance from each other, to one of which my gardener, a coloured Malay, attends, and to the other a Kafir labourer. At first they were generally stung when passing too near the entrance of a hive, but now they pass and re-pass with impunity. They work with the bees more frequently than I do, and yet when either of them assists me in his own apiary, he receives more stings than I do. This I ascribe to the gardener's using snuff in his mouth very freely, and to the Kafir's very pronounced odour. To test the recognition of the bees I once requested the Malay and the Kafir to change clothes with each other, and wear thick veils over their heads and faces. They did so, and assisted me first in the apiaries to which they were respectively in the habit of attending, with the result that they received no stings, but when either began to work with the bees in the apiary he usually did not attend to, he was so stung about the hands that he had to beat a hasty retreat, whilst I remained uninjured, although not veiled. The two men are almost of the same size and build, so that if the bees had any power of general recognition they would probably (as some of the other servants did) have mistaken the one for the other. I can, therefore, only account for the conduct of the bees by the unpleasant, and to them strange, odour. At my request the gardener discontinued the use of snuff in his mouth for some time, and during that time he was not stung more than I was while working with bees, but if the Kafir stands before the entrance of an unaccustomed hive he is remorselessly stung. I may add that Cape bees are very much more vicious than European ones seem to be, and that, if not skilfully handled, they will unmercifully sting their most familiar friends. On one occasion a bunch of carrots was left near the gardener's apiary, which so enraged the bees that they stung him and every one else they came across, and very nearly stung a cow to death at a distance of about a hundred yards from the apiary; and on another occasion a horse, still wet with sweat, trespassed too near a hive, with the result that the whole apiary was in an uproar, and some of my children and servants were stung, the chief victim being a Malay girl who used to apply quantities of scented pomatum to her hair, and who was severely stung on the head. Mr. Romanes continues thus: "Again, many instances might be quoted, such as that given by Gueringius, who allowed a species of wasp, native to Natal, to build in the doorposts of his house, and who observed that, although he often interfered with the nest, he was only once stung, and this by a young wasp; while no Kafir could venture to approach the door, much less to pass through it." It does not appear whether any white stranger was ever stung, and the only inference that can be reasonably drawn from the conduct of the wasps is that they disliked the odour of Kafirs, which, as is well known, is peculiarly disagreeable. If a particular Kafir had been in the habit of passing through the door, the wasps would probably have become accustomed to his scent in the same way as a swarm of bees, upon the testimony of Sir John Lubbock, became accustomed to the scent of eau-de-cologne repeatedly dropped at the entrance of their hive.

J. H. DE VILLIERS

Wynberg House, Wynberg, Cape of Good Hope, April 3

The Metamorphic Origin of Granite

As I had charge of the granite quarries in Mull during the five years ending 1875, and am still closely connected with them, I would like to say that the conclusions stated in the Duke of Argyll's letter in your issue of last week (p. 578) are beyond all question correct, and are the same as I formed from independent observation while I lived at the quarries.

In addition to the facts mentioned in the Duke's letter, I would say that the structure shown by the granite while decaying under atmospheric action and the cleavage which it shows in the quarry all may point to its having been a stratified rock at one time; and in several places on the shore of the Sound of Jona and in North Bay Quarry, patches of semi-metamorphosed schist are found in the granite. One very fine specimen is on the north side of Fionphort Bay.

The change from schist to granite on the north side of the peninsula of Ross, which the Duke speaks of as "obscured at the head of Loch Laigh," does, according to my observation, not take place there, but a little further west, in a bay between Loch Laigh and the inlet leading to Ardfenaig. The change can be traced foot by foot there most perfectly, and any number of specimens of it in all stages can be picked up on the beach.

Though, however, the metamorphic origin of the Mull granite is, in my opinion, beyond doubt, I think that the metamorphic agent has yet to be discovered. The most plausible hypothesis is that it was a superincumbent mass of trap, but an inspection of the very destructive influence of the trap dykes that we meet with in the quarries upon the granite about them makes this very unlikely to my mind. For some distance on each side of such dykes the granite is quite useless.

9, Angel Place, Edmonton, April 23

WM. MUIR

Helix pomatia

As *Helix pomatia* appears to be very partial in its distribution in this country, it may be worth while to record the fact that I have met with it on and near the chalk downs in the neighbourhood of Epsom, and on the chalk downs above the village of Hambledon, in South Bucks; while Mr. J. E. Harting states that it is not uncommon on the chalk hills in the vicinity of Reigate and Dorking, and in parts of Kent.

Forbes and Hanley, in their "History of British Mollusca," say "it is entirely confined to the southern counties, living chiefly on cretaceous soils"; but we learn from Mr. Gwyn Jeffreys (NATURE, vol. xxvii. p. 510) that it is abundant at Woodford, in Northamptonshire; and from Mr. Blomefield (NATURE, vol. xxvii. p. 553) that it occurs sparingly in Gloucestershire, neither of these counties being cretaceous.

With regard to its possible introduction into this country by the Romans, we gather from Venables' trustworthy work on the Isle of Wight that *Helix pomatia* has not been met with in the island, although it was occupied—and probably permanently—by that people; but *H. scalaris*, which, according to some malacologists is a monstrous form of this species, has been found there. Its absence from the Isle of Wight may be said to be somewhat remarkable, seeing that the species extends in the south at least as far as the borders of West Sussex, and that the other British chalk-frequenting *Helicidae*, *H. caperata*, *H. ericetorum*, and *H. virgata*, are very abundant in the island. Either of two causes may account for its absence from this locality:—it may be a geologically recent importation from its original (?) centre in France, and has not yet succeeded in navigating the salt waters of the Solent; or its exceptionally large size may have proved its destruction in its exposed favourite haunts. The latter supposition is the more probable one, as it would account for its general rarity, and at the same time help to explain the prevalence in the same exposed haunts of the smaller *Helicidae*.

PAUL HENRY STOKOE

Wycombe Court, Bucks

The Zodiacal Light (?)

REFERRING to the sunset phenomena described by J. W. B., of Bath, in NATURE, vol. xxvii. p. 580, permit me to inform you that I also was an observer and was well aware from previous experience that it was not the zodiacal light, which, as seen in the evening from any latitude north of the tropics always inclines to the left, and, if seen in the morning, in the east, then to the right, whilst the phenomena in question appeared as a vertical column, of a warm tint, extending upwards to about 5° from where the sun had just set moving to the right, and descending with that luminary, continuing visible for about thirty minutes from the time I first noticed it immediately after the sun had gone down behind the low range of the Yorkshire Wolds, distant from my garden five or six miles in a north-west direction.

Having never before witnessed a similar phenomenon, although I have had for upwards of eleven years an uninterrupted view of the sunset region of the sky, and, except in midwinter, am nearly always at home at sunset, and on fine evenings in the garden, I was somewhat puzzled as to whether the cause was local and atmospheric or otherwise.

If your correspondent can refer to the "Heavens," by Guillemin, p. 86, 1st edition, or to Milner's "Gallery of Nature," 1st edition, p. 62, he will there see woodcut representa-