house in which I am writing, without interruption, from 7.30 A.M. till dark, and are now at 11.30 P.M., flying in at the open window, so as to be a perfect nuisance. They are still tired moths, for they soon settle; there are certainly many hundreds in the dark corners and along the cornice.[1] My children tell me that numbers of the moths were lying dead on the dry sand above high-water mark.[2] They collected some for a tame young magpie, which has been very happy all day among the flower-beds in the garden catching *P. gamma*, which, under ordinary conditions, would be far too wide awake for him.

How far the flight extended south of Trouville I do not know, but the number of insects which have passed from sea to land here to-day must be very great. Assuming that one *P. gamma* passed over each metre of shore line each minute, an estimate below the mark at all points to which my observation extended, and assuming the flight to have extended 10 kilometres along the shore, as I ascertained that it did during the evening, nearly 8,000,000 of *P. gamma* passed from sea to land between 7.30 A.M. and 8.30 P.M.

All the insects which I caught or looked at on flowers were in perfect condition.

Where have all these insects come from? Has the flight been noticed in England? *V. cardui* was exceedingly abundant here in June and throughout July, indeed it was the only butterfly to be seen in any numbers. Its larvæ have been feeding in tolerable numbers on the thistles and other plants, and some few fresh specimens appeared before the flight of to-day, but I think there is no doubt the insects which formed to-day's flight were not bred here. Why should the moth and the butterfly come together? Here they were flying against or nearly against, the wind, although they may have started with a favourable wind. Where will they go to? If they go far, what influence will they have on cross-fertilisation? The quantity of pollen which they will carry onwards from the myriads of flowers they have visited will be immense. Perhaps other observers may answer some of these questions.

J. CLARKE HAWKSHAW

Trouville, Calvados, France, August 12

P.S.—The flight still continues this morning, August 13, 10 A.M.; *V. cardui* quite as abundant as yesterday.

P.S. No. 2.—The flight of *V. cardui* and *P. gamma*, described in my letter of August 12 ceased about 12 A.M. on the 13th. At 11 A.M. I counted forty-six and twenty-four *V. cardui* on the shore passing over a space of fifty yards in width, in two intervals each of two minutes. Judging from their number, the *V. cardui* have not remained here; on the other hand, I think many of the *P. gamma* have. On the 14th a large clearing in the forest of Tonques, about two miles inland, was alive with them. The flowers of the wood-sage appeared to be the great attraction there. I noticed many *P. gamma* lying dead on the roads inland, all in perfect condition. I believe that these moths died of starvation. The moths which flew into the house on the evening of the 12th were all more or less sluggish in the morning. There were more than 400 on one window, many of which readily took food offered to them in the form of syrup, and I induced a number of those in the forest to come on to my finger and suck up syrup.

What I have seen leads me to make the following suggestions as to the cause of these migrations of lepidoptera.

When a favourable season produces a great swarm of insects numbers would die from want of food if they remained where they came into existence, as the number of food-producing flowers is limited. To move off in some direction would be a necessity, and in time the impulse to migrate would become instinctive as soon as the want of food was felt, or even the presence of a crowd of their fellows. It would seem that the supply of food might be most readily found if the insects moved off in all directions, that is, spread from the centre of scarcity; but many moths seek their food by scent, and on that account generally, I believe, fly against the wind. Many facts might be given to show how acute the power of scent in moths is. Whether butterflies seek their food by scent or not I do not know; some are certainly attracted by strong odours, *Apatura iris*, for instance. At any rate, I think a hungry moth would fly against the wind, and so the general direction of a flight of moths might be determined.

Here both butterflies and moths searched the first flowers they came to after leaving the sea. The first comers would go on refreshed, but the later ones merely wasted their energy in a fruitless search, and many of the moths fell dead by the way.

In the case of the flight I have described, a double necessity for the migration would have arisen if the butterfly and the moth came into existence at the same time as, seeing their fine condition, they most probably did. As both appeared to search the same flowers, the dearth of food at their centre of departure would more speedily have arisen.—J. C. H.

August 23

[1] I have counted 200 on one part of the cornice.

[2] Possibly killed by the heat of the sand, on which they settled in an exhausted state.

Animal Rights

MR. ROMANES'S parallel is as unsound as amusing. If a physiologist claimed to vivisect his children "on the plea that it was for this purpose that he had begotten them," we should tell him that the legal admission of such pleas would undermine human society. But in the killing of pigs for food no undermining of human society is involved. Moreover, we know that men breed pigs only to kill them, but that men breed children from entirely different motives; we should answer the physiologist that his plea was impossible of proof, that all human experience negatived its probability, and that consequently it could not be admitted to overrule his children's presumptive right of life.

Mr. Romanes repeats his amazing proposition in morals, that "if we have a moral right to slay a harmful animal in order to better our own condition, it involves an inconsistency to deny that we have a similar right to slay a harmlesss animal, if by so doing we can secure a similar end." Then, if we have a moral right to slay harmful Zulus to better our own condition, we have a similar right to slay harmless Eskimos, if by so doing we can secure a similar end!

Mr. Romanes says that I did not attempt to meet one of his criticisms. Had I thought I might, I would have met them all; it does not take long. He thinks a lobster, to whom might is right, could not convince a philosopher that the latter had no right to eat him. Then I may pick a thief's pocket? He next admits that the lobster might appeal to the philosopher's morality, but asks why "the right of an edible animal to live is superior to that of an eating animal to kill?" Then the right of a robbable man to his money is not superior to the right of a man who uses money to rob him? And I, who am edible, have no more right to live than a cannibal has to eat me? Lastly, Mr. Romanes makes his philosopher say that he prefers lobster salad and roast lamb to boiled snakes and rat pie. Preferences are not rights, but if they were I have not suggested that the latter diet should supersede the former; and so my withers are unwrung.

EDWARD B. NICHOLSON

[*Ergo* the rights of a pig are *not* the same as those of a baby, which is just the point which my purposely unsound parallel was intended to show. It is for Mr. Nicholson to prove that the parallel is *sound*, if he is to sustain his "erroneous premiss," that the rights of men and animals are identical (the objection as to "motive" I ignore, because on the erroneous premiss in question the physiologist's motive might be sincerely stated and adequately proved as *a* motive by a declaration, say, in the marriage settlements). Instead of doing so, however, he alludes to one important difference between the rights of an animal and those of a man—the difference, namely, which arises from the latter being a member of human society. And this difference is in itself sufficient to nullify the force of all his rejoinders. Only on Mr. Nicholson's own supposition, that the rights of all living things are identical, could any of my propositions made with reference to animals be tested by their applicability to men. But this is just the supposition which I regard as absurd, and because it seems to me that ethical doctrine is here sufficiently patent—viz., that man as an intellectual, moral, and social being has rights additional to those of a merely sentient being. I will not take any further part in this correspondence.]

GEORGE J. ROMANES

Alpine Clubs

IN your account of the late conference of Alpine clubs, held at Geneva, there is one little omission which, as interesting to the scientific world generally, I beg leave to remedy.

It was suggested by your humble servant that a re-publication of de Saussure's "Voyages dans les Alpes" would be an appropriate memorial of our little congress at the city of which he was, I may say yet is, so bright an ornament. My plan was to