

their increased torture will, it is to be hoped, be vanquished by a far stronger intellectual joy.

The peculiar and unpleasant sensation which the magnet appeared to produce on the subject just referred to was described as slowly rising to a maximum in fifteen or twenty seconds after the current had been sent round the coils of the electromagnet. In like manner the effect seemed to die down slowly after the contact was broken. Unknown to the subject, the circuit was closed and opened several times, and the magnetism correspondingly evoked or dissipated, the result being that there was a fairly accurate correspondence between the physical and the psychical effect. The faint molecular crepitation which accompanies the magnetisation of iron, and can be heard when the ear is very near the magnet, is, however, very apt to mislead the imagination. To avoid this, the subject was placed at a distance where this faint sound could not be heard, and he was then requested to walk up to the electromagnet, and, judging only from his sensations, to state if the current were "on" or "off." The experiment was made twelve times successively, and he was correct in ten out of the twelve trials. He had no means of seeing or hearing the contact-breaker; of course, it is possible for a trickster, using a concealed compass-needle, to be able to impose on a careless experimenter, but care was taken, and I have not the least reason to doubt the entire *bond fides* of the subject of this experiment. Obviously the foregoing observation is but of little value unless corroborated by a far more extensive series of experiments, conducted with the most stringent precautions to avoid the creation of illusory effects.

I have tried experiments with large helices encircling the limbs and head, and animated by powerful currents, but have not observed any peculiar sensory effect in my own case, though I am inclined to think the headache which I have often experienced when working with a large magnet may not be altogether an accidental coincidence. Meanwhile experiments are in progress in my laboratory to ascertain, if possible, whether any sensory effect is produced upon lower organisms. I hardly anticipate any affirmative results, but it seemed worth making a systematic investigation from minute structures up to man. Sir W. Thomson's address will, I hope, stimulate other workers in this field.

W. F. BARRETT

Royal College of Science, Dublin, March 11

Instinct

I WRITE one more letter on this subject, in order to observe that I do not think the only remaining difference between Mr. Lloyd Morgan and myself is so great as it may be apt to appear. In my books I have been careful to point out the peculiar disabilities under which the science of comparative psychology labours from its necessarily ejective character. But while in Mr. Morgan's view these disabilities are so great as to render any science of comparative psychology impossible, in my view they are not quite so great. I quite agree with the quotation which he gives from Prof. Huxley on the crayfish; but this does not amount to saying that no science of comparative psychology is possible. We may still, for instance, feel perfectly certain that a dog is a more intelligent animal than a crayfish, and in this we have a purely scientific proposition.

The difference, therefore, between Mr. Morgan and myself is more apparent than real, and depends upon what we mean by "a science." This is the question that must be answered before we can proceed to consider the question raised by him, viz. "Is a science of comparative psychology possible?" In my estimation the possibility of a science is furnished wherever there is material to investigate. The more vague the material, the less exact must be the science, and on this account, no doubt, comparative psychology is the least exact of all the sciences. But so long as its subject-matter admits of any investigation at all, so long, it seems to me, comparative psychology is a science.

GEORGE J. ROMANES

The Remarkable Sunsets

WITH reference to the theory that the red sunsets are due to volcanic dust in the air, I think that the following extract from a letter which has been forwarded to me is of considerable interest. The writer is Mr. Frederick Spofforth, and his letter is dated January 29, from Collaroy, 150 miles from Sydney. It will be observed that the corroboration which he gives to the theory in

question is the more striking from the fact of its being so completely unconscious.

GEORGE J. ROMANES

"A most peculiar sight this summer are the sunsets. The sun always goes down as red as can be, and half the night there is the same roseate hue, which lasts till past midnight. Many causes are given for it, but nearly all differ.

"Another curious thing is the enormous amount of dust—even up here, where you see nothing but trees as far as the horizon on all sides. Some days the whole landscape will be covered in dust, and where the dust comes from nobody can tell. It is always worst in the early morning."

Right-sidedness

MR. LE CONTE (*NATURE*, xxix. p. 452) seems rather to complicate than to simplify this question. If the right side of his body shows more dexterity than the left, surely it is his left eye that should share this excellence, if we are to suppose that this difference in dexterity depends upon any central origin. A person paralysed on the left side of the body loses sight—if sight be lost at all—in the right eye, and *vice versa*. Further, I am right-handed, and use an eyeglass in my left eye; yet, though the right eye is the weaker, I use it for a telescope or microscope by unconscious preference. On the other hand, most persons who use a single eyeglass wear it in the right eye. I may have adopted the left for ease in adjusting the glass, so that my right hand might be free. When I am reading, if I put my hand in front of my left eye, I am conscious of some muscular alteration; if I obscure my right eye, I notice nothing but a slight diminution of the sense of light, white objects seeming less white to my right eye than to my left. And this effect is just as noticeable when I wear spectacles as when I am reading without them; so that my myopia is not the cause of the difference.

In discussing right-sidedness—whether we regard the decussation of the nerves in the medulla oblongata or not—we must not forget that prize-fighters normally strike with the left hand, using the right as a guard or to deliver the second blow; perhaps this is to gain the advantage of the greater strength of the right leg. Moreover, the habit among Western nations of writing from left to right appears to argue that right-handedness is the rule among them; but Orientals reverse the process, so that the majority of mankind must be left-handed. What do the anthropologists say to this?

Mr. Charles Reade, writing in the *Daily Telegraph* some years ago, argued that if the habitual use of the right hand led to a greater development of the left side of the brain, a further acquired use of the left hand would aid the development of the right cerebral hemisphere, and so increase the general power of the brain. But is there any evidence to show that ambidextrous people, left-handed apparently by nature, and right-handed from habit, have any general mental advantage over their fellows? I think not.

HENRY T. WHARTON

39, St. George's Road, Kilburn, March 17

IN my own experience (I can with confidence only give that) I differ almost wholly from that of Mr. Joseph Le Conte, as expressed in *NATURE* (p. 452). In my case strength and dexterity of arm do not in *everything* go together. For instance, although strongly left-handed, I learnt to write with the right hand and shoot from the right shoulder, and could do either very indifferently indeed if attempted with the left hand or arm. I perhaps may call myself with truth a rather handy man, improved upon by living for many years in places where tradesmen were not to be had. In all connected with pencil, pen, ink, and paper, such as printing, chart-making, my left hand, although strongest, was clumsy, whereas my right showed considerable skill, as was exhibited once in rather a ludicrous manner by the Hydrographer of the Admiralty mistaking my pen-and-ink chart of some seven hundred miles of Arctic discovery for an engraving of the same. My left leg is the stronger, yet I use it in kicking and in other ways requiring dexterity; e.g. when very many years younger I could perform the many curious movements or steps of some of our Scottish dances with much more accuracy and ease with the left foot than with the right. I fear the subject-matter of this note may be scarcely considered a valid excuse for so much self-notice.

JOHN RAE

4, Addison Gardens, March 15