

times et Croyances superstitieuses des Cambodgiens," in *Cochinchine Française; Excursions et Reconnaissances*, No. 16, p. 142, Saigon, 1883).

So far the practice of augury from combat of shell-fish appears to be a peculiarity of the peoples in the Far East. Is there any instance of the same method described in other parts of the world? KUMAGUSU MINAKATA.

May 3.

#### Luminous Phenomena Observed on Mountains.

On Easter Monday, 19th ult., I was ascending Braeriach by its well-known northern ridge, and, shortly after I had crossed the "snow-line," I witnessed a phenomenon of great beauty, the explanation of which I cannot give. The edge of my plaid, of my gloved hands, of my knickerbockers, &c., was bordered by a two-inch band of brilliant violet light, at the moment of beginning any movement. The light was not visible around anything at rest, nor did it persist; but only showed at the moment when rest was changed for movement.

My attention was directed to this for a very short time only, for heavy snow began to drive in my face, and I had to watch where I was going, as the immediate surroundings included dangerous ground.

After my return, I found an account of a somewhat similar appearance in the *Cairngorm Club Journal*, vol. i. p. 159. I copy the account as there given by Dr. John Gordon, of Aberdeen:—

"Half-way across the snow-slope, while the sun was somewhat obscured, but was still sending a considerable intensity of light, we observed a strange phenomenon. On the side of our body next the snow-slope there was a nimbus of violet light, which clung to clothes, naked fingers, and the shaft of the ice-axe. So plentiful did it appear in the palm of the hand that it looked at times like a pool of violet ink, and one thought it could be pitched away. On shaking the hand, however, the nimbus clung, and was not to be removed. Occasionally the colour varied, taking on shades of brownish-yellow and blue, but violet was the most marked colour. At another time, in much the same condition of light and snow surroundings, one of the party, who was very proud of the beauty of the silver case of his compass, was disgusted to find that it had a distinctly yellow, pinchbeck look. This light refraction or polarisation [?] was not so evident to some of the party, but the writer has observed it before in similar circumstances and atmospheric conditions."

I may add that, in my own case, no direct sunlight reached me, as I was in the lower part of a dense cloud or mist. Some of your readers may offer an explanation of this remarkable and beautiful appearance. C. G. CASH.

Edinburgh Academy, May 3.

#### The Utility of Specific Characters.

UNDER the above heading, in your issue of April 1, Mr. J. T. Gulick has an interesting communication, in which he asks whether it is possible to explain right-handedness, the dextral or sinistral coil of snail-shells, and similar features, as having any utility to the species of which they are certainly characteristic. Can it be due to natural selection that one snail is dextral, while another is sinistral?

It is a curious fact, I think first pointed out by Mr. Call, that in the American freshwater shells of the genus *Campeloma*, sinistral shells are more numerous among the young than among the adults. Thus, for example, Mr. H. A. Pilsbry (*Nautilus*, February 1897, p. 118), states that Miss Jennie E. Letson examined a lot of *Campeloma decisum* for him, with the result that, "out of 681 specimens, mainly adult, but including those from one-fourth grown up, none were sinistral. Out of 410 shells of the uterine young, 3 were sinistral, slightly over 0.73

two antagonist clans to support—Minamoto or Taira—doubting the accuracy of an oracle given by his patron-god to induce him to serve under the White Banner [*i.e.* the Minamoto clan], caused seven white cocks to combat with seven red ones before the shrine of the same deity. And the result was that the red ones [which represented the Red Banner of the Taira clan] were all defeated by white ones, which impelled him to make up his mind to serve the Minamoto clan" ("Heike Monogatari," tome xi.).

Of allied modes of divination about the decision of a war, I may instance the New Zealander's practice with sticks, and a Gothic king's experiment with swine (see Lubbock, "Origin of Civilisation," 5th ed., p. 245; and Mary Howitt's Appendix to Ennemoser's "History of Magic," ed. Bohn, vol. ii. p. 458).

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per cent." He adds: "Probably all who have collected *Campelomas* have noticed the greater proportion of sinistral examples among the young shells. This doubtless indicates that the reversed condition is an unfavourable one for maturation."

So here, at any rate, we have some direct evidence as to selection. I think it will strike any one, that while left-handedness might be as good for the race as right-handedness, there is a distinct advantage in uniformity, and that consideration alone may perhaps suffice to explain Mr. Gulick's difficulty. Among plants it may seem less obvious, but where seedlings are crowded, uniformity may save space, just as a number of objects of the same shape can usually be packed into less space than those of diverse shapes. More plants can grow in a window-box where all bend to the light, than would be possible if half of them bent one way and half another.

There also occurs to me a theoretical consideration, perhaps of doubtful value. When a germ has diverse potentialities, so that it is left to germinal or environmental selection to decide which course it shall take in development, there must, apparently, be a certain waste of germinal energy. Any disadvantage thus arising is ordinarily much more than counterbalanced by the gain due to the adaptability of the organism, or in social species to the power of specialisation of the individual for social purposes. But it may be that when no such advantage is found, there exists a small disadvantage in deviations, potential or actual, from a common standard.

What we really need, in discussing these matters, is the observation of actual facts. The facts above related as to *Campeloma* are worth more than any amount of theoretical considerations. T. D. A. COCKERELL.

Mesilla, New Mexico, U.S.A., April 21.

#### The Motion of an Iron or Steel Ball in a Magnetic Field.

IN NATURE, April 29, a method, reprinted from the *Physical Review*, is given for illustrating the motion of a particle under the action of a force varying inversely as the square of the distance. I think it ought to be pointed out that the force on a small iron or steel ball, due to a single magnetic pole, is not inversely as the square of the distance. It may be shown without difficulty that if the strength of the pole be  $\mu$ , the susceptibility of the iron or steel to magnetisation  $\kappa$ , and  $v$  the volume of the ball supposed exceedingly small, then the force towards the pole is

$$-\frac{1}{2} \cdot v \cdot \frac{\kappa}{1 + \frac{4}{3}\pi\kappa} \cdot \frac{d(\frac{\mu^2}{r^2})}{dr}$$

$$= \frac{2\kappa v}{1 + \frac{4}{3}\pi\kappa} \cdot \frac{\mu^2}{r^5}$$

Thus, assuming that  $\kappa$  is constant during the motion of the ball, which, of course, it is not, the force is inversely as the fifth power of the distance, and the curves given can not be regarded as even approximate representations of planetary orbits, but rather as rough representations of orbits described about a centre of force whose law is the inverse fifth (see "Tait and Steele," p. 151). ALEX. ANDERSON.

Queen's College, Galway, May 3.

#### THE NEW SOUTH AFRICAN MUSEUM.

THE new South African Museum is situated at the upper end of the Municipal Gardens, about a quarter of a mile distant from the old building, which will now be entirely occupied by the public library.

The new building consists of two floors, of which the upper one contains the principal exhibition rooms; the large room, measuring 63 feet by 41½ feet, is devoted to the birds, reptiles, and fishes of South Africa; and there also is the cast of the skeleton of the restored triassic reptile, *Pariasaurus bairii*, Seeley. It is also hoped that at some future time other casts and originals of some of these remarkable extinct forms may be exhibited, among which we may perhaps find the progenitors of our modern mammals. The corresponding room is devoted to the general collection of vertebrates. A small room contains the anthropological collection, both South African and general.