oscillating layer at the surface of the sensitive plate. Being anxious to keep the alcohol in the cell (which in this instance was closed by a ground glass cap), I sealed the cell into a glass tube through the extremities of which the wires of the cell passed. The effect of the disturbance thus resulting was that no amount of tapping the support of the cell would change it from the sensitive to the insensitive state, although before being thus treated it was sensitive to the most minute disturbance. I suspected, however, that after some hours the liquid and the plate would again enter into the peculiar relation on which the impulsion results depend, and so it turned out—after three hours the cell could be rendered insensitive by taps and sensitive by the inductive effect of a Voss machine. The platinum wires were soldered to the plates. I see that the distances at which I found the Hertz oscillator effective in influencing the cells were greater than those above stated; but I have not been able to renew work with the oscillator, which belongs to Mr. Gregory, who removed it for exhibition at the Royal Society's meeting.

May 16.

Bison not Aurochs.

I AM glad that Mr. Lydekker accedes (*NATURE*, May 15, p. 53) to the correction of which I had pointed out the need. But the "vulgar error"—if the Editor will allow me to use a phrase made classical nearly 250 years ago by Sir Thomas Browne—is of more ancient date than my friend seems to suppose; and Dr. Gadow has kindly referred me to Prof. Wrzesniewski's "Studien zur Geschichte des polnischen Tur," published in May 1878 (*Zeitschr. für wissenschaftl. Zoologie*, xxx. pp. 493–555). Therein will be seen reduced copies of the engravings in an edition of Herberstein's "Rerum Moscoviticarum Commentarii" (Basileæ: 1571), giving a figure of each of the animals. The first is inscribed

VRVS SVM, POLONIS TVR, GERMANIS AVROX :
IGNARI BISONTIS NOMEN DEDERANT.

Over the second may be read

BISONS SVM, POLONIS SVBER, GERMANIS BISONT :
IGNARI VRI NOMEN DEDERANT.

This paper is well worth reading from the amount of curious information to be found in it. I have been able to consult only one copy of this work, of an earlier edition indeed, for it was published at Antwerp in 1557; but it does not contain these figures, though the passages quoted by the Polish Professor of course occur (*ff. 117 verso et seqq.*). The figures are not remarkable for beauty, and if anyone were to call them caricatures I should hardly complain; but they are certainly of interest, and that of the *Urus*, which I think I have seen copied elsewhere, is perhaps the only approach to an original representation extant. If so it deserves to be better known. Allow me to remark that this is not the first time that I have noticed this error. I did so many years ago in a little pamphlet "On the Zoology of Ancient Europe" (p. 14), published by Messrs. Macmillan in 1862; and I may add that any visitor to the Museum of Zoology of this University may see therein a skeleton of the Aurochs and of the Bison, as well as of the American "Buffalo"—all standing side by side.

ALFRED NEWTON.

Magdalene College, Cambridge, May 18.

Sudden Rises of Temperature.

IN *NATURE*, vol. xli. p. 550, it is stated that sudden rises of temperature of large amount in Great Britain "are more frequent and more extensive in amount than sudden falls—the reverse to what obtains in India." There appears to be a somewhat similar condition of affairs in North America. Extremely sudden and large rises of temperature attend the warm Chinook winds, as they are called, which occur over the western part of the continent, but are unknown further east. Equally pronounced are the sudden falls of temperature in the eastern half of the country popularly termed "cold waves."

M. A. VEEDER.

Lyons, N. Y., May 7.

Coral Reefs, Fossil and Recent.

IN Dr. von Lendenfeld's communication to *NATURE* of May 8 (p. 30), occurs the following:—

"Dr. Murray goes on to say . . . and an isolated atoll rising precipitously, perhaps 10,000 feet from the sea-bottom, will be

formed." And again—"and far less will it enable an atoll rising 10,000 feet or more from the bottom of the sea . . ."

I cannot think that the author quoted has committed himself to any such figures as these, but if either he or Dr. von Lendenfeld can tell me where to find such a formation in existing seas, I shall be obliged; as I have sought in vain for instances yet known of any slopes that could be called "steep" descending to more than 4000 feet or so, while *precipitous* slopes are unknown to me beyond 1200 feet; and these are, so far as I know, very exceptional.

While I am writing on this subject, I should be glad if anyone would explain how, on the assumption that atolls are formed during subsidence, it comes about that, while the outer slopes descend to great depths, the depth of the largest lagoons inclosed is generally confined to about 45 fathoms, and in one or two cases to 60 fathoms, but is never more. Why should not the lagoon of an atoll twenty or thirty miles in diameter, which rises steeply from depths of 200 or 300 fathoms or more, have a depth of at any rate 100 fathoms, allowing for the most extravagant amount of silt from the *débris* of the rim.

W. J. L. WHARTON.

Doppler's Principle.

A COMPLETE solution of the questions about which your correspondents are puzzling themselves has been before the public for some ten years in several successive editions of my "Deschanel." It occurs in the last paragraph of the chapter entitled "Numerical Evaluation of Sound," and is as follows:—

"Let the source make n vibrations per second. Let the observer move towards the source with velocity a . Let the source move away from the observer with velocity a' . Let the medium move from the observer towards the source with velocity m , and let the velocity of sound in the medium be v .

"Then the velocity of the observer relative to the medium is $a - m$ towards the source, and the velocity of the source relative to the medium is $a' - m$ away from the observer. The velocity of the sound relative to the source will be different in different directions, its greatest amount being $v + a' - m$ towards the observer, and its least being $v - a' + m$ away from the observer. The length of a wave will vary with direction, being $\frac{1}{n}$ of the velocity of the sound relative to the source. The

length of those waves which meet the observer will be $\frac{v + a' - m}{n}$;

and the velocity of these waves relative to the observer will be $v + a - m$; hence the number of waves that meet him in a second will be $\frac{v + a - m}{v + a' - m} n$."

The three quantities a , a' , m may of course be either positive or negative.

J. D. EVERETT.

5 Princess Gardens, Belfast, May 17.

THE SHAPES OF LEAVES AND COTYLEDONS.¹

ATTEMPTS to explain the forms, colours, and other characteristics of animals and plants, though not new, were until recent years far from successful. Our Teutonic forefathers had a pretty story which explained certain characteristics of several common plants.

Balder, the God of Mirth and Merriment, was, characteristically enough, regarded as deficient in the possession of immortality. The other divinities, fearing to lose him, petitioned Thor to make him immortal, and the prayer was granted on condition that every animal and plant would swear not to injure him. To secure this object, Nanna, Balder's wife, descended upon the earth. Loki, the God of Envy, attended her disguised as a crow (crows at that time were white), and settled on a little blue flower, hoping to cover it up so that she might overlook it. The flower, however, cried out "Forget-me-not, forget-me-not" (and has ever since been known under that name). Loki then flew up into an oak and sat on a mistletoe. Here he was more successful. Nanna carried off the

¹ Lecture delivered at the Royal Institution on April 25, by Sir John Lubbock, Bart., M.P., D.C.L., F.R.S., &c.