

plainly; and not only may stereographs be combined by the eyes, more readily and with less fatigue than when using an instrument, but they may as readily be inverted (the near objects appearing distant, and *vice versa*, as if falsely mounted) by applying each eye to the picture in front of the other, in fact, squinting at it. Thus, pictures of any size can be properly combined by reversing the pictures and crossing the eyes, and the width of the pictures is not limited to the distance between the eyes as in the ordinary way.

An important use of stereoscopic vision is to throw one eye out of use when doing delicate measurement, &c., by directing it to some other and darker object, instead of shutting it; this is less fatigue, and the attention may be willed on to the eye required, so that the image of the other is not noticed, especially if the eyes be changed occasionally.

How far the fact of the eyes changing guard naturally by alternations, may suggest that all duplicated organs of the body have alternate periods of rest, I must leave physiologists to investigate.

W. M. FLINDERS PETRIE

Bromley, Kent

Inside Out

It appears in NATURE, vol. xviii. p. 105, that "if a fourth dimension were added to space, a closed material surface (or shell) could be turned inside out by simple flexure." This implies that flexure is necessary. But without displacing a point or a line in the surface we may consistently suppose a rotation of the normals at each point of it through two right angles in a plane polar to the tangent plane. That seems to do the business.

C. J. MONRO

May 28

Physical Science for Artists

MR. NORMAN LOCKYER, in NATURE, vol. xviii., pp. 59, 60, gives some valuable hints to artists, which, if carried out, will go a great way towards preventing our eyes being hurt by the lunar monstrosities we see at the Royal Academy and elsewhere.

May I be permitted to add a hint which he appears to have overlooked, and that is, that the inside boundary of a crescent moon is an ellipse; and in this consists the peculiar beauty of a true crescent. The usual Turkish crescent is struck with two circles, and always looks gouty and bad. Of course the rough edge of a gibbous moon is also an ellipse.

Scientific Club, 7, Savile Row, W., ROBERT J. LECKY
May 25

Dr. P. P. Carpenter's Collection

MAY I ask you to correct an error in the "Notes" of your number for April 25th, relating to the collection of the late Dr. P. P. Carpenter. This collection was permanently placed by him in the museum of this university; and, mounted under his direction on glass tablets, it now occupies a separate fire-proof room erected for it by the university, and constitutes one of the principal scientific treasures of this university and of Canada. Your correspondent was probably misled by the fact that one of the best duplicate sets was reserved by Dr. Carpenter for his own use in his private residence. This has not been publicly offered for sale, but I believe has been privately offered to certain persons and institutions considered likely to value it.

McGill College, Montreal, May 10 J. W. DAWSON

Menziesia Cærulea

IN confirmation of the recent occurrence of the above plant on the Sow of Athol, I may say that it was gathered by Miss Crawford in 1877, from whom I received a specimen. Like the cotoneaster on the Orme, which has also been reported extinct, careful and prolonged search has generally been rewarded by finding specimens, although the cotoneaster is now very rare. I might take this opportunity of saying that the rare spider orchis, *Ophrys aranifera*, which the Rev. M. J. Berkeley has gathered at Southorpe, in Northants, has been destroyed there by the planting of larch. I made a most careful search not only at Southorpe but on the Barnack hills last week, but without seeing a trace of the orchis, although *Anemone pulsatilla* and *Aceras anthropophora* are still abundant on the unplanted quarries.

Northampton Natural History Society G. C. DRUCE

Landrails

It would prove very interesting to know whether landrails are as plentiful in other parts of the country this season as they are in the neighbourhood of Sheffield. They have not visited us in any numbers since the spring and summer of 1875; in 1876 and 1877 scarcely one was heard; while at the present time we hear their well-known calls in almost every meadow. I know of no migratory British bird in whose case this peculiar irregularity of appearance occurs in such high degree as in the landrail.

If the advice of one interested in the subject may be humbly offered, I would recommend ornithologists to pay strict attention to this matter, this season, with a view of elucidating this peculiar trait in the life-history of this singular bird; for the cause of this irregular appearance has, for aught I know to the contrary, yet to be learned.

CHARLES DIXON

Heeley, near Sheffield, May 20

Hereditary Transmission

THE letter of Mr. Watt reminds me of a similar instance of "Hereditary Transmission" mentioned in the ninth edition of the "Encyclopædia Britannica."

It is there stated that "George Bernhard Bilfinger was born on January 23, 1693, at Cannstadt, in Würtemberg. His father was a Lutheran minister. By a singularity of constitution, hereditary in his family, Bilfinger came into the world with twelve fingers and as many toes."

After being a Professor of Logic at St. Petersburg University Bilfinger became one of the "best and most enlightened ministers" of state that Würtemberg had yet produced.

Burngreave Road, Sheffield,

GEORGE S. WATSON

May 25

THE PHONOGRAPH AND ITS FUTURE

WHAT a surprise is in store for the children next

Christmas if Mr. Edison's expectations are realised. Dolls that can say "papa" and "mamma," will be quite at a discount and will bear much the same relation to the doll of the future that the anthropoid ape does to the man of to-day, and the time will probably have come for some Darwinian toy-maker to write the history of doll development, if, indeed, he does not extend his researches to the whole world of toys. We are promised dolls that can speak, sing, cry, laugh; musical-boxes that will grind out the voice and words of the human singer; locomotives and every other species of "animal and mechanical toy," that will give out their natural and characteristic sounds.

But these are only some of the trifles to which Mr. Edison, in an interesting article in the current *North American Review*, tells us his miraculous invention will certainly or probably be put in the near future. And, indeed, a very little consideration will show that there is no end to the uses to which the principle of the phonograph may be applied; that it may be the means of actually realising some of the wildest dreams and speculations of the "frenzied" poet and preacher, and creating a revolution in human intercourse only to be paralleled by the invention of printing, or even of speech itself. Indeed, at first sight it may seem a step backwards, as it is likely to lead to the abolition, to some extent, of writing and printing, and the substitution of the human voice as the main means of intercourse at a distance. Talk of the solidification of the gases! Why we have here the solidification of something infinitely more impalpable—human words and human thought. We referred above to the musical-box of the future, and this suggests the phonographic barrel-organ, which will doubtless by and by take the place of that instrument of torture which makes the lives of delicate-eared artists and *littérateurs* miserable. Instead of having our musical sensibilities harrowed by a murdered reproduction of our favourite operatic air, or our political sympathies shocked