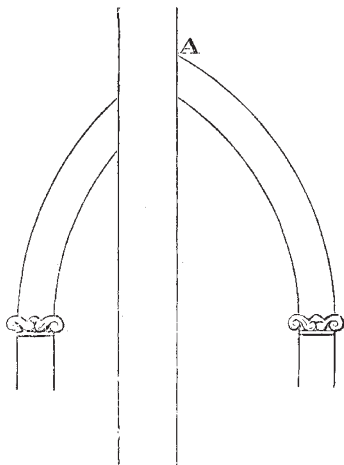


Optical Illusions.

REFERRING to the article in NATURE for October 20, may I mention a rather common optical illusion which I do not remember to have yet seen in print. If a gothic arch is unequally divided by a space between two vertical parallel lines, these lines will not only seem to diverge slightly where they intersect the lines of the arch, but the arch itself is caused to appear as if one half had slipped bodily down from the other to an extent



equal to its own thickness. In the figure given above it is impossible to believe that but for the intervention of the vertical interlinear space the two halves would be seen to meet perfectly with the apex at A. This illusion is worth the notice of architects who desire to avoid the disquieting effect upon the eyes of observant persons which is produced by the intersection of the chancel arch of a church by an intervening pillar.

28 Mount Park Crescent, Ealing, W. R. T. LEWIS.

A Remarkable Rainfall.

THE rainfall here of October has been so remarkable that it seems worth while to place it on record in your columns. Rain fell on twenty-five days during the month, making a total fall of 10'32 inches. As the annual rainfall on an average of eleven years is 31'10 inches, it will be seen that very nearly one-third of this amount fell in one month. This is by far the highest amount I have recorded since I began to make records in January, 1878, the next highest month being August, 1879. On that occasion five inches fell in thirty hours on the 17th and 18th, and many bridges were carried away in Flintshire and Denbighshire, but the total fall for the month was only 7'89 inches. Dr. Nicol, of Llandudno (six miles from here), who has registered the rainfall since, and including 1861, informs me that it amounted last month to 8'56 inches there, this also being the highest month he has ever recorded.

In September rain fell on twenty-three days, and though the total fall was only 3'77 inches, yet the constant rain, combined with an unusually low temperature (the mean maximum being only 56°·6, and the highest shade temperature 67°·4, against 64°·6 and 81°·2 respectively in 1891), made it almost impossible to get in the harvest. ALFRED O. WALKER.

Nant-y-Glyn, Colwyn Bay, November 5.

On a Supposed New Species of Earthworm and on the Nomenclature of Earthworms.

In yesterday's NATURE I find that the Rev. Hilderic Friend has again given the name *L. rubescens* (Friend) to a supposed new species of earthworm. This worm appears to me to be identical with *Enterion festivum* (Savigny), described under the name *Lumbricus festivus* by Rosa. Though comparatively rare, it is by no means new, nor even new to Britain, though I know of no published record of its occurrence here. I met with two or three specimens among the worms supplied to me when I was working at the chapter on Lumbricus in "Marshall and Hurst," and identified them subsequently by the help of Rosa's table. At the time I took them for mere varieties, and put them

into a bottle for future study. I believe the specimens are now in the possession of Dr. Benham, who has entirely overlooked the species in his "Attempt to Classify Earthworms" (*Quart. Journ. Micr. Sci.* xxxi.).

The specific name *terrestris* must also, it appears to me, be dropped. Linnæus did not define a species under that name, but applied it to what are now universally regarded as several distinct species. The species so called by Mr. Friend was, I believe, first defined by Savigny under the name *Enterion herculeum*. The diagnostic characters of the species are given by Rosa in his useful table of the species ("I Lumbricidi dei Piemonte," p. 25), and he calls it *Lumbricus herculeus*, to which name the usual rules of nomenclature bind us.

I would therefore suggest the following alterations in Mr. Friend's "Chart of the Genus Lumbricus":—

1. For "Terrestris (Linn.)" read "herculeus (Sav.)"
2. For "Rubescens (Friend)" read "festivus (Sav.)"

Owens College, October 28. C. HERBERT HURST.

Ice Crystals.

DURING the cutting of the formation for a railway I observed on Tuesday morning, the 18th inst., a peculiar series of ice crystals. The ground is composed of arenaceous clay largely mixed with sand and small gravel, and is of a very open nature, the surface being covered with moorland grass, rushes, and coarse ferns. These crystals were only found in a length of about nine feet, the ground on both sides of the patch being hard frozen.

These crystals were acicular, and sprang from a base of very porous opaque ice, but every needle was entirely free and distinct throughout its height, and at first sight appeared to be bound together with two bands, one at one-third and the other at two-thirds of the height. A closer examination proved that the band appearance was due to a slight enlargement of the crystals at these points, the ice being opaque, whilst the needles were perfectly translucent.

The average height of these crystals was about one inch, the needles having a diameter of about $\frac{1}{14}$ th part of an inch, and were grouped together in clusters of forty or fifty, forming an irregular square of about $\frac{1}{4}$ -inch on the side. Some of these crystals were growing vertically from the ground, others springing out horizontally from the side of the cutting, and were either straight, curved, or bent round forming a half circle. This morning the same form of crystals existed, but were much larger, being fully two inches long. On both occasions the air was calm and clear, the min. ther. reading 30° on the 18th, and 24° to-day.

Lesmahagow, October 25. C. M. IRVINE.

Lunar Craters.

THE letter and illustration offering a suggestion as to the formation of lunar craters remind me of an experiment I once saw during a chemical lecture, bringing out the same point very clearly.

A shallow dish containing a layer of damp sand, $\frac{1}{2}$ ", was flooded with 1-inch coating of Paris plaister, of the consistence of cream, and the dish set to dry over a Bunsen flame.

As the plaister set, the surface was pitted with crater-like holes, formed by the escape of steam from the sand at the bottom of the dish, giving a perfect representation of a lunar surface.

As some of your readers might care to try this experiment, I take the liberty of sending you this "recollection."

M. H. MAW.

Walk House, Barrow-on-Humber, Hull, Nov. 7.

A Fork-tailed Petrel.

THE occurrence of a Fork-tailed Petrel as far inland as Macclesfield may perhaps interest some of the readers of NATURE.

It was picked up by a man on the 11th ult., two days after the stranding of the *Sirene* in a gale at Blackpool, and being unacquainted with the species he sent it to me as a curiosity. I identified it as a Fork-tailed Petrel, and Mr. J. H. Salter, of Aberystwyth College, has kindly confirmed this decision.

Some of the feathers on the forehead are tipped with white. Does this indicate a young bird, as I can find no mention of it in any of the plumage descriptions that I have seen?

NEWMAN NEAVE.

Rainow, near Macclesfield, November 5.