

just outside the Straits, is natural; and how far it may have been formed or increased by deposits left during the successive ages, by this undercurrent of out-set-water, from the Mediterranean Sea into the Atlantic Ocean.

A. H.

Jan. 19

The Frost

HAVING seen notices in your journal about the severity of the late frost, I beg to state that its duration and severity have been most remarkable here, and unequalled, as far as my knowledge extends, for many years back. My instruments are standard ones, which have been recently compared at Kew, and placed in my garden quite detached from buildings, and facing the N.E. at 4ft. elevation. I append a table of the observations, which may be interesting to some of your readers:—

Dec. 1870.	Shade max.	Shade min.	Exposed min.	Jan. 1871.	Shade max.	Shade min.	Exposed min.
20	47.8	30	30	1	27.5	19.8	18.2
21	30	22.8	22	2	26	24	24
22	26.8	15	15	3	33	21.5	21.5
23	29	15	0	4	31	14	13
24	24	-2	-3.5	5	39	23	23
25	28	+3	+3	6	42.2	31	31
26	33	24	23	7	45	30	29.5
27	31	24	23.5	8	40	28.3	28.3
28	32.2	27	27	9	40	25.3	25
29	32.8	10.5	10	10	40	28	28
30	31.6	15	14.5	11	36	30.5	29
31	32.8	15.2	14.3	12	35.8	20.5	20
				13	35.6	26.5	26

The frost was succeeded by a heavy gale of wind and a deluge of rain; in four days 2½ inches fell, one inch being between 9 A.M. 17th, and 9 A.M. on the 18th. This, together with the melting of the snow, inundated the valley of the Medway round us for miles. The greatest cold I ever registered here was on January 4, 1867, being 5° below zero. The highest shade temperature I have recorded was 100°·5 on July 22, 1868, which was the hottest summer ever experienced.

Tunbridge

G. H. FIELDING

Caves near St. Asaph

It will interest archæologists to know that new caves are being opened by Mr. Townshend Mainwaring in the neighbourhood of St. Asaph, and that already we have much additional evidence brought to light as to the early inhabitants of that part of the country. In one which appears to run downward into the cliff at Carregwen, near Galfenan, remains of various animals have been found in brown cave-earth, among them one which has been determined to be that of a reindeer, by Mr. Dawkins, who is further of opinion that it has been gnawed by a wolf or hyæna. This is very interesting, as the cave is high up in the face of a precipice, and with the present physical geography the larger animals could not get into that cave except by being carried there; so that we have here either cave-earth containing remains of such a remote antiquity that the gorge below has been considerably altered since its accumulation, or we have the ancient abode of carnivorous beasts able to carry the large animals into their den.

In Brysgill, Mr. Mainwaring has met with greater success. From the rubbish and tumble under the rock shelter outside the mouth of a large cave, he has obtained a fine bone scraper ground to a sharp edge, several flint flakes and bones of man, horse, ox, sheep, hog, &c. Inside the cave, immediately under the recent mould, there is a broken stalagmite floor, associated with which were human bones and the flint flakes, and cores. At about two feet below the broken stalagmite floor, the bones of a horse were found in undisturbed brown earth. Here we have evidently the home of some of our troglodytic ancestors who manufactured their flakes in the cave from flint which they may have procured from the drift not far off.

This is only one of a number of most promising looking caves to which Mr. Dawkins some time ago called attention, and it is to be hoped that, with so many residents in the neighbourhood interested in scientific investigation, we may have them all systematically explored, and not lose any bit of important evidence from the want of observation at the time of discovery.

T. McK. HUGHES

The Primary Colours

ONE more proof that violet is a primary. Place a hand prism between the eye and the sunlight so as to show the prismatic colours. Then hold a sheet of yellow glass between the prism and the light, and observe the result. The reds and yellows are scarcely altered, the greens are very greatly intensified, the blues and violets are altogether extinguished. If violet had really any red in it, the yellow glass, which does not stop the red rays, would change the violet to red, or would show at least some trace of red where the violet had been. Instead of this, the violet is totally stopped out, and the space which it occupied left dark. Wherever the secondary pink appears, this is changed to red by the stopping of the violet rays. The increased strength and brilliancy of the green shows clearly also the primary character of this colour. It is usually much weakened in the spectrum by mixture with the far-spreading violets; when this is removed it comes out in full splendour. I commend this little experiment to amateurs; it is simple and interesting. The same effect is produced by throwing the coloured spectrum on to a white wall, and holding the yellow glass between the prism and the wall.

Leicester, Feb. 20

FREDERICK T. MOTT

Californian Oaks

IN NATURE, No. 68, p. 313, you did me the honour to quote a paper of mine in reference to the edible qualities of some of the Californian oak acorns. You will, however, allow me to state that, though this is true of some species, such as *Quercus lobata* Nee, which was the one I chiefly referred to in the passage quoted, yet that the acorns of others have a decidedly injurious effect, or are inedible. For instance, it is very commonly believed by the *rancharos* that the acorns of *Q. Kelloggii* Newb. give rise among pigs to a peculiar disease of the kidneys, while the acorns of a new species from Southern Oregon—which I shall shortly describe in a work now in the press—(*Q. echinoides* mihi) are so very bitter that no animal but the black bear (*Ursus Americanus*) will eat them, and it only when pressed by hunger. On the other hand the acorns of *Quercus Orstediana* (mihi), another as yet undescribed species, are so nutritious, that though the species never grows to a greater size than a small shrub, the produce of forty or fifty such bushes will fatten a hog. Again, there is a difference of quality among the edible species. The "digger" Indian, who is quite a *connoisseur* in acorns, makes a difference; for while the interior tribes prefer those of *Q. lobata*, those living near the coast chiefly affect *Q. sonomensis* Benth. Though pigs fatten freely on the acorns of *Quercus Garryana* Dougl., and in California on those of its ally, *Q. Douglasii* Hook., yet I never knew the Indians either in Vancouver Island or in California eat the acorns of either species, while those of *Q. agrifolia* Nee, *Q. chrysolepis* Liebm., *Q. densiflora* Hook. and Arn., *Q. Saileriana* mihi (nondescript species), &c., are not, so far as I am aware, eaten by any animal but squirrels. The fruit of *Castanopsis chrysophylla* Dougl., a plant allied to the oaks and chestnuts, is, however, in great favour with the black bear. I have eaten the acorns cooked in the manner described in the extract, and—I suppose in common with other naturalists in the less explored parts of North-west America—have been forced by hunger to search for the acorns which *el carpintero* (*Melanerpes torquatus*) stores away for its use in the spongy bark of *Torreya*, *Sequoia*, *Pinus*, and various other trees, yet notwithstanding the sauce which famine gave to my appetite, I must confess that they were by no means palatable. This may, however, have been prejudice, for the Ancient Britons—who were by no means savages in the ordinary acceptance of the term—ate the acorns of *Quercus robur*, the common oak of this country. How they cooked them we are not informed. I presume, however, that it was not in so *recherché* a style as practised by some aboriginal friends of Mr. Paul Kane, the artist—a full description of which those curious in North American Indian *cuisine* will find in that gentleman's book descriptive of his journey across the American continent.

ROBERT BROWN

Edinburgh, Feb. 20

THE ECLIPSE PHOTOGRAPHS

THE accompanying woodcut is a copy of a drawing made from the negative No. 5, taken at Syracuse during the Eclipse of the sun on Dec. 22 last. When viewed by transmitted light, the negative shows chiefly the portions indicated by the unshaded parts, and the red