

source of iodine, but of potash, and the fertilizing effects of sea-weed, due to the presence of the alkali, are recognized. The marine plants thus select from the sea-water the potash, and by their subsequent decay in the ooze of the bottom, as long since pointed out by Forchhammer, restore this element again to the insoluble sediments. These plants, at the same time, take from the sea-water the minute quantity of iodine which it contains, and also the dissolved metals, as silver, copper, and gold, traces of which are found in their ashes, and, as I have long since shown, are thus agents in the production of metalliferous strata, and, finally, of mineral veins.

Thus, while the soil removes from the surface waters the elements necessary for the nutrition of land plants, the marine vegetation itself performs more directly a similar function in the waters of the ocean, and in the accumulating sediments restores it to the solid earth the alkaline element. In the sea, as on the land, the great process of terrestrial circulation goes on unceasingly. The reader who wishes may see the whole matter discussed at greater length in the author's "Chemical and Geological Essays," pp. 95, 96, 135; and again, in a lecture on "Metalliferous Deposits," *ibid.*, pp. 220-236.

New York.

T. STERRY HUNT.

Bright Crosses in the Sky seen from Mountain Tops.

ON March 21, 1881, I made an ascent of the Grossneuediger (3673 m.), and observed at midday from the summit a curious phenomenon. Yesterday, March 8, 1891, I made an ascent of the Patscherkofl (2214 m.), and observed, also at midday, the same phenomenon from the summit. As I have never seen it at any other time from any mountain top, it may be considered rare, and as it was in both cases observed in March, with fine weather, south wind, and relatively high temperature, it may be more or less restricted to that time of the year, when Alpine ascents are rarely made.

The phenomenon is a combination of two rings of light, one of which has its centre in the line connecting the observer with the sun, and appears to have the same dimensions as the large ring sometimes observed round the moon and the sun at low levels. The other ring has its centre in the observer and passes through the zenith and the sun. Both rings are pale, the latter paler than the former, and not visible near the northern horizon. Where these two rings cross each other, they are much brighter than elsewhere; and so it appears at first sight, if one does not look carefully, as if there were merely two bright crosses, one below and one above the sun, the arms of both crosses being vertical and horizontal.

This observation may be interesting to meteorologists, and seems to be but rarely made.

R. V. LENDENFELD.

Innsbruck, March 9.

Iridescent Clouds.

A BRILLIANT iridescent zenith arc was seen to-day at 3.15 to 3.30 p.m., without either the primary or secondary solar halos which usually accompany it. A faint "mock sun" was, however, observed in the west at 4 p.m.

A remarkable and distinct display of iridescent cirro-stratus was seen on March 4. The cloud-layer, which appeared to be very high, and was apparently advancing from the west-north-west, was evenly tinted in a striking manner. The hues were most strongly marked in the foremost band, whilst in the far perspective the cloud was still faintly illumined with iridescent colours; these were especially beautiful at 5.45 p.m. Low scud cumulus from the west partially obscured the view at 6 p.m. It is not unusual to see iridescent colouring in clouds, chiefly when a low bank of cloud reflects the light on the higher cirrus. It is also occasionally seen fringing the edges of cirro-cumulus when they are in an azimuth near that of the sun.

York Road, Driffild, March 11.

J. LOVEI.

Frozen Fish.

MR. McLACHLAN's opinion that fish suffer comparatively little injury when inclosed for lengthened periods in solid ice is fully borne out by an occurrence here in the year 1873. In the early part of the month of July a boy was seriously ill in one of the large boarding-houses; ice-bags had to be applied to his head; the ice was procured from the ice-house, which had been filled in the previous December from a pond in the neighbourhood. On pouring off the water from one of the bags after it had been

used, a small fish was seen swimming merrily about. My informant (the master of the house in which the boy lay ill) tells me "the fish was very small, and so transparent that a large portion of its internal organization was clearly visible"; he thinks it was minnow, but is doubtful as to the accuracy of the opinion. At all events we have here a well-authenticated case of a fish surviving inclosure in solid ice for a period of between six and seven months.

I may perhaps mention the effect of the recent winter on the Unionidæ of this neighbourhood. They lie dead in shoals round the margins of several large ponds I have examined, particularly in those which are very shallow round the edges. The dead are far more numerous than I have ever seen in previous years. Two *A. cygnæus* which I exposed in an open vessel to the entire severity of the frost were killed, and both their shells split from dorsal to ventral surface on one side. On the other hand, Unionidæ, even when out of their shells, can be frozen and thawed for two successive nights at least without injury; neither do the contained Glochidia suffer in any way. This last point I chanced to discover last year accidentally, by one of my dissecting dishes containing a living *Unio* getting frozen solid on two successive nights.

OSWALD H. LATTER.

Charterhouse, Godalming, March 15.

MR. McLACHLAN asks (1) Whether fish necessarily die when enclosed for lengthened periods in solid ice?

To this I can definitely reply that there were many small carp (3 inches to 9 inches), and innumerable sticklebacks, embedded in the ice in a pond here, within a week of the commencement of the long frost (beginning about December 8), and that when pieces of ice containing them were broken up (as was done at that time) and the fish put into water, they showed no signs of life.

(2) Whether this winter caused any important mortality?

Up to the frost, the pond swarmed with sticklebacks, and contained hundreds of small carp (3 inches to 6 inches), and, probably, two or three dozen of the same fine fish from 6 inches to 20 inches long. Since the frost, there has been no sign of fish-life in the pond.

The pond is about 70 feet by 50 feet, and at the time of being frozen had a depth of 2 feet of water, and (in places) over 1 foot of soft mud. Unfortunately, the ice was not kept broken.

Of course, it is possible that the old carp may be still alive at the bottom of the pond or in the mud, but we should have seen the smaller carp and sticklebacks if there had been any still alive.

JAMES TURLE.

North Finchley, March 14.

Eskimo Art Work.

AMONG the many objects of interest seen in a brief journey to the cryolite mines in the Arsuk fjord, Greenland, last September, none was more attractive than a collection of what may be called Eskimo works of art, belonging to Assistant-Superintendent Edwards, of the mine. Three of the specimens were photographed with a tourist's camera. Although the photograph was not a very good one, it shows a degree of skill in sculpture that would probably surprise those familiar only with those specimens found in such museums as the Washington and the Berlin.

In the collection, besides candlesticks and cigar-holders, were a number of ash-receivers, anchors, paper-weights, &c. They were all made of green stone (weight stone, the Danes call it), of the variety used in making the Eskimo lamps. Of course, every article was made with the intention of selling it to the Danish rulers; the Eskimos, so far as I could learn, never using their artistic skill for decorating their own homes, although such articles as weapons, toggles for dog harnesses, &c., are often fashioned with an eye for beauty, as well as utility.

Files, purchased of the Danes, were about the only tools used by the Eskimo artists, although the form of the object to be made was first rudely blocked out with a pointed piece of iron used as a chisel.

Some of the objects had a jewellery finish, as founders in bronze would say; while others (and the more beautiful) showed plainly the marks of the file. The art centre—if one may call it so—of Greenland is Godthaab, where Heinrich J. Rink lived when Inspector of South Greenland, although one or two men at Fredericksaab have, by their skill, made reputations among the whites along the coast.

JOHN R. SPEARS.

New York, February 26.