

a very few stones, which had been reddened and cracked by fire. No trace of burnt wood, ashes, or bone could be seen. It was remarkable that nearly all the stones found were flakes, as very few unworked pieces of flint could be lighted on. The flakes from the huts differ in condition materially from the flakes in the fields below, as all the flakes in the fields are marked with dark ferruginous strains, whilst those from the hut-floors are perfectly unstained, no iron having ever reached them.

In the immediate neighbourhood I have at different times found a large number of scapers, a lance-head, a few arrow-heads, and a few rudely-chipped celts, some broken. One small chipped celt has incurved sides, indicating, as Mr. John Evans has pointed out in his work on stone implements, that this particular form was possibly an imitation in flint of an early, flat bronze celt.

It is always well to examine the earth brought out of holes by rabbits, moles, foxes, rats, and other animals, in places where prehistoric relics exist on pasture-land. I have secured a considerable number of my antiquities from such places.

Last year I told a young niece of mine to keep a watch on such places at the spot where the five large tumuli are placed on Dunstable Downs, and where I had on previous occasions found flint flakes in the heaps made by moles, &c. It was not long before my niece lighted on two pieces belonging to the back part of a human skull. They had been scratched out of the base of the northernmost tumulus by some animal. Fortunately the two pieces fitted together; they are evidently of great antiquity, and probably represent part of the person who was buried in the tumulus, quite possibly one of the old chippers of Neolithic implements.

WORTHINGTON G. SMITH

A Lady Curator

IN NATURE for November 27, 1884 (p. 90) you acknowledge the receipt of the "Catalogue of the Natural History Collections of the Albany Museum, Grahamstown, Cape of Good Hope," and allude to the "zealous curator." Are you aware that that individual is a young and accomplished lady? Here is another path opened for our daughters and "sweet girl graduates" to fame and fortune. Those who, like myself, have the pleasure and privilege of knowing and corresponding with Miss Glanville can appreciate the ardour and zeal with which she is following up her chosen vocation. May every success attend her.

E. L. LAYARD

British Consulate, Noumea, February 25

Hoar Frost

A COMMUNICATION in NATURE of January 8 (p. 216), in regard to frost-formations, leads me to send a word from Maine. I have seen frost-work so like the description there given, that it would answer very well for an account of frosts in this climate. These frost-formations occur when the wind is chilly and blowing steadily, without the compass veering, for hours. I have compared these deposits to the most delicate designs of Oriental lace-work. At one time I witnessed an accretion on a wall, where the feathery forms were from two to four inches in length, with the points towards the wind. I think this is because each added particle adhered to the very tip of the previous one. Certainly no pen-description can do justice to the delicate beauty when the sun suddenly broke through the clouds and shone upon this forest of frost-ferns.

CAROLINE W. D. RICH

Auburn, Me., April

Rainbow Phenomenon

ON Saturday night, about six o'clock, I observed, at Old Trafford, on the west side of Manchester, a rainbow with accompanying phenomena, which I had never observed before. Several very heavy showers had occurred during the day. The wind was within a point or two of west. At the hour above named a cloud was passing over, very dense and uniform in colour, and with that dark leaden hue so general in thunderstorms. There was, however, no thunder or lightning. Rain fell in torrents. As the cloud, which was of large area, passed off, the sun shone brightly in the north-west, and a magnificent rainbow painted itself on the dense black screen afforded by the cloud. The rainbow was double, the prismatic colours, of course, occurring in reverse order in the outer bow. The most remarkable feature of the display was the sharp contrast in the

shadow of the cloud, evidently caused by the rainbow. Between the two bows it was of the densest leaden hue. Inside the inner bow it was exceedingly light coloured, with the faintest suggestion of luminosity. Outside the outer bow it was of an intermediate grey. The uniform mass of cloud was marked off by the two bows with geometrical accuracy into three regions, each perfectly homogeneous in itself, but distinctly contrasted with the two other tints. The effect was weird and startling, and was observed and commented upon by several spectators in whose company I was. There was another feature connected with the inner bow which I have never observed before. The green and violet colours were repeated inside the bow. Probably the whole tract from green to violet inclusive was repeated, but I could only make out those two colours distinctly.

Have these peculiarities, either or both, been observed before, and, if so, how are they accounted for? CHARLES CROFT
Prestwich, near Manchester, May 11

FIVE MATHEMATICAL RARITIES

A BRIEF reference to some recent reprints, &c., by Dr. Bierens de Haan, of Leyden, may not be unacceptable, though, unfortunately, ignorance of the language in which four of them are written prevents our giving more than the barest description of them.

The "Stelkonstige Reekening van den Regenboog," or Algebraical Calculation of the Rainbow, is a rare tract, by no less distinguished an author than B. de Spinoza. It was for a long time supposed to be lost, if not burned; it is here printed in exact facsimile from a copy published at the Hague in 1687. Bound up with it is another rarity, similarly printed, entitled "Reekening van Kanssen," or Calculation of Chances. No reference to this is made by Todhunter. There is a slight probability of this tract having proceeded from the same hand, as Dr. De Haan cites a reference to the forty-third letter in the collected works of Spinoza.

The third reprint is of a very rare book by A. Girard: "Invention nouvelle en l'Algèbre, tant pour la solution des équations, que pour reconnoître le nombre des solutions qu'elles reçoivent, avec plusieurs choses qui sont nécessaires à la perfection de ceste divine science" (Amsterdam, 1629). M. Marie writes: "Cet ouvrage est surtout remarquable par les idées justes que l'auteur émet au sujet des racines négatives des équations et de leur usage en géométrie."

The last two tracts have not been before printed: they are both the work of Simon Stevin, and are entitled "Van de Spiegeling der Singkonst" (i.e. Miroir de l'Art du Chant), and "Vande Molens." There is a full account prefixed to the former of these works, and we learn that the latter contains "le calcul de 19 moulins à vent, suivant la méthode usitée et suivant une nouvelle méthode de Simon Stevin lui-même, qui consiste à indiquer les roues, les dents et les pignons, afin de satisfaire à quelques conditions données."

Thanks are due to Dr. de Haan for the great care with which he has brought out these facsimiles, and we think he will certainly reap the reward he seeks. We quote his words in the last of these volumes: "J'ose espérer que la reproduction de ces ouvrages d'un homme si renommé pourra intéresser ceux qui s'occupent de l'histoire des sciences."

ON CERTAIN SPECTRAL IMAGES PRODUCED BY A ROTATING VACUUM-TUBE

THE beautiful effects produced by the rotation of a vacuum-tube when illuminated by a series of electrical discharges from an induction-coil are well known. The tube is generally attached to a horizontal axis, which is turned rapidly by means of a multiplying wheel; the images due to successive discharges which, if the tube were at rest, would be superposed, are thus caused to occupy different parts of the retina, and if the discharges