

the act of swallowing, which temporarily distends the tube. He can test its perviousness by holding his nose with his fingers and forcing air into the nasal cavity. Physicians are in the habit of placing an ordinary stethoscope over the ear, causing the patient to go through the act of deglutition, and listening for the "click" of escaping air. Mr. Boys will see, as a physicist, that, if the access of air on either side of the tympanum were free, increase or decrease of atmospheric pressure would make no difference.

14, Dean's Yard, February 10

W. H. STONE

WITH regard to the letter of Mr. C. V. Boys in NATURE of February 7 (p. 333), I should like to make a remark or two on the matter, in which I have had practical experience. I am in the habit of running between Rugby and London daily, and pass through six different tunnels on the route. The Leighton tunnel is divided into three parts, the down fast line being single, and the space between the rails and the walls of the tunnel very small. On entering this, if in the first three coaches next to the engine, a sudden expansion of the tympanum is felt. I have been led to account for this phenomenon as follows: The engine acting as a piston forces the air before it through the tunnel, and so causes a partial vacuum, which extends to the first three or four coaches. After that the air has had time to rush in and fill the empty space, and this explanation is rendered almost certain by the fact that at the end of the train of twelve or fourteen coaches no aural effects are observable, thus demonstrating that the sudden propulsion of the air through the tunnel is compensated for before the middle of the train has entered. In Kilsby tunnel nothing has been noticed by myself. I account for the pressure alteration in the above manner, the engine and the tunnel-mouth closely fitting, and so are fairly comparable to a piston within a cylinder. The effects decrease from the engine to the end of the train, and are practically unobservable in the last few coaches.

Rugby, February 9

GEORGE RAYLEIGH VICARS

Diffusion of Scientific Memoirs

ALLOW me a few final words on this curious case. I spoke of the *Trans. C. P. S.*, 1849-54, in which Stokes' papers were "buried," as "almost inaccessible." This expression was challenged by the ex-Secretary of the Society, and I replied that the question could be decided by statistics alone. I indicated what statistics were required, and waited some weeks for them. The present Secretary then gave me the less essential part of the desired information, and I proceeded to make the best I could of it. Now I am told that I misunderstood his object, and that he practically admits what his predecessor challenged.

I also stated that my copy of the *Proc.* was very imperfect, and that I had not received any *Trans.* I was then told that "publications" were given only on application. If so, I replied, I should have had all, or none. To this there is no answer.

P. G. TAIT

Coll. Edin., February 9

Wind Sand Ripples

SOME time ago, whilst reading an account in NATURE of very ingenious and interesting experiments by Prof. G. H. Darwin on sand ripples, my memory was recalled to some very beautiful sand ripples caused by the action of wind, seen by another person and myself on the west coast of Ireland, near Bundoran. The locality was a sand ridge twenty or thirty feet above high-water mark, and beyond the influence of either sea or river action; the ripples extended over a space of twenty yards or more. At the time there was a fresh breeze, with frequent squalls, blowing across this ridge. This ripples moved before the wind at the rate of about a foot in three or four minutes, but faster during the squalls, retaining all the time (I watched them an hour or more) perfect uniformity of shape and size. The distances were roughly measured by sticking up in the sand bits of wood at, as nearly as could be guessed, one foot apart, in a line with the direction of the wind. The ripples were about three inches from summit to summit, and the depth of trough three quarters of an inch.

The time was carefully noted with a watch. The forward movement of the ripples was evidently caused by the sand being drifted from their weather sides, and deposited on their lee, and thus there was a progressive movement to leeward, more or less rapid according to the increase or diminution of the wind force.

4, Addison Gardens, February 9

JOHN RAE

Animal Intelligence

THE following anecdote, received the other day from Russia, may possibly interest your readers:—"The following was narrated to me by Mohl's brother, on whose estate it took place. The carcass of a cow was laid out in the woods to attract the wolves, and a spring-trap was set. Next morning the forester found there the track of a bear instead of a wolf on the snow; the trap was thrown to some distance. Evidently the bear had put his paw in the trap and had managed to jerk it off. The next night the forester hid himself within shot of the carcass to watch for the bear. The bear came, but first pulled down a stack of firewood cut into seven-foot lengths, selected a piece to his mind, and, taking it up in his arms, walked on his hind legs to the carcass. He then beat about in the snow all round the carcass with the log of wood before he began his meal. The forester put a ball in his head, which I almost regret, as such a sensible brute deserved to live."

J. M. HAYWARD

Sidmouth, February 9

Circular Rainbow seen from a Hill-top

CLIMBING, several summers ago, with three friends among the Coolin Hills in Skye, I was fortunate enough to witness phenomena similar to those described by Mr. Fleming in last week's NATURE (p. 310). Our shadows were apparently thrown against the precipitous side of a deep corry, distant 200 feet or perhaps more. They vanished and reappeared as thin mists passed through the corry, the sun shining continuously. We could not see each other's shadows unless close. The distance apart at which they became visible I do not clearly remember, but know it was approximately as one of my friends, Mr. W. A. Brown, writes:—"So long as we kept a few yards apart each could only see his own shadow, but when two were within arms' length a double shadow was visible to each, and on getting still nearer the shadows merged into each other." My estimate of the angle subtended by the diameter of the rainbow is 15°, that of my friend 10°. He adds, however, "I may be very far out in this."

J. M. WHITE

Spring Grove, Dundee, February 5

REFERRING to Mr. Fleming's letter in NATURE of January 31 (p. 310), I would state that many years ago, before Pontresina, in the Grisons, was so resorted to as it is now, I walked up the Piz Languard early one fine morning with an old smuggler and chamois hunter—the terms are synonymous on the frontier—named Colani. On the summit of the peak is a ledge of rock, on which I lay down for twenty minutes' sleep. I had been asleep but a few minutes when Colani woke me, and, with excuses and an expression of fright on his face, begged me to come with him to see something which he had never seen in his life before. We moved to the western edge of the peak. Below us were some thin clouds of mist curling about like vapour from a large cauldron. On these clouds appeared a circular rainbow and within it, as though in a gilded frame, were two figures—in fact, the shadows of ourselves.

"There are two of them now," cried Colani, and it was not until I told him to take off his hat and wave it, as I did mine, and he saw the action repeated by the figures, that he began to feel assured they were not "Geists." It was not the "Arch St. Martin," a Romansch name for a rainbow, which had frightened him, though it was the first time he had seen a circular one, but the appearance of the dark solitary figure had awakened his conscience, for some of his smuggling adventures had not been without bloodshed. The details of the phenomenon were the same as those described by Mr. Fleming, with the exception, perhaps, that the figures were more vivid and the whole spectacle of longer duration, owing to an unclouded sun.

A similar appearance has lately been seen on the Tonjale Range in Nevada, by Mr. R. A. Marr, of the Coast and Geodetic Survey. I subjoin his description of it, taken from a recent number of the *Mail*.

T. R. MAYNARD

The Black Forest, February 7

"Suddenly, as I stood looking over the vast expanse beneath me, I saw myself confronted by a monster figure of a man standing in mid air before me, upon the top of a clearly-defined mountain peak, which had but the thin air of the valley below for a resting place. The figure was only a short distance from me. Around it were two circles of rainbow light and colour, the outer one faintly defined as compared with the inner one, which was