

direction, with thick snowdrift, which cuts away earth and sand in minute particles from the windward side of any hill or rising ground in its course, and these particles are carried along until they find a resting-place under the lee of some steep bank or cliff.

These foreign substances, when mixed with a great depth of snow, are not readily seen, but when the spring evaporation and thaws remove a great part of the snow, a stratum—more or less thin—of coloured matter, is visible on the surface, and this marks clearly the stratum or formation of one season. No doubt, sometimes, if there happen to be a minimum of snowdrift during the winter, followed by an unusually warm summer, all the winter deposit of snow may be removed, and the earthy deposit (naturally smaller than usual) will be added to that of the previous year.

It may be asked why I did not speak of these matters in Major Greely's presence at the meeting of the Geographical Society? This is easily explained: Major Greely's address was so long that little time was left for discussion, and this time was most properly given to the officers (four of whom were present) of the English Government Expedition of 1875-76, who, to my surprise and amusement, let the astute citizen of the United States have things pretty much his own way. In fact, one of these officers made matters rather worse than better by what he said.

JOHN RAE

4, Addison Gardens, Kensington, W., January 1

Hydrophobia—A Further Precaution

IT may be taken as an accepted fact that mongrels are more liable to rabies than well-bred dogs, both from the ill-treatment they commonly receive, and from the unnatural mingling of species that has led to their production. Statistics show that over 90 per cent. of mad dogs are retrievers, or animals so-called. In addition to these two points, it can be safely maintained that no kind of dog gives birth to so many mongrels as the retriever. Pointers, setters, terriers, and hounds will not readily breed from dogs of another class, but the reverse is true of the retriever, and the result is the production of a horrible progeny that ought to be immediately destroyed. Owners of a kennel of sporting dogs are constantly subjected to the annoyance of one of their true-bred retrievers having a litter of pups that only resemble retrievers in their coats. I would therefore suggest that the Retriever Stud Book should be kept by a Government official, and that all owners of retrievers should be obliged to send notice to him when a litter arrived; and that the police should be empowered to destroy any retriever whose owner was not provided with a certificate of registration. A few inspectors of litters could travel the country, and at a cost of a few hundreds a year prevent the development of countless mongrels—valueless for sporting purposes, hideous to look at, and sure promoters of canine madness.

H. M. TOMLIN

Rotation of Mars

PROF. BAKHUYZEN is right in regard to the number of days counted in error by Kaiser in comparing Hooke and Huyghens with recent observations. I wrote away from books, and with no means of determining whether Kaiser had made Hooke's observation a day too early or a day too late in comparing it with Huyghens's—which was what in reality he did. I saw that three days' correction would about bring matters right, and knew that in 1873 I *had* brought matters right; so concluded that was the way. But, being in London for a few days, I have looked up my paper of 1873, and find that the correction was obtained by omitting two days from Kaiser's count between Huyghens and himself, and adding one day to his count between Hooke and Huyghens.

I have not seen Prof. Bakhuyzen's paper, and the pressure of more serious business (life-duties) prevents me from giving time to such examination of it as I gave to Kaiser's in 1873. The results, however, were and are before me. It was natural I should infer that he had taken Kaiser's results as they stood. For, the comparison of either Hooke or Huyghens, using Kaiser's own dates and estimates (following him, in fact, in everything except his clerical errors in regard to the New Style date for Hooke's observations, and to the number of days in 1700 and 1800), gives no such results as Prof. Bakhuyzen has presented. Kaiser made the interval between November 1, 1862, 6h. 10'm., and August 13, 1672, 12h. 10'3m. (at which

epochs he found Mars to have been in the same position in regard to sidereal rotation), to be 69476d. 17h. 59'8m., and in this period, he said, Mars made 67,719 rotations: the resulting estimate of the rotation-period is 24h. 37m. 22'64s. In reality the interval was 69474d. 17h. 59'8m., and in this interval Mars made 67,717 rotations: the resulting estimate of the rotation-period is 24h. 37m. 22'71s. Again, using the observations of Hooke and Huyghens combined to give a mean, and the mean of the best observations between 1830 and 1870, we deduce the period 24h. 37m. 22'71s., which was, I find, the value I indicated as the most probable in 1873. Using observations up to those in 1884, I find for the period 24h. 37m. 22'703s. I find no noteworthy correction on using Maraldi's or W. Herschel's observations, with which, indeed, my inquiry began. I am satisfied the seconds are nearer 22'7 than 22'64.

RICHARD A. PROCTOR

A Meteor

AT 4.47 p.m. yesterday, whilst returning home with two friends, I saw a large meteor pass slowly downwards in an east-north-easterly direction. Unfortunately it was twilight and very cloudy at the time of the observation, and the "fireball," as one of my friends called it, was consequently shorn of much of its brilliancy. It was, however, distinctly visible behind a thin veil of cloud, and when seen for a couple of seconds in the open it seemed to have an apparent diameter about four times that of the planet Venus, which, with the crescent moon, were the only other conspicuous objects in the heavens at that time.

Brighton, January 10

W. AINSLIE HOLLIS

Meteorological Phenomena

I HAVE just received the inclosed notice of a meteorological phenomenon which you may consider of sufficient interest for publication in NATURE.

HENRY TOYNBEE

Meteorological Office, 116, Victoria Street, London, S.W.,
January 6

LEAVING the port of Kingston, Jamaica, at dusk on November 23, 1885, the night was fine and starlit overhead, but about 8 p.m. a heavy bank of cloud obscured the island, and all around the upper edges of this cloud-bank brilliant flashes of light were incessantly bursting forth, sometimes tinged with prismatic hues, while intermittently would shoot vertically upwards continuous darts of light displaying prismatic colours in which the complementary tints, crimson and green, orange and blue, predominated. Sometimes these darts of light were projected but a short distance above the cloud-bank, but at others they ascended to a considerable altitude, resembling rockets more than lightning. This state of matters continued until about 9.30 p.m., when all display of light ceased. As I have never seen such a phenomenon in any other part of the world, I have deemed it an unusual occurrence, and worthy of record.

R.M.S. *Moselle*, Southampton

T. MACKENZIE

I SHALL be obliged if you will allow me to record in your columns the following account of some remarkable phenomena witnessed during a voyage from Sunderland to London, and I trust that if you are good enough to insert this letter, it may be the means of eliciting some explanation from yourself or your readers as to the causes producing such strange effects. Capt. Herring, of the s.s. *Fenton*, reports to me as follows:—

"We left Sunderland at 3 p.m. on the 7th inst. bound for London, wind west-south-west, with snow squalls and strong sea; towards midnight wind increased, and the squalls cyclonic. When between Flamborough Head and Scarborough, the vessel became enveloped with phosphorescence, the mast-heads exhibiting the curious phenomenon known by sailors as 'Compassants' (*corpus sancti*), which in this instance were shaped like a top, about two feet at the widest part, resembling a bunch of mistletoe illuminated. The standing rigging and all protruding objects were in like manner illuminated, and the most extraordinary effect was produced when the mate, who was on the bridge with me at the time, raised his head above the canvas weather-sheeting; the whole of his hair, exposed, and beard were instantly illuminated, and in like manner his hands when elevated became phosphorescent on the outline of his mittens. When under cover of the sheeting there was no appearance of phosphorescence; it would therefore appear that the effect of the wind produced the phenomenon. The weather