I could; but long before I could get to where I had seen the ice, the whole lake as far as my view extended was open water. This almost instantaneous disappearance of a body of ice more than a foot in thickness can only take place in perfectly still weather. If there is any wind it breaks up, and the fragments are driven up against the ice which still holds together, and into the shores, where the rapidity with which it melts is not so striking. I never was fortunate enough to be actually in at the death.

"There are also some curious facts connected with the air-holes which form themselves during winter. There are often particular spots where partial openings in the ice will be formed every winter. These I conceive to arise from warm springs, and to have no connection with air-holes properly so called, which are not confined to any particular locality, but may appear anywhere. There is always a good deal of air under ice, and you may often see it scattered about in small bubbles when the ice is thin. It is probably air excluded in the process of crystallisation, and when there is added to it sundry gases formed from decaying matter in the water, it amounts during the winter to a considerable quantity. Such collections of air, like the bubble in a spirit-level, are in a very uneasy condition, and are rapidly transferred from one place to another on any casual disturbance of the level, giving rise to one of the numerous noises which are always more or less heard on a lake covered with ice—at least, we used always to attribute to this cause a peculiar groaning sound which was very common. Now, if there should be any casual inequality in the lower surface of the ice, the air will naturally collect there, and if it is above 32° F, which in so far as it consists of evolved gas it probably will be, the receptacle will be increased by thawing. A dome-shaped cavity will thus be gradually formed, which will finally reach the surface; air will escape from below, and the surface-water, of which there is almost always more or less after the snow has fallen, will run down from above, wearing the little jagged channels which are characteristic of air-holes. The whole thing will then after a while freeze up again, leaving an indication of where the air-hole has been in the different colour of the freshly-formed ice. I have tried several such air-holes with an axe when first formed, and have always found them to lead to such a dome-shaped cavity. I remember on one occasion an otter frequenting a large air-hole which remained open for some time, and which must have been from a mile and a half to two miles distant from the nearest open water. How did he reach it? for no otter can travel that distance under water without access to air. The Indians say that they will go to greater distances still under the ice, and that they always find air there. It is likely enough that there may be many such dome-shaped cavities, which have not yet reached, and may never reach, the surface as air-holes, but one would imagine the air they contain to be not of the most wholesome character. However, this otter did frequent that air-hole for about a week, which it certainly did not reach by travelling on the ice, and though it had few chances of breathing there, in the daytime at any rate, it contrived during that period to elude the snares of a white man and an Indian, who wasted a good deal of time in looking after it.

So far, the process of the formation of air-holes, if I am right in my explanation, is intelligible enough; but sometimes they are formed in a manner which is difficult to account for. Upon one occasion I had crossed the lake to a friend's house, about four miles off, and we had determined to start together next morning to our nearest town, but I had to go home first. I first went over by daylight, when there certainly was nothing unusual in the appearance of the ice, which might be four or five inches thick at the time, with a slight sprinkling of wettest snow on it. I returned home about eleven at night, and, as it was bright starlight, with only a few floating clouds, I should have noticed any change; but I came straight across, and saw nothing to attract attention. But when I crossed again at daylight in the morning, in one part of the lake the whole surface was covered with air-holes—there must have been hundreds of them. At first I gave them rather a wide berth, but, on approaching one to examine it, I found it frozen up again, the clear ice in the hole, with very slight indications of the characteristic jagged edges, being the only sign that there had been an open air-hole there during the night. I had no axe with me to try whether they were connected with any cavity, but the appearance was as if holes of from two to five or six inches in diameter had been punched through the ice. Of course, we attributed it to electricity, as people will do anything which they do not otherwise understand, and I have never been able to give any more intelligible explanation

of the phenomenon. There certainly had been some faint sheet lightning that night, a very unusual thing in winter; but what connection, if any, there may have been between the two things, I cannot tell.

"Ottawa, Sept. 15"

"JOHN LANGTON

The Difficulties of Natural Selection

I FIND, on looking again at Mr. Bennett's article, that I have misrepresented him on one point, for which I beg to apologise. On his supposition, that the first twenty possible steps on the road to mimicry are absolutely useless, his argument will have some weight. This supposition, however, is entirely unsupported by facts. Very large variations of colour are exceedingly common in butterflies; and when such variations are in the right direction, they must in some cases be useful. I believe myself that far less than fifty, or even twenty, steps of variation would in some cases produce very good mimicry.

ALFRED R. WALLACE

Cave-paintings by Bushmen

My friend, Mr. George W. Stow, of Queenstown, South Africa, refers in a letter to the interesting subject of the old cave-paintings by the Bushmen, as follows: "During the last three years I have been making pilgrimages to the various old Bushman caves among the mountains in this part of the colony and Kaffraria; and, as their paintings are becoming obliterated very fast, it struck me that it would be well to make copies of them before these interesting relics of an almost extinct race are entirely destroyed. This gave rise to an idea in my mind of collecting materials enough to compile a history of the manners and customs of the Bushmen, as depicted by themselves. I have, fortunately, been able to procure many fac-simile copies of hunting scenes, dances, fightings, &c., showing the modes of warfare, the chase, weapons, disguises, &c. This promises to be a collection of very great interest. In some places it is astonishing to what a degree of perfection some of the wild artists had arrived. I have found three different series of paintings, one over the other; and, as the most recent must be upwards of fifty years old, the undermost are most probably very ancient. The colours are very permanent, and would last for ages if not wantonly obliterated. Unfortunately, the Kaffir herds and others are constantly destroying them, and, by the time another generation has passed, few remains of them will be left."

The pigments used in the caves were derived from ochreous concretions abounding in some of the sandstones of the Karoo series of the interior of South Africa, as in the Rhenosterberg, Stormberg, and elsewhere. These concretions, when broken open, supplied the natives with paint-pots, and from among the several colours of yellows, browns, reds, &c., the chocolate was selected for painting the human form in the caves.

T. RUPERT JONES

5, Terrace, Yorktown, Surrey

A Rare Fish

A SPECIMEN of the Silvery Hair-tail (*Trichiurus lepturus*) was taken this morning at Seaton. It measures 2 feet 2 inches in length, and is in very good preservation, being only slightly injured on one side of the head. A specimen from the Collection of the late Mr. F. W. L. Ross, in this museum, is about the same size, and was taken on 6th August, 1852, off the Start Point, Devon. The recorded instances in which this remarkable fish has occurred on the British coasts are very few, and the specimens obtained have generally been much injured. The present specimen was brought to me to name by Mr. Frank Gosden, of the West of England Fish and Game Company, Queen Street, Exeter.

W. S. M. D'URBAN, Curator

Devon and Exeter Albert Memorial Museum,
Queen Street, Exeter, December 3

The *Ceratodus Forsteri*

I AM much obliged to Dr. Sclater for his remarks on the new fish discovered by me as *Ceratodus forsteri*, and I take this opportunity to inform your readers who may feel interested in this matter, that I spoke of the animal as an amphibian, principally because it is in the habit of leaving the water during the night. The works to which Dr. Sclater refers me are not at my command, and I adopted the generic term of *Ceratodus* because

the bulk of my specimens greatly resemble those of the above fossil genus. Professor Agassiz has written to me to say that the discovery of the *Ceratodus forsteri* is of the greatest importance, and that he (Prof. Agassiz) is "amazed" at it. By this mail two of these interesting strangers (with intestines) will be shipped to England, as a present from Prof. A. M. Thomson to Prof. Owen, another by Mr. Ramsay to Dr. Sclater. I am glad to see that my friend Ramsay has complied with Dr. Sclater's request, and ceased classing the *Ceratodus* as "Salmon," which he confesses to have done frequently before. Mr. George Masters, the assistant curator of the Museum, is now at Gayndah, with appliances to catch the fish, and he will, if possible, send some alive to Sydney and to the Zoological Society of London. Sydney, Sept. 7

GERARD KREFFT

The British Museum Collections

As it is proposed to remove the Natural History collections from the British Museum to Kensington, I hope care will be taken to make the collections as serviceable as possible to students. In particular the British Department might, with great gain to all, be extended and improved. There is now but one small room devoted to British zoology, and this interesting branch of science is poorly represented by a selection of species not always well chosen nor even strictly indigenous. Still, imperfect as it is, I believe this is the only attempt to present a comprehensive view of the British fauna in London. In the new buildings it is much to be desired that a large and well-lighted gallery should be devoted to the zoology of the British Islands, and as complete a collection as possible exhibited. The specimens should be labelled with local as well as scientific names, and, when desirable, short interesting particulars might be given, as on the labels of the art collection at South Kensington. I think no part of the museum would be so well frequented or so generally appreciated by the public. When the labour of removing the collections is over, I hope we may be furnished with catalogues of different departments, with notes of the time and mode of acquisition, &c., of the most important specimens. If begun for the British collections, it might afterwards be extended to the rest of the museum. The nation, which possesses such truly choice and extensive collections, ought to take care that the advantages to be reaped from them are fully developed and placed within the reach of all.

A. W. L.

Glass Floats off the Isle of Lewis

THE glass globes to which you refer as having been found on the shores of Lewis, are no doubt fishing floats. The Bergen fishermen have recently begun to use such balls as floats for their nets, and they are occasionally picked up in the North Sea. Those which have been brought to this office were empty, *i.e.* contained no liquid, and bore no distinguishing mark at all. They were picked up about 100 miles S.W. of the Loffoden Islands.

116, Victoria Street, London, S.W. ROBERT H. SCOTT

P.S.—If any of the globes are sent to me, I shall be happy to inquire in Norway about them, and return them, after inspection, to their owners.

The Milky Way

YOUR correspondent, Mr. Jeremiah, after quoting the words of the Llangadock "Oracle," adds, "meaning that the wind will blow from that quarter." Did Mr. Jeremiah interpret the man's meaning correctly? If so it is at variance with a popular belief in Hampshire, *viz.*, that in whichever way the Milky Way may be seen over night, the wind is sure to blow *across* it, or at right angles to it on the following day.

HENRY REEKS

The Cockroach

IN some ships infested with these insects, sailors frequently complain of having their toe and finger nails, and the hard parts of the soles of the feet and palms of the hands, nibbled by them. The men have exhibited to me their nails and skin, which had the appearance of having been attacked. I can vouch for the following, as I was the unhappy subject of it. On returning from a shooting excursion in salt swamps in tropical Australia, with my feet blistered and sodden, I was put to sleep in a room swarming with cockroaches (the small species). The night was intensely hot, and my feet were exposed. I had slept soundly for some hours, when an intolerable itching and irritation about my feet awoke me. I felt these objectionable insects running over

and gnawing at my feet. On striking a light, I found they had attacked the skin, and entirely eaten it away from a large blister, leaving a raw place as large as a shilling. I slept again, and in the morning found they had completed the work, and established a painful sore. The whole of the hard skin on the heel was also eaten down to the pink flesh. The nails were not attacked. I have now, at a distance of four years' time, bluish scars on the skin.

Mill Hill, Nov. 11

ARTHUR NICOLS

I HAVE to thank the Rev. W. Houghton for his references on this subject, and to explain that I wrote Aristotle inadvertently for Aristophanes. My only objection to adopting *σάλπη* as the Greek equivalent for our cockroach is that the unpleasant smell which is mentioned as a characteristic of the former, is not particularly marked in the latter. If we adopt the view that the cockroach was known to the ancients, we must, of course, reject Gilbert White's story of its American origin, and, as he thought, its recent introduction into England.

C. J. R.

KAIETEUR WATERFALL, DEMERARA

THE great Kaieteur Fall, recently discovered by Mr. Brown, has a clear descent, according to barometrical observations, taken simultaneously by Mr. Brown at the bottom, and by Mr. Mitchell, at the top, of 750 feet. Above, the Potaro glides smoothly in a slight depression of the table of conglomerate sandstone, and disappears over the edge in a body, which is estimated at eighty yards in width, and of depth uncertain in the centre, but shallowing rapidly towards either bank. When the Fall was discovered in April, the rocky channel was completely covered, and the stream must have had a width of, at least, 100 yards. During the summer it is diminishing in volume, and, as the Indians state that it will continue to do so till October, only the central and deeper portion, about one-third of the whole, will then remain. The best time, therefore, for a visit is in spring, at the end of what appears to be the rainy season of this elevated tract.

As the Fall was seen by the exploring party who discovered it, nothing can be imagined more beautiful. The central portion, which is never dry, forms a small horse-shoe, or re-entering angle, and the water in this part preserves its consistency for a short distance from the edge. But everywhere else, and here also at a few feet from the top, all semblance of water disappears; it breaks up, or blossoms, into fine foam or spray, which descends in the well-known rocket-like forms of the Staubach and similar waterfalls, but multiplied a thousand times, into a small dark pool, over a semicircular curtain. The cavern behind the Fall is the home of thousands of swallows, which issue from it in the morning, and may be seen returning in their multitude at night. The Fall itself is one vast descending column of a fine, dry-looking, snow-white substance, bearing a resemblance in colour and consistency to the snow of an avalanche, but surpassing all avalanches in size and in the beauty of the forms taken by the material as it falls. Rainbows of great splendour were observed, one from the front of the Fall in the morning, one from the summit in the afternoon; but this last reverted, forming a coloured loop or ring, into which the whole mass seemed to precipitate itself, and disappear and dart out underneath, black and foaming at the gorge and outlet of the pool.

Eleven days were spent in ascending the Essequibo, which was heavy in flood, and detained the party double the time anticipated; five days brought them from Tomtomari, the lowest fall on the Potaro, to the Patamona village. In this stage there are five cataracts, two of which, at least, are inaccessible. Two days were occupied in visiting the foot and summit of the Fall, and in descending to the Settlement, leaving Messrs. Brown and King to complete the survey and sketches of the country in four days and a half.