enough commingled in one and the same accumulation. It is to account for this remarkable commingling that a large portion of my book was written.

3. Mr. Dawkins seems to be ignorant of the fact that the ossiferous deposits of Mont Perrier occur on two separate and distinct horizons. The lower bed, characterised by the presence of *Mastodon arvernensis* and other extinct forms, is unquestionably true Pliocene. It is overlaid by the "pumiceous conglomerate," with its far-transported and glacially-striated erratics. Upon the denuded surface of this well-marked morainic accumulation rests the upper bed, which contains a very different mammalian fauna—*Elephas meridionalis*, *Rhinoceros leptorhinus* (Cuv.), hippopotamus, tapir, horse, cave-bear, hyæna, hedgehog, &c. The flora associated with this fauna is not Pliocene but Pleistocene. The upper bed is overlaid in turn by a newer set of glacial moraines and erratics. The list of Upper Pliocene Mammalia from Mont Perrier and Issoire, given by Mr. Dawkins in his "Early Man in Britain," consists of a "hash-up" of the species derived from those two separate and distinct horizons.

4. The most recent list of mammalia from the lignite-beds of Leffe and Borlezza is quoted by me from Prof. Stoppani, on the authority of Dr. Forsyth Major. All the species in that list, without exception, have frequently occurred in Pleistocene beds, the age of which is generally admitted. The plants and shells associated with these species are all likewise Pleistocene forms. Moreover, as Stoppani has demonstrated, and as I can testify, the stratigraphical evidence proves that the beds pertain to the Glacial series. Prof. Mayer, no mean authority, has shown that the upper beds of the so-called Pliocene of the Val d'Arno (containing *Elephas meridionalis* and hippopotamus) are not the equivalents of the marine Pliocene, as has hitherto been the belief of palæontologists, but must be classified as Quaternary or Pleistocene.

5. All that I say with regard to the age of the skull of Olmo occurs on p. 318 of my book, and what I say is simply this, "It pertains to Pleistocene times—to the period during which *Elephas meridionalis* belonged to the European fauna." I do not assert its Interglacial age. It may be either Preglacial (*i.e.* early Pleistocene) or Interglacial as the Leffe beds are.

I was not aware that geological classification is always based on zoology alone. I am under the impression that botanical evidence, when it can be obtained, is not despised, and that stratigraphical and other physical evidence is not usually ignored. In trying to work out the historical geology of the Pleistocene, I have considered the palæontological as fully as the physical evidence. Mr. Dawkins would have me rest contented with that of the mammalia alone, as interpreted by himself.

Perth, February 19.

JAMES GEIKIE

As my name has been imported into the controversy between Prof. Dawkins and Dr. James Geikie, will you kindly permit me to state that I am quite prepared, after re-reading the account given by Dr. Geikie of the Victoria Cave, to accept all responsibility for its correctness.

Without entering into the general question, in the particular case of the Victoria Cave the evidence for the contemporaneity in the same area of the reindeer and hippopotamus is not very cogent; a review of all the evidence from that source indeed points the other way. The specimen mentioned by Prof. Dawkins was, according to his Report,¹ found in digging a shaft, a method of exploration unfortunately at that time (1872) employed by the Committee. The subsequent explorations, which were not conducted in this manner, but by carefully removing the deposits, layer by layer, to prevent any possibility of accidental mixture of the remains, gave abundant evidence of reindeer in the upper beds, but not any satisfactory evidence of its presence in the lower beds, containing *Hippopotamus*, *Elephas antiquus*, *Rhinoceros leptorhinus*, &c. This is a point, amongst others, to which, as Reporter to the Committee, I paid careful attention, and the details were impartially given in the Reports.² The absence of reindeer from a lower bed, the only one containing the same fauna in the Creswell caves explored by the Rev. M. Mello and Prof. Dawkins, is worthy of note as bearing on the same subject.

As regards the evidence for the antiquity of man from the Victoria Cave, Dr. Geikie has fairly stated both sides of the question, and he certainly does not deserve the accusation that

he "has only called those witnesses which count on his side." Prof. Dawkins, in dismissing the whole of this evidence as "founded on a mistake," must be aware that he is using a convenient formula which can only apply fairly to a part of it, the doubtfulness of which has already been fully conceded. He entirely shelves other evidences which are the result of a long and careful exploration.¹

To state that he doubts their cogency would be to take a course of which no one would complain; but to say as if it were a matter of general agreement that they are "founded on a mistake," looks like an attempt to stifle discussion.

But his remarks are so obviously polemical that to most geologists they will probably carry more amusement and less conviction than the writer contemplated.

Hastings, February 19

R. H. TIDDEMAN

Les lettres d'Outre-mer

IN the Notes, published in NATURE of January 13, p. 254, the last paragraph gives, as a fact, an announcement of "the simplest post-office in the world" in Magellan Straits, as still in existence.

At least fourteen years ago there was published a graphic account of this unique establishment by the most eminent of all living French writers, M. Victor Hugo, who introduces the circumstance into his famous work of fiction, "Les Travailleurs de la Mer"; and ever since reading the account I have wondered where the great author obtained his circumstantial relation, which refers to the year 1823. Nor can I believe that such a system of oceanic exchange ever really was in existence, at least on the spot indicated, for a very good reason; that at the point indicated, viz. the neighbourhood of Port Famine, when the *Beagle* was there in 1834 (see Darwin's "Naturalist's Voyage," chap. xi.), "the Fuegians twice came and plagued" the crew; so that an open barrel would hardly be safe. Darwin, also, who ascended Mount Tarn, the most elevated point in this district, would surely have mentioned this famous barrel post-office, had it existed (?).

I am therefore curious to know whence the note in NATURE was compiled, but I fancy the account is apocryphal. That there were however other oceanic post-offices somewhat similar in principle is a fact in reality.

In 1673 Ascension was visited by the Dominican, Father Navarette, who speaks of it then as the "Sailor's Post-Office." "Mariners of all nations being accustomed at that time to leave letters here, sealed up in a bottle, in a certain known cranny of some rock, to be taken away by the first ship which passed in an opposite direction" (Mrs. Gill's "Six Months in Ascension," p. 61). And again in 1769 we find the following extract:—

"1769, Feby. 3-4

"Ascension island.
Bougainville.

Louis de Bougainville, Colonel of Foot and Commodore of the Expedition in the Frigate *La Boussole*.

Arrd. and anchored in the North-west creek or 'Creek of the Mountain of the Cross.'

Anchorage according to Abbé la Caille.

7° 54' s.—16° 19' west, of Paris.

Variation 9° 45' NW.

Three creeks caught turtle.

N.E. creek. N.W. creek. English creek, S.W.

"In the afternoon the bottle was brought to me which contains the paper whereon the ships of every nation generally write their name, when they touch at Ascension Island.

"This bottle is deposited in a cavity of the rocks of this bay, where it is equally sheltered from rain and the spray of the sea. In it I found written the *Swallow*, that English ship which Captain Carteret commanded, and which I was desirous of joining.² He arrived here the 31st of January, and set sail again on the 1st of February; thus we had already gained six days upon him, after leaving the Cape of Good Hope. I inscribed the *Boussole* and sent back the bottle."

At page 4 of Melliss' "Account of St. Helena (1875) is a wood-cut of the South Atlantic Post Office of 1645. Speaking of the island of St. Helena, Mr. Melliss says:—

"It became about this time—little more than a century after its discovery—a resort of Dutch and Spanish ships, as well as

¹ Report on the Victoria Cave; British Assoc. Report, 1872, Sections, p. 179.

² Victoria Cave; British Assoc. Reports, 1874-75.

¹ Victoria Cave Report, *op. cit.* 1877, pp. 218-220, and 1878; *Journ. Anthrop. Inst.* vol. vii pp. 166-173.

² *La Boussole* caught up the *Swallow*, 25th February.

English; and Portuguese authority seems to have been lessened, through that Power being interested in acquiring possessions elsewhere, and the island was for a while deserted, though still used by the captains and crews of ships as a South Atlantic post-office. It was customary to place letters under huge boulders of stone, marked in a conspicuous manner, so that the crews of ships returning from India might obtain news from home. An interesting record of this period is still to be seen on a rude block of lava measuring nearly five feet high and two feet six inches wide, which has been preserved by being subsequently built into a large mass of masonry in the Jamestown burial-ground."

In the Galapagos Islands there is a bay named Post-Office Bay, which seems to indicate an analogous nautical exchange station.

I subjoin Victor Hugo's description, and shall be much obliged to any of your readers who can refer me to any account of the earlier voyagers whence this scene was derived.

S. P. OLIVER

2, Eastern Villas, Anglesey, Gosport, February 28

P.S.—If any one can give me a reference, also, where I can find an account of the wreck of the *Grosvenor* on the south-east coast of Africa in 1782, I shall be extremely obliged.

"*Les Travailleurs de la Mer*, édition illustrée (1866). Livre cinquième, ix.

—Renseignement utile aux personnes qui attendent, ou craignent, des lettres d'outre-mer" (p. 91).

"Ne disiez-vous pas, Capitaine Gertrai que la *Tamaulipas* ne relâchera point ?

—Non. Il va droit au Chili.

—En ce cas il ne pourra pas donner de ses nouvelles en route.

—Pardon, Capitaine Clubin. D'abord il peut remettre des dépêches à tous les bâtiments qu'il rencontre faisant voile pour Europe.

—C'est juste.

—Ensuite il a la boîte aux lettres de la mer.

—Qu'appellez-vous la boîte aux lettres de la mer ?

—Vous ne connaissez pas ça, Capitaine Clubin ?

—Non.

—Quand on passe le détroit de Magellan.

—Eh bien ?

—Partout de la neige, toujours gros temps, de vilains mauvais vents, une mer de quatre sous.

—Après ?

—Quand vous avez doublé le cap Monmouth.

—Bien. Ensuite ?

—Ensuite vous doublez le cap Valentin.

—Et ensuite ?

—Ensuite vous doublez le cap Isidore.¹

—Et puis ?

—Vous doublez la pointe Anna.¹

—Bon. Mais qu'est ce que vous appelez la boîte aux lettres de la mer ?

—Nous y sommes. Montagnes à droite, montagnes à gauche. Des pingouins partout, des pétrels-tempêtes. Un endroit terrible. Ah ! mille saintes mille singes ! Quel bataclan, et comme ça tape ! La bourrasque n'a pas besoin qu'on aille à son secours. C'est là qu'on surveille la lisse de hourdi ! C'est là qu'on diminue la toile ! C'est là qu'on te vous remplace la grande voile par le foc, et le foc par le tourmentin ! Coups de vent sur coups de vent. Et puis quelque-fois quatre, cinq, six jours de cape sèche. Souvent d'un jeu de voiles tout neuf il vous reste de la charpie. Quelle danse ! des rafales à vous faire sauter un trois-mâts comme une puce. J'ai vu sur un brick anglais, le '*True Blue*', un petit mousse occupé à la '*gibboom*' emporté à tous les cinq cent mille millions de tonnerres de Dieu et la '*gibboom*' avec. On va en l'air comme des papillons, quoi ! J'ai eu le contre-maître de la *Revenue*, une jolie goëlette, arraché de dessus le *fore-crostrée*, et tué roide. J'ai eu ma lisse cassée, et mon serre-gouttière en capilotade. On sort de là avec toutes ses voiles mangées. Des frégates de cinquante font eau comme des paniers. Et la mauvaise diablerie de côte ! Rien de plus bourru. Des rochers déchiquetés comme par enfantillage. On approche du Port-Famine. Là c'est pire que pire. Les plus rudes lames que j'ai vues de ma vie. Des parages d'enfer. Tout à coup on aperçoit ces deux mots écrits en rouge : POST OFFICE.

—Que voulez-vous dire, Capitaine Gertrai ?

—Je vous dire, Capitaine Clubin, que toute de suite après

¹ Sta. Anna Pt. is at entrance of Port Famine, but Cape S. Isidro is past to the south.

qu'on a doublé la pointe Anna on voit sur un caillou de cent pieds de haut un grand bâton. C'est un poteau qui a une barrique au cou. Cette barrique, c'est la boîte aux lettres. Il a fallu que les anglais écrivent dessus : POST OFFICE. De quoi se mêlent ils ? C'est la poste de l'océan ; elle n'appartient pas à cet honorable gentleman, le roi d'Angleterre. Cette boîte aux lettres est commune. Elle appartient à tous les pavillons. POST OFFICE, est-ce assez chinois ? Ça vous fait l'effet d'une tasse de thé que le diable vous offrirait tout à coup. Voici maintenant comment se fait le service. Tout bâtiment qui passe expédie au poteau un canot avec ses dépêches. Le navire qui vient de l'Atlantique envoie ses lettres pour l'Europe, et le navire qui vient du Pacifique envoie ses lettres pour l'Amérique. L'officier commandant votre canot met dans le baril votre paquet et y prend le paquet qu'il y trouve. Vous vous chargez de ces lettres-là ; le navire qui viendra après vous se chargera des vôtres. Comme on navigue en sens contraire, le continent d'où vous venez, c'est celui où je vais. Je porte vos lettres, vous portez les miennes. Le baril est bitté au poteau avec une chaîne. Et il pleut ! Et il neige ! Et il grêle ! Une fichue mer ! Les sataniques volent de tous côtés. Le *Tamaulipas* ira par là. Le baril a un bon couvercle à charnière, mais pas de serrure ni de cadenas. Vous voyez qu'on peut écrire à ses amis. Les lettres parviennent. —C'est très-drôle, murmura Clubin rêveur."

Explosive Gas in a Lake

A FRIEND, on whom I can rely, informs me that during the late frost, Loch Ken in Kirkcudbrightshire was frozen over, affording pastime to curlers and skaters. Here and there, however, small spots of the surface, near to the shore, resisted the frost longer, and when they did freeze the ice was very thin. These pot-holes were dangerous to skaters, the largest being about size enough to admit an ordinary curling stone. Gas was emitted from them, and when the ice for the first time was formed over them one person got his face severely burned by boring a small hole in the thin ice and setting fire to the gas thus liberated, with a match. After a while the gas seemed to lose its power of combustion and the experiment could be repeated with impunity, a feeble flame only being evoked, when the hole was first drilled.

J. SHAW

Dumfriesshire, March 4

Colours of British Butterflies

THE sober colouring of the under-wings of many of our butterflies is universally accepted as being "protective." Let the gorgeous "peacock," for instance, but close his wings, and it takes a sharp eye to see him. Why then should he and so many other kinds flaunt their most brilliant hues in the brightest sunshine, and often be rendered even more conspicuous by perching on a yellow flower ? One would think that this was the exact way to attract birds, especially as the colours are not likely to be "warning" ones, for if so, why the sober hues of the under sides of the wings ? The colours can hardly be "warnings" to particular kinds of birds and "protective" against the attacks of others. The explanation may be that the facilities for recognition, and thus for the continuation of the species, are so much greater in bright light, as to render it advantageous on the whole to run the chance of easier capture in the brighter parts of the day : or it may be that relatively few birds feed at the times that butterflies choose to display their beauties.

In watching butterflies it appears clear that they are, so to speak, shortsighted, for it is the commonest thing possible, see two entirely different sorts circle round each other for some time as if they had to decide whether they are of the same kind or not. In doing this it will be observed that they fly, as it were, over and over each other, so that for quite half the time the gambols are going on, the dark side of the "protected" kinds is shown to the insect below. Here steps in a provision which seems admirably adapted for enabling recognition to take place. It will be found that though the wings of protectively coloured butterflies appear very dark at a casual glance, yet that if they are held up to the light, in many cases there are bright spots or colourings or semi-transparent spaces, that, by enabling the sun to shine through, make even the dark wings very conspicuous. The bright spots on the "peacock" are a case in point. I have not an opportunity of actually handling a complete collection of our British butterflies just now, but in thirty of our commonest sorts I find fifteen that have distinctly protectively