it so happens that I was present, and can testify to the accuracy of Mr. Mello's statement. With regard to the tooth of Machairodus, which I discovered and afterwards showed to Mr. Heath, it is asserted that it was without adherent matrix, and without the moisture which it would possess had it been imbedded in the cave for ages. These assertions are disproved by the facts that the tooth unfortunately split in pieces in process of drying, and that the matrix of red earth, only partially removed when it was repaired and gelatinised in the Owens College Museum, is still to be seen in the pulp cavity.

In the exploration of the caves, in 1876, the discoverer, Mr. Mello, was director, while I undertook to name and classify the remains, and we drew up a report published in the *Quart. Geol. Soc. Journ.*, 1877, p. 475. Mr. Heath and myself acted as superintendents of the work, under the direction of Mr. Mello.

It was Mr. Heath's duty as superintendent to hand over to the director the notes on which the above assertions are based, as well as any other notes relating to the work entrusted to him. He did not do so. If he had any fault to find, it was his duty to lay it before the committee, and in the interest of truth to make his statement when the report was read at the meeting of the Geological Society, at which he was present. He did neither of these things. Nor when he had many opportunities of saying what he liked at the meeting of the British Association at Sheffield, after my paper before the Geological Section, and our addresses at Cresswell, did he say one word, although he was present at both. The pamphlet in question was to us the first intimation that he differed with us as to the facts.

In conclusion it only remains for me to add that Mr. Heath was *not* a member of the Exploration Committee, that he was merely a subordinate to Mr. Mello, and that, on his own showing, he kept back for nearly three years notes considered by him to be valuable, which he was in honour bound to communicate at once to the director for the information of the committee—notes which were as much the property of the committee as the fossil remains discovered in the caves at their expense. I am instructed that the only notes which he gave to the director were certain measurements of the inside of the Robin Hood Cave, which it was found necessary to have done over again.

W. BOYD DAWKINS,
Secretary of the Cresswell Caves Exploration Committee, 1876

"The Society for the Encouragement of Literature and Science"

THE attention of the Council of the Geological Society has been called to the prospectus of a "Society for the Encouragement of Literature and Science," in which the letters "F.G.S." are appended to the name of one of the vice-presidents and to that of the "Secretary-in-Chief." I have been directed by the Council to make it generally known that neither of these gentlemen is a Fellow of the Geological Society, as would naturally be inferred from their use of these letters, and I shall feel greatly obliged by your insertion of this note in your columns.

Geological Society, Burlington House, November 27 — W. S. DALLAS, Assist. Sec. Geol. Soc.

THE attention of the Council of the Linnean Society of London has been called to a paper or prospectus of a "Society for the Encouragement of Literature and Science," whereof W. Sarjeant-Rodway is stated to be "Secretary-in-Chief," and wherein the names Lewis Biden, A. Ware, and Joseph Blackburn Leslie each appear followed by the letters F.L.S., which letters are those appointed to indicate "Fellow of the Linnean Society"—a chartered society. Its attention has also been called to another paper apparently put forth by a "Conchological Society of London," wherein the name W. Serjeant-Rodway appears as "Secretary and Founder," with the addition of the letters F.L.S. (Lond.).

As no one of these four gentlemen is a Fellow of the Linnean Society, the Council of the same Society has requested me to make the fact known, and I shall therefore be much obliged if you will be so kind as to give insertion to this letter in NATURE.

Linnean Society, Burlington House, Piccadilly, W., November 27 — ST. GEORGE MIVART, Zool. Sec. Lin. Soc.

Does Sargassum Vegetate in the Open Sea?

IF the correspondent in NATURE, vol. xxi. p. 80, under the above title, would again refer to my communication in vol. xx. p. 578, which I much regret he finds so unsatisfactory, he will see that the several statements and quotations it contains are exclusively based upon "personal" observations made by myself and by the naturalists on board the *Challenger* during our cruise in the North Atlantic in the year 1873. In replying to his inquiries in vol. xx. p. 552, I was only anxious to supply him with what I considered to be the latest and the most reliable information available on the subject, and which hardly deserves to be qualified as "old reports" and as "a mixture of the prevalent opinion since Columbus and observed facts."

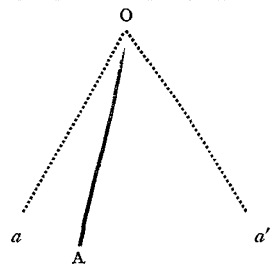
The term *Sargasso Sea* has been extended by geographers, and not incorrectly so, to all oceanic areas where large aggregations of sea-weed are met with, and it does not necessarily imply the presence of Sargassum, *i.e.*, *Sargassum bacciferum* in these regions, since the original Spanish word *Sargazo* (in Portuguese *Sargaço*) simply means "sea-weed." I am, therefore, not surprised that the correspondent should not have found any gulf-weed while crossing the Pacific Sargasso Sea.

Nor can the obscurity in which so many details connected with the gulf-weed are still involved be fairly ascribed to want of observation on the part of the few naturalists who have had the opportunity of studying this interesting alga *in situ*, that is to say, in the middle of the North Atlantic, but rather to the great difficulty, if not impossibility, of ascertaining the life-history of a specimen accidentally found floating on the surface of the ocean. For this reason I fear that some time may elapse before the numerous questions put by the correspondent in vol. xxi. pp. 80–81 can be satisfactorily answered. A botanist stationed for several seasons at Bermudas, or on one of the Bahama Islands, might probably succeed in throwing some light upon the successive stages in the growth and decay of *Sargassum bacciferum*.

J. J. WILD

The Paces of the Horse

I VENTURE to offer the following illustration of the effect produced on the eye by a horse galloping.



I take a pencil, O A, and oscillate it rapidly between the positions O *a* and O *a'*. The impression produced on my eye is an indistinct fan-shaped figure, *a* O *a'*, bounded by two rather distinct images of the pencil in its extreme positions O *a* and O *a'*. The indistinctness of the fan-shaped figure is caused by the rapid change of position of the pencil, which is reduced to a minimum at O *a* and O *a'*, where the pencil swings up to, and returns back from, its extreme positions, passing over the same ground twice in successive instants of time, and thus seeming to pause in the immediate neighbourhood of those positions. An artist representing this effect would draw the indistinct fan-shaped figure; and the two rather distinct images of the pencil at O *a* and O *a'*.

The relative motion of the legs of a horse galloping may be looked upon as that of rapidly oscillating pendulums with this very important addition; that besides their pendulum-like oscillations they go through rapid *internal* changes of form, owing to the bending, or doubling up, of the legs at the knees, hocks, and fetlocks, at every stride. The rapidity of these internal changes is reduced to a minimum when the leg is in its extreme *outstretched* position. Again, it is in this same position that the rapidity of change of position owing to the pendulum-like oscillation is also at a minimum. The two minimums are, as it were, *coincident*, and, as a consequence, every leg as it reaches its outstretched position, seems for an instant to pause, leaving a rather distinct impression on the eye. The other legs on successively reaching their respective outstretched positions produce corresponding impressions on the eye. It is a fact that the legs do not reach these positions *simultaneously*; they reach them *successively*, but the image produced by one leg in its outstretched position has not time to be obliterated before the images of the other legs are produced in their corresponding outstretched positions. Therefore they appear to us to be all simultaneously in those out-