

what they ask for, or what they wish to call my attention to, from the tone of the voice and its modulations, and this is, I assume, language as regards them. On the main question, I should hold with Prof. Max Müller from my own personal experience.

H. STUART WORTLEY.

South Kensington Museum, May 21.

I HAVE just noticed in a recent number of NATURE (May 12, p. 28) a letter from Mr. Francis Galton, in which he endeavours to prove that thought without words is by no means an impossibility. May I advance a small amount of confirmatory evidence which must, I think, have come within the notice of most people? This evidence is to be found in that peculiar state of mind produced when, as we say, we have a word "on the tip of the tongue." In this case the *idea* which the word, when found, will represent is most vividly present to the mind, but it is an idea only. No language is needed to make it recognizable even though, as oftens happens, the idea may be of the most complicated and abstract kind.

HAROLD PICTON.

May 31.

#### Diatoms in the Thames.

IN NATURE, vol. xxxii. p. 223, you were good enough to publish a note from me respecting the occurrence in great profusion of small gelatinous bodies in the water surrounding the Isle of Sheppey. The same conditions prevailed at about the same time last year, and in all probability will reappear at the latter end of this month.

I have now to record that since the middle of April the sea hereabout has been what fishermen call "foul" from another cause. While the water has been unusually clear, in it have been floating an enormous quantity of diatoms. The most abundant is *Coccinodiscus concinnus*, the large disks of which can be seen by the naked eye in any sample of sea water dipped at random. Indeed in bright sunlight they can easily be observed in the sea itself. The other forms are *Rhizosolenia setigera*, and *Eucampia zodiacus*.

At low water the sands lying between the Thames and the Medway have been coloured a rich dark brown by the diatoms left stranded there.

The effect on marine life seems to have been somewhat varied. Mollusks appear to have thriven on the abundant food; and as shrimps and whitebait have been found in abundance in their usual haunts, it may be presumed that they have not been much annoyed by the diatoms. On the other hand, the flat fishes have been greatly disturbed, and could not be found on the banks usually frequented. Some fishermen said they had gone right away, and would not return till the water ceased to be "foul." Yet this could hardly have been the case, as some have since been caught on the Essex flats gorged with young cockles.

During the past fortnight I have examined the water at various points around Sheppey, and have invariably found the diatoms. In using the tow-net during this period, I have been struck by the scarcity of animal life. Besides the diatoms, a few Noctilucae, larval Spiros, and two Isopods were all that I noticed. That at least some diatoms are obnoxious to fish was settled by Mr. Pearcey, who, in conducting tow-netting investigations in the Shetland Isles in 1884, found that in regions where large floating banks of the diatom *Rhizosolenia shrubsolei* (Cleve) occurred animal life was almost entirely absent; and Mr. Isaac C. Thompson, of the Liverpool Marine Biological Society, has recorded a somewhat similar experience in 1885 off the North Wales coast.

It will be interesting to ascertain from which direction these countless myriads of diatoms have reached the Thames, and within what limits they have been found. To this end I invite observers round the British coast to examine the water in their respective localities, and to publish the result.

In water obtained from the coast of Holland I could not detect a single diatom.

I have reason to believe that an abundant influx of the same character has taken place in previous years, but coming at a time of year when the weather is not often favourable for conducting marine observations, the facts have escaped scientific notice.

W. H. SHRUBSOLE.

Sheerness-on-Sea.

P. S.—The above was written about a fortnight ago, and now (May 18) the gelatinous masses are beginning to appear.—

W. H. S.

#### The Structure of the Nostochineæ.

I WAS glad to see in NATURE, vol. xxxv. p. 594, a suitable notice of Prof. Borzi's very interesting paper on the above subject. So far as regards the discovery of the continuity of the protoplasm in this group of plants, I should like to be allowed to state that in my paper "On the Constitution of the Cell-wall and Middle Lamella," read February 10, 1884, and published in the Proceedings of the Cambridge Philosophical Society, vol. v. part ii., I drew attention to the fact that in *Nostoc* I had observed a continuity of the protoplasm between adjacent cells. But I simply stated the bare fact, and my note was therefore even more pronouncedly "una brevissima comunicazione" than that of Wille's on *Stigonema*, to which Prof. Borzi refers.

Clare College, Cambridge.

WALTER GARDINER.

#### Curious Phenomenon in Capillarity.

FOR some years past I have been in the habit, when putting up at obscure hotels and remote "dák bungalows" during inspection tours, of putting a few drops of the cheap disinfectant known as "Little's soluble phenyle" into my tub before bathing. The bulk of the liquid, when dropped into clear water, diffuses downwards as a milky white emulsion, giving beautiful imitations of inverted cumulus clouds; but a small portion of it, perhaps some oily impurity in the mixture (which is sold under the trade mark  $C_6H_5$ , and should therefore presumably be a definite compound), instantly spreads out over the surface as a drop of oil would do, and then, strange to say, after the lapse of about half a second, and usually before the film has extended more than half-way across the tub, it again contracts. The contraction of the film proceeds until it is only two or three inches in diameter, after which its size appears to remain stationary; but about this time the distinct outline of the film usually disappears, owing to the gradual mixing of its substance with the water below—a circumstance which leads me to believe that the film is not caused by an oily impurity, but by a part of the "phenyle" itself, which possesses the property of emulsifying with water. Temperature seems to have no effect on the phenomenon, beyond perhaps modifying the rate at which the film expands and contracts, the effect being apparently exactly the same whether the liquid be added to a cold bath at 60° or to a hot one at 100° F.

Have any of your readers observed this phenomenon, or can anyone give a satisfactory explanation of it? According to the usual theory of the subject, the surface-tension of water in contact with air is greater than the tension of a phenyle-air surface plus that of a phenyle-water surface, and hence the film of phenyle spreads like one of oil. But after a time, when the phenyle gets partially emulsified, the sum of the tensions of the two phenyle surfaces must be greater than that of the water surface to make the film contract, and apparently after some further time a condition of equilibrium is established. Is there anything in the process of emulsification, or dividing a liquid up into minute globules suspended in another liquid, that will account for these changes of surface-tension?

Naini Tal, India, May 2.

S. A. HILL.

#### Sense of Taste or Smell in Leeches.

I HAVE recently observed very well marked phenomena, similar to those described by Dr. C. O. Whitman (*Quart. Journ. Micro. Science*, vol. xxvi. new series, p. 409). I picked up with my fingers a stone from the soft muddy bottom of a shallow, torpid stream. Returning to the same spot a few minutes afterwards, I noticed a number of leeches (apparently *Hirudo* sp.) swimming near the spot. On the following day, suspecting that they had "smelt" or "tasted" my hand in the water, I first stirred the surface of the mud with a stick, but no leeches appeared; after the water was clear again I "washed my hands" in the water without disturbing the mud, and very soon a number of leeches came up and swam about. The soft mud in which they live is about a foot deep, and although the disturbance of the surface mud with a stick was not sufficient to bring them out, the "smell" or "taste" of my hands seems to have spread down and extended over an area of more than a yard.

Last year I had an opportunity on these hills of observing the very keen "scent" of the land leeches, who will come towards one's self or one's horse from the banks on either side of even a wide road.

A. G. BOURNE.

Ootacamund, Nilgiris, April 11.