comparable with that to which sunlight can penetrate. Land plants would then be absent, and perhaps even shoal-water plants as well; and the question arises, Could the plankton algæ produce enough oxygen by photosynthesis to show in St. John's spectroscope?

Furthermore, assuming they could, on this hypothetical transferred earth, would there be any plankton algæ on a planet that had never had any continents, and so had never had any quiet tidal pools, such as are often described as the probable origins of life on the earth?

In short, is it not reasonable to suppose that Venus is a planet without land, without shoal water, and therefore without life? There are many questions here for the geologist and the biologist which a physicist cannot attempt to answer.

DAVID L. WEBSTER.

Stanford University,
California, Oct. 24.

The Tribal God.

I FEAR Prof. MacBride (NATURE, Dec. 3, p. 807) has entirely failed to distinguish between speaking contemptuously of the Deity and of some people's conceptions of the Deity. He has also withdrawn from mine and Mr. Squire's context the explanatory text. This is a common failing of the journalist, but ought not to be of the scientist.

My words in the lecture run as follows: "Nay, even to understand the Reformation itself you must appreciate that it was the replacement of a universal church by separate national churches, and in no forced sense a real return to tribal gods, invoked to support and render victorious their individual nations. Nay, if you kept your eyes open during the recent world war, I think you would have found many traces of religion as a tribal faith. This conception is strikingly expressed in the lines which Mr. J. C. Squire wrote in 1915 or 1916:

> "God heard the embattled nations' charge and shout
> 'Gott strafe England' and 'God save the King,'
> God this, God that, and God the other thing.
> 'Good God!' said God, 'I've got my task cut out.'"

To me, and I should imagine to many readers of NATURE, the conception of a God of Battles, to whom appeal is made to aid one or another nation in killing millions of their fellow-men, is contemptible, the product solely of ignorance. It is as barbarous an idea as that of the Greeks of Homer's day that the gods could mingle in the fray of men, killing mortals and wounding each other. When Ares and Athene assist their rival heroes, surely Zeus has his task cut out! May I not say to Prof. MacBride as Diderot to the god-makers of his day: "Détruisez ces enceintes qui rétrécissent vos idées! Élargissez Dieu!"?

KARL PEARSON.

University College,
Gower Street, W.C.1.

Flame and Combustion.

DOUBTLESS readers of NATURE will have noted that, although twice challenged by us to say what evidence there is for his notion that not 'hydrone' (steam) but something much more complex and 'hydronolic' (water) is formed by combustion in flames, Prof. Armstrong has vouchsafed no answer. If his fertile imagination cannot frame one we may be sure none is forthcoming, so that judgment will now go by default, however much in his closing speech he may gibe at his opponents.

So far as we are concerned, whilst making no pretence of having solved completely the whole problem of the precise rôle played by steam in the combustion of carbonic oxide—preferring to keep our minds open to the new evidence which is now rapidly coming in from various quarters—we wish in a closing word on this part of the case to say that in our opinion a point has been reached when it can be said quite definitely that the cumulative weight of experimental evidence is so conclusive against Prof. Armstrong's extreme 'water-theory'—or indeed any other postulating that steam plays a *necessary* intermediary *chemical* rôle—that it may now be dismissed as one of those 'Phantoms of the Cave' arising (as Francis Bacon said) from "a fanciful Philosophy, which regards only a few cases."

WILLIAM A. BONE.
D. T. A. TOWNEND.

Imperial College of Science,
South Kensington,
London, S.W.7, Dec. 6.

Sound Absorption Coefficients Measured by Reverberation and Stationary-wave Methods.

I HAVE to correct the calculation of a reverberation coefficient of absorption given in my letter published in NATURE of Dec. 3. Owing to a misprint in the paper from which I quoted (*Proc. Roy. Soc.*, **115**, 418; 1927) the value of $a\Omega_2$ (the imaginary part of the acoustical admittance per unit area multiplied by the velocity of sound) for an experimental acoustic plaster was given as $-0{\cdot}0100$, whereas it should have been $-0{\cdot}100$. Also the factor $(\Omega^2 + \Omega^2_2)$ occurring in the last term of the expression for the reverberation coefficient in terms of acoustical admittance should read $(\Omega_1^2 - \Omega^2_2)$.

The recalculated value of the reverberation absorption coefficient at 512 vibrations per second for the acoustic plaster is 0·37, which is very close to the reverberation coefficient quoted by Watson for 'Akoustolith,' namely, 0·36. For 'Akoustolith' itself I have found by the same method that the reverberation coefficient at 512 vibrations per second is 0·35.

E. T. PARIS.

Biggin Hill, Kent,
Dec. 6.

A Change in the Refractive Index of Air when an Electric Glow Discharge is passing through it.

THE change is studied by observing the shift in the interference fringes obtained by Jamin's plates. The change is purely local in the region of the luminous discharge. By varying the pressure inside the air-tube, it is found that the shift is a maximum at a pressure of the order of 2·5 cm. of mercury. Ionisation of the air by X-rays or by Tesla discharge does not cause any appreciable shift.

The shift does not appear to be due to any local changes of pressure. Whether it is purely a temperature effect is being studied. The shift was very small in the preliminary experiments, the maximum being only about a third of a fringe. A shift of two or three fringes has now been obtained and a higher degree of accuracy is expected.

J. B. SETH.

Physics Department,
Government College, Lahore,
Oct. 27.