in my reasonings. The casual remark, however, which Mr. Murphy fastens on as involving "a serious mistake in the theory of the trade winds," was almost copied from Article 211 of "Tyndall on Heat;" and as to the matter of fact, I think it is Mr. Murphy, and not Prof. Tyndall or myself, who has fallen into error. Even if I saw any reason why east and west winds should exactly balance each other on the earth's surface, I could not accept Mr. Murphy's position, that if the earth were of any other shape the trade winds could not proceed from the medial line to the extremities. He assumes that the trade winds are east winds, *independently of the shape of the earth*, whereas it is just the shape of the earth that makes them east winds. If the earth were a cylinder revolving on its axis, the trade winds (if they could arise under the circumstances) would move directly north and south, and would not be east winds at all; and I can see no reason why they should not extend to the extremity of the cylinder. See "Tyndall," *loc. cit.*

Trinity College, Dublin, April 3 W. H. S. MONCK

Height of Cirrus Cloud

IT would be interesting if any of the readers of NATURE could give some information respecting the usual height of cirrus clouds. Mr. Clement Ley, in his work, "The Laws of the Winds," states—"The time occupied by these clouds in passing from the zenith to 45°, or the contrary, furnishes us with a standard of measurement which is both convenient for simultaneous observations, and also possesses this obvious advantage, that whenever the altitude of the cloud station is at all determinable, none but the simplest of calculations is required in deducing the actual from the apparent velocity." Granted; but it would have been advantageous had he shown by an example what he means. For, he goes on to say, "The ordinary range of the actual rapidity of this current is about twice as great as that of the rapidity of the surface winds, for while the latter, at stations most fully exposed to their violence, rarely attain, in Europe, a velocity of 60 or 70 miles an hour, the most elevated clouds not uncommonly traverse a distance of 120 miles an hour, and occasionally much more." Coupling this with the next statement—"I have only once or twice observed an actually motionless cirrus cloud, and it is on rare occasions that an hour is occupied in passing from the zenith to 45°," let me ask, what would be the vertical height of such a cloud? R. STRACHAN

Low Conductivity of Copper Wire

AS one of very numerous instances which have come under his notice, Sir William Thomson desires to make known the following case of the employment of inferior copper wire in the construction of electrical apparatus. He received lately from a Glasgow bell-hanger a large quantity of cotton-covered copper wire, which was being largely used for the coils of electric bells, and upon having it tested very accurately by means of his new Multiple Arc Conductivity Box, its resistance per metre-gramme was found to be no less than 0·439 of a B. A. unit; that of ordinarily good copper wire for such purposes being about 0·16 of a B. A. unit. J. M.

A Pelagic Floating Fish Nest

AMONG other rarities which I have been fortunate enough to procure since my arrival in the Bermudas, is a pelagic fish nest, similar in most respects to that which Agassiz has so recently described, and which was obtained by the American Expedition in the Gulf Stream in December last, while on the voyage to the West Indies. As I am very busy at present preserving and packing specimens, and the mail steamer nearly due, I have only time to send you (by way of St. Thomas) a brief description of my nest, which has been preserved in diluted alcohol. It was taken from a mass of gulf weed (*Fucus natans*) blown ashore about a month ago. This weed, by-the-bye, has been especially abundant about the Bermudas during the present winter, thousands upon thousands of tons having been cast ashore by the waves during the stormy weather which has prevailed. The size of the whole mass is about eight inches by five as it hangs suspended, the former measurement being its depth. The weed is thicker at the top, and is woven together by a maze of fine elastic threads, affording a raft, from which depends the clustering mass of eggs, which I cannot illustrate better than by asking your readers to imagine two or three pounds of No. 7 shot grouped together in bunches of several grains, and held in position by the elastic thread-work previously mentioned. These threads are amazingly strong, especially at their terminal bases on the fucus sprays, where several are apparently twisted together like the fibres of rope, and are admirably adapted to hold the mass in a position where it must always be subject, more or less, to violence, from the continued agitation of the waves in these stormy latitudes. The sea-weed is not only on the summit, but sundry sprays are interwoven with the mass of eggs, thereby rendering the fabric still more solid and secure. It is truly a wonderful specimen of Nature's handiwork; a house built without hands, resting securely on the bosom of the rolling deep.

J. MATTHEW JONES

"An Odd Fish"

SOME short time ago I observed in one of the daily papers an account of "an odd fish" which had been captured, and described by Prof. Agassiz as a denizen of the Gulf weed, on which it is said to walk with legs, and not to swim as other fishes do.

From the above account I suppose that I must have caught the fish in question in July last, during the homeward voyage of H.M.S. *Charybdis*, in lat. somewhere about 15° N., and from the Gulf weed, as described by Prof. Agassiz. The preparation I shall be happy to present to the British Museum if it should turn out to be a species of which no specimen exists in that institution.

It will be observed that the pectoral fins are developed into arms, and the ventrals into legs, though less perfect in form than are the arms.

Sir Philip Egerton has seen it, and pronounces it to be a species of blenny, a shallow water fish; and Capt. Spratt has kindly informed me that it recalls to his mind a theory entertained by the late Prof. Forbes, that the Gulf weed is the product of a shallow water, such as existed before the subsidence of the Miocene formation; and that it may contain a shallow sea fauna, although found in latitudes where the ocean is deepest.

It is a curious fact if such be the case, and one which would appear to have its counterpart in the deepest holes from which Forbes dredged molluscs, which have continued to live therein, and to have survived their congeners of former geological epochs.

J. E. MERYON

The Law of Variation

IN Mr. A. W. Bennett's notice of the sixth edition of the "Origin of Species," he calls attention to the insufficiency of the theory of "Natural Selection" to explain original variations, and says, "If it is admitted that important modifications are due to 'spontaneous variability,'" &c. Now is there no cause for primary, or spontaneous variability?

Is it not presumed under the law of inheritance that, in order that the offspring may be the *exact type* of the parent form, all the conditions of generation and life, and all the forces that affect life, whether generating or external, must be *precisely the same?* Strictly speaking, under the varying circumstances of life, this is never the case; hence slight individual variations; for no individual force can operate as a cause without its effect. These caused variations may sometimes be wide, and may be helpful or hurtful; if helpful, "Natural Selection" would take them up and preserve them and improve them. A. J. WARNER

Marietta, Ohio, March 14

Actinic Power of the Electric Light

MR. MEEZE says in NATURE of the 4th, "May not the great actinic power of the electric light be due in a great measure to the secondary waves produced by the magnitude of the disturbing force?"

This may be true, but there is a cause for the fact which is known to exist, namely, that the electric light is bluer than solar light, that it is to say, it contains a greater proportion of the shorter and more refrangible waves, which have the greatest actinic power. This is due to the absorption of more of the shorter than of the longer waves—in other words, absorption rather at the blue than at the red end of the spectrum—which takes place in the sun's atmosphere. In the magnesium light also, great actinic power is associated with a blue tint.

JOSEPH JOHN MURPHY