

there set forth that it may seem ungrateful of me to venture to reply to anything the reviewer has written. Nevertheless, there is one important point in which I feel that my argument has been missed. My conceptions of the relation between recapitulatory and mutational characters are not easy to state clearly in a brief space, and I am willing to admit obscurity in certain passages, as evidenced by your reviewer's failure to grasp my meaning, but I am not willing to plead guilty to the more serious charge of obscurantism.

The argument was not that mutations are limited in their scope by the existence of non-cellular structures in organisms, but rather that embryonic characters which show recapitulation, and at the same time imply re-adaptation of the organism, cannot have arisen by chance mutations in the germ-plasm, but must have arisen as environmentally induced responses which could become germinal only according to the principle of the inheritance of acquired characters.

By general agreement mutations arise as such in the germ-plasm, *i.e.* probably in the chromosomes. But there is another possible route into the germ-plasm, namely, *via* a modified soma (probably in its beginning a modified cytoplasm), ultimately affecting the germ-nuclei.

Orthogenetic changes I placed in a third category as showing recapitulation and yet arising in the germ-plasm, since they are non-adaptational, and hence probably not environmentally impressed on the organism. The relations between these three types of characters are admittedly obscure, but it does not follow that they are non-existent or that the conceptions regarding them are obscurantist. I wished particularly to contrast mutations and embryonic recapitulatory characters from the point of view of organic structure, indicating that the principles which will explain the one cannot adequately explain the other.

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PROF. GATES'S restatement of certain points in his original argument, if more explicit, nevertheless meets but one of the issues raised in my article. In answer to the doubt therein expressed as to whether he himself can be held blameless of the offence with which he charges others, he pleads "not guilty." But if "obscurantism" (the author's word, not mine) be judged too harsh a verdict on the passage cited, *obscurum per obscurius* in respect of this particular statement—and others—is not to be gainsaid. And shall we even then acquit the author on the more serious count? Or will the general reader desirous of comprehending the relation of Mendelian to Darwinian theory uphold the charge after perusal of the author's introduction? If he do not, he will unquestionably deserve the encomium which the author, so disarmingly, bestows upon myself.

THE WRITER OF THE ARTICLE.

Molluscan Fauna of Scottish Lakes, and a *Pisidium* New to the British Isles.

MAY I through the columns of NATURE invite the assistance of naturalists who may be visiting Scottish lakes and tarns on their holidays in making known the molluscan contents?

Whilst Mr. R. A. Phillips and Mr. Stelfox have investigated the mollusca of the Irish lakes, and Mr. C. Oldham those of much of Wales and England, our knowledge of the Scottish fauna is lamentably deficient. If living specimens are unobtainable, dead shells from the shores will be acceptable as showing what species are present. In either case, for purposes of identification, no special method of preservation is

necessary—the specimens will travel perfectly if packed in sand or sawdust; but if spirit is procurable fresh specimens would be more useful if placed in that medium. In all cases, of course, locality and date are essential.

As instancing the interest attaching to the investigation, and the possibility of further important discoveries, I may mention that Dr. Nils Hj. Odhner, of the Rijksmuseum, Stockholm, has just identified some specimens from Loch Ness, in my collection, as being *Pisidium clessini*, Surbeck, a deep, cold-water species known also from Sweden and Switzerland, which he has also recognised from two other British localities.

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Cup and Ring Markings.

IN reply to Mr. Abbott's letter in NATURE of July 21, p. 652, I regret that he did not see the photographs to which I referred; had he done so he would have appreciated the difference between these and his own. As there is no tangible evidence that such reconstructed surfaces are due either to gelic selection or adsorptive precipitation, I submit that, pending the proving of the gel theory, it is safer to describe the process as "concretionary," for this term covers much ignorance, and is, at least, non-committal.

May I say that the ridged mortar, as shown in Mr. Abbott's interesting photograph, is not found only on the northern sides of buildings near the sea; I have excellent examples from Corfe Castle and other buildings in the district, from old field-walls at Kirkby Lonsdale, and from many other places inland?

There is a coign of calcareous sandstone in the wall of an old barn a few miles from Kirkby Lonsdale with the whole surface naturally ridged and ringed, while the mortar surrounding it is unaltered.

I have never suggested that similar patterns were not carved on some rock surfaces by prehistoric man, but that, if they were, these mystic markings were copied from Nature long before the days of mortar!

I regret I am now unable to find the photographs of 1896, but when I do Mr. Abbott shall see them.

C. CARUS-WILSON.

Science and Civilisation.

THE letter of Mr. Henderson Smith and Major A. G. Church in NATURE of July 28, p. 684, is most welcome as showing that scientific workers are at last beginning to realise that it is time for science to make itself felt, not only for the acquisition of knowledge and the improvement of machinery and production, but also for the establishment of a national and harmonious social order.

May I say that a scheme has already been evolved which should appeal to all truly scientific sociologists? It is based essentially on economic and eugenic principles, and is termed Neo-Malthusianism. It aims at eliminating poverty and other social evils by proportioning population to the means of subsistence, and at securing race improvement by maintaining the selective struggle of Darwin, substituting humane voluntary abstention from reproduction for brutal elimination by disease and starvation. It aims also at the elimination of class and international warfare through the diminution of the pressure of population, and at the reduction of vice and disease by promoting universal early marriage.

Anyone interested in this subject is invited to write to the hon. secretary of the Malthusian League, 124 Victoria Street, S.W.1.

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