still occasionally found who, in defiance of all the rigidly scientific investigations of Brugmann, Osthoff, Henry, Sweet, Murray, and other philologists, persist, by disregarding phonetic and other ascertained linguistic principles, in connecting together utterly dissimilar tongues, such as the Indo-European languages, Hebrew, and Basque. The author of the above-named work is a writer of this type. His work bristles with philological impossibilities, and he appears to have no conception of the necessity of ascertaining, before comparison of one language with another, the laws which govern the sound changes of the languages compared and of the immediate groups to which they belong. The Hebrew word Satan he thinks is cognate with the Basque Tusuria "by transposition," and the work abounds in similar equations. The volume is unworthy of serious attention, and its only interest arises from its being one of those strange works that spring from the union of a certain kind of learned industry with misdirected ingenuity.

LETTERS TO THE EDITOR.

[*The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts intended for this or any other part of* NATURE. *No notice is taken of anonymous communications.*]

Fellowship of the Royal Society.

IT is well known that under existing regulations the number of new fellows elected to the Royal Society every year is only fifteen. In this way the total number of fellows is kept at about 450. In the early days when this arrangement was made the limited annual number was doubtless sufficient to ensure the election of all the scientific men who really merited the honour, but since those days the scientific world has been growing larger and larger, and at the same time the general standard of work in all branches has become higher.

So long as the annual number of candidates was not more than forty or forty-five the selection of fifteen was not very difficult, and no man who had really done good work had to wait more than two or three years before election. Now, however, the annual number of candidates has increased to eighty or ninety, and this year it is said there were nearly 100 candidates.

Is it not high time, then, that the Royal Society took definite steps to make some change which would meet the requirements of the changed circumstances? Many of the older members of the society are well aware that the present state of affairs is unsatisfactory, and some have expressed their sentiments, but nothing has yet been done.

A simple plan would, of course, be to elect thirty new fellows every year instead of fifteen, but one can see objections to this plan. Has it ever been suggested that the Society should create an associateship and elect associates as well as fellows? The number of fellows might remain as it is, but if a limited body of associates was created, say fifty to begin with, and was increased by the election of twelve or fifteen every year, the pressure would be relieved, and I should think A.R.S. would be preferable to a long-deferred F.R.S. Subsequent elections of fellows could then be made from the associates, and this double election would give better assurance than now exists that none but the best men of the year were admitted to the fellowship. ENQUIRER.

Earthquakes and Earthshakes.

SOME of the memoirs, professedly seismological, which have appeared during the last year or two indicate that confusion has arisen from the use of the word earthquake in two distinct and independent senses. As this confusion seems likely to increase unless a modification of our nomenclature is adopted, the introduction of a new term appears to be requisite, however much this may be deprecated on other grounds.

In the generality of cases, the phenomenon represented by the word earthquake consists of a vibratory motion of the ground, of the nature of a wave motion, propagated outwards from a more or less extensive origin or focus. In some cases this disturbance may lead to damage or destruction of buildings, or even to displacement of the surface layers of the earth; but these are secondary results of the molecular displacements involved in the propagation of the wave motion, and, apart from them, the earth, after the earthquake has passed, resumes the same position and condition as before.

Occasionally, however, the word is applied to a disturbance of a wholly different kind, resulting in the formation of fractures and displacements of the solid rock, displacements which are molar and permanent, in the sense that the masses affected by them do not return to their original position after the earthquake has passed.

As the first was the sense in which the word is invariably used in Robert Mallet's classical researches, as it is that which has been sanctioned by long-continued usage, and as the proportion of records and observations, which do not apply to this phenomenon, is probably less than one in a thousand, I suggest that the word *earthquake* should continue to be used in this sense, and that for the other sense, in which it is sometimes used, the word *earthshake* should be substituted. Using the words in this way, we may say that earthquakes, or at any rate severe earthquakes, are frequently, if not invariably, caused by rupture of the earth's crust and the formation of fractures or faults in the solid rock, but these fractures, which are the primary cause of the earthquake, are only the secondary result of the earthshake, the action of which arises at a greater depth, and the ultimate cause of which lies beyond our present ken. The distinction is an important one, and the importance may be greater than will be acknowledged immediately, for some recent studies made by me have indicated a possibility that the earthshake has sometimes a greater extent than the earthquake; in other words, that the area over which permanent displacements of the earth's surface have taken place may be greater than the seismic area, or the area over which the shock was felt.

Incidentally, it may be mentioned that the whole of Prof. See's recent publications on the cause of earthquakes, and the greater part of those by Prof. Hobbs, deal with earthshakes and not with earthquakes as here defined. This is natural, for only the permanent changes, resulting from the earthshake, are of importance to the cosmogonist or the geologist; the transient displacements produced by the earthquake concern them, directly, but little, if at all.

R. D. OLDHAM.

Classification and Mathematics.

IF mathematics is to be regarded as the science of classification, a view apparently taken in many recent works, it may be worth while to consider whether mathematical teaching should not begin with the use of models of classifications in general rather than with the special classifications in connection with which terms like straight line, rotation, product, power, &c., were originally introduced.

By a model of a classification is meant, for example, a set of things which can be classified by one respect as colour, and cross-classified by another as shape. Similarly, models can be made having three or four or more differentiations, in which any two differentiations have the relation of classification and cross-classification. If each differentiation is supposed to be ordered, we have then spaces of two, three, or four dimensions, of which the classified things form the points. By motion of a point in the space is meant its change in those properties which have been used in the classification. Consideration of the meaning of extension, rotation, and right angle shows the possibility of using the motion of extended bodies to construct a classification of the points of a space, even when we are unable to recognise the differentiations themselves of the space. This is the case met with in ordinary geometry.

As the foundation of geometry lies in the idea of ordered classification, so that of algebra lies in the conception of