Similar contortions may often be seen in glacial gravels and sands and beneath boulder-clays. Near Spendon, Derbyshire, a mass of Boulder-clay was contorted into the Keuper Marl and masses of marl were enclosed in the Boulder-clay; there were also striated boulders of Mountain Limestone deeply embedded in the red marl.

6. Many of the disturbances in the Chalky Clay seem to have been formed by the direct pressure of the ice front, others as at Cromer by the overriding of the Boulder-clay by the ice.

I agree with the Rev. O. Fisher that the subject is worth investigation, and feel sure that the question of how the disturbances and folds were produced can be ascertained by studying the details of the phenomena. One generally finds the subject dismissed with the remark 'surface creep'.

R. M. Deeley.

Inglewood, Lingcroft Avenue,
Harpenden.
May 23, 1911.

GEOLOGY OF PADSTOW AND CAMELFORD.

Sir,—Referring to the letter signed "Reviewer" which appeared in the April number of the Geological Magazine concerning the memoir on the Geology of Padstow and Camelford, I should be obliged if you would allow me to say that I entirely agree with the statements contained therein as to Mr. Ussher's priority in representing on a map the three main divisions of the Devonian Rocks in the area in question, and also to express my regret that no reference was made to this fact in the memoir.

J. J. H. Teall.

Geological Survey Office,
28 Jermyn Street, S.W.
May 26, 1911.

DREIKANTER.

Sir,—With reference to the discussion in your columns on the use of the word Dreikante, I should like to point out, as I have already done elsewhere, that the term is more appropriately employed for the comparatively common form with three long, nearly parallel edges, than for the rarer type which is roughly tetrahedral and has typically six instead of three edges.

If a stone lies on a sandy tract, the wind may, by means of the sand that it carries with it, bevel the upper portion of the side turned towards it, and at the same time gradually remove the sand beneath till the stone falls, turning over towards the wind on to its abraded surface. A new plane of abrasion will then be formed on the stone, making an angle of about 60° (a crystallographer would call it 120°) with the first, and, under favourable circumstances, by the repetition of the same movement a trigonal prismatic form with three parallel sides and edges will be more and more distinctly developed.

The tetrahedral or 'tripyramidal' form and other more irregular shapes would appear to be due to the stone falling over obliquely

instead of directly towards the wind, either on account of its shape or because the sand has been removed unevenly from below it.

If a general expression be required for any wind-shaped stone, we might speak of a 'ventifact', on the analogy of artifact, sometimes spelt 'artefact', which is already in use for an object, such as a palæolith, fashioned by men, and of 'ventiduct', which has been employed in architecture.

JOHN W. EVANS.

IMPERIAL INSTITUTE.
June 7, 1911.

BRITISH PILLOW-LAVAS.

SIR,—The brilliant paper on British pillow-lavas by Messrs. Dewey and Flett in your May and June numbers is an illustration of what may now be done in rational petrology by the collation and interpretation of the great mass of facts accumulated on the descriptive side of the science. The main points brought forward by them, i.e. the existence of the spilitic suite, and the explanation of its association with black shales, limestones, and radiolarian cherts, seem now to be thoroughly established.

One is obliged, however, to dissent from the view (pp. 242, 245) that the spilitic suite is separate and distinct from, and, so to speak, co-ordinate with the Atlantic and Pacific kindreds, as established by Harker, Becke, and Prior. Using these terms merely as convenient names for the two broad chemical divisions in igneous rocks, and disregarding the much-disputed distributional assumptions on which they rest, it seems to me that the Atlantic and Pacific branches cover the entire field of igneous rocks. This is certainly the view taken by Harker in his *Natural History of Igneous Rocks* (chap. iv), although the terms Atlantic and Pacific themselves are based largely on the distribution of Tertiary igneous rocks. The actual basis of the classification, however, is chemical, and the above terms are due to a probably too wide generalization as to the distribution of the groups. If this is the case the spilitic suite is merely a subdivision of the Atlantic branch, as its characters agree well enough with the definition of the latter (Harker, op. cit., pp. 90, 91).

Exceptions to that geographical distribution of igneous types implied by the use of the terms Atlantic and Pacific are now multiplying at such a rate that it may be necessary to drop those terms in their petrographic sense. In that event future research may show that the igneous rocks are divisible into more than two main classes, distinguished by broad chemical and mineralogical characters, and associated with various types of earth-movements. The spilitic suite may form one of these classes; but what I wish to point out is that as at present defined it seems merely to form a part of the Atlantic kindred, using that term in the sense that petrographers use it, to indicate the great division of 'alkalic' rocks. Messrs. Dewey and Flett consider that a close parallel exists between the spilitic suite and the analcite-bearing igneous rocks of the Scottish Carboniferous (p. 209). If so, there seems no reason why the latter, or indeed any well-marked group, should not be elevated to the rank assigned to the spilitic suite by the authors.