development in the same direction. This would lead to the conclusion that there had, throughout a long lapse of geologic time, been a general transportation of materials southward from old lands which once occupied the region of the North Atlantic.

CORRESPONDENCE.

BEACHLESS SEA-COASTS.

DEAR SIR,—Though the true form of the ground can be best judged of by those who are in the habit of viewing it from greater or less distances, such minute observations as those stated by Mr. Green, in January last, are very important. It is, however, to be regretted that so accomplished a surveyor should not be empowered, by a committee of the British Association, to examine those sea-shores where level beaches are exceptional, and where the slope, above and below mean water-mark, is characterized by every form of escarpmental phenomena. On such shores, rising and falling lines of cliff may not only be observed at certain heights above the sea (where, in some instances, they might be called indirect sea-cliffs, being the effect of coast-slips), but likewise passing under, and from under, the water. Beachless shores are the general rule on the west and north coasts of Ireland, among the Shetland and Feroe Islands, etc. But, though on a smaller scale, they are very characteristic of the coasts of Devon and Cornwall, where, in many places, the base of a line of cliffs consists of a succession of heights and hollows. The minor deviations from a plane presented by many upland lines of cliff may thus be satisfactorily accounted for. To deny that the *general* inclination of an escarpment can be the effect of elevation is to ignore the established principle that the rise of the land must be in *excess* of the rise of the bottom of the sea. In bringing forward instances of escarpments, it is desirable that the meaning attached to the word should be clearly stated. If an escarpment runs along the strike it must maintain one level throughout, or a succession of different levels. If an escarpment follows the dip of the strata, it cannot run along the strike, and, unless the dip of the table-land above corresponds, no downwardly-operating agent could ever have commenced the work of escarpment-making. If an escarpment crosses the dip of the strata it must have been denuded irrespectively of structure. Wherever the dip of the strata (local or general) is as great as the dip of the escarpment, it is certain that the former must have been unequally upheaved or depressed, or thrown out of their originally horizontal position at *some* period, and why not after the formation of the escarpment, unless in instances where reasons to the contrary can be assigned? These considerations would seem to be overlooked by subaërialists, who thus render themselves liable to be misunderstood.

The Rev. O. Fisher's letter (p. 34, written before the appearance of my letter in the December Number) contains observations wonderfully agreeing with the views I have been advocating in your

pages. Col. Greenwood (whose description of the transportation of flints by the sea is very graphic) has misunderstood me on the subject of residual flints. What I meant was simply that in *many* chalk districts (not arable-fields) the denudation has been as clean, and as irrespective of flints, as if the ground had been shaved down with a gigantic scythe. D. MACKINTOSH.

POLYTELITE IN CORNWALL.

SIR,—The substance of Mr. Davies's letter in your last number does not, I imagine, require any reply; but in the postscript he mentions that Professor Church had found 7·23% Silver in a crystallized fragment of fahlerz, having the density of 4·85, from which I infer that true polytelite is found at that locality. This per centage of silver in, and the specific gravity of, this specimen, might be accounted for by supposing the silver in other state of combination, as, for example, argentiferous sulphide of silver (Stromeyerite), which in fracture closely resembles some fahlerz; and therefore it would be interesting to know from Professor Church whether the other constituents of polytelite (antimony, for example) were found, which would at once decide the question.

Mr. Davies does good service to British mineralogy by directing attention to any cases of unrecorded mineral localities; and I believe such inquiries will prove that we possess many more mineral species in Great Britain than are at present recorded. Amongst others, I may mention that polytelite from N. Wales, and Gersdorffite from Argyleshire, are described in the second part of my "Researches in British Mineralogy," now in the press. DAVID FORBES.

THE BOULDER CLAY AT WITHAM STATION, AND THE THAMES VALLEY.

SIR,—My last letter was accidentally printed without my correction, and contains errors, two of which are of some importance.

In the section, the sand with green-coated flints should be "Thanet" instead of "Thames" sand.

My views regarding the age of the "Trail" are singularly misrepresented, where I am made to say it is of "our" age. I wrote "one" age; which I believe to have been upwards of 110,000 years ago, as I have shown in the fourth volume of your Magazine, p. 197.

HARLTON, CAMBRIDGE. O. FISHER.

THE OUSE VALLEY, THE THAMES VALLEY, ETC., ETC.

SIR,—I find that at pages 53–57 of the memoir for sheet 45, reference is made to the Glacial clay, but so slightly that it escaped me. Moreover the Glacial clay tract north of Buckingham, partly traversed by the section in my last letter, is alluded to (p. 57) as that of the "Oxford or Kimmeridge, as the case may be"; but as neither of those clays are shown in this part of the map, some slip of the pen may have occurred. Therefore, to this extent, I must qualify the remark in my letter and tender Mr. Green my apology for it.