South. But on its arrival at his Observatory it was found to have suffered so much that it actually fell to pieces ! Only a few of the more massive parts were entire ; and of the rims of the circle nothing remained except that which carried the divisions, which, as I was informed by Troughton, was of "Dutch brass," and was quite unchanged.

The excellence of this Dutch brass is, I believe, recognised also by watchmakers, and it seems to deserve inquiry to what its superiority over English brass is to be attributed.

It is worthy to be mentioned that among the instruments ordered from Ramsden by Usher was an equatorial telescope driven by clockwork. But owing to Ramsden's feud with Usher, this was not executed ; and this important aid to the astronomer, which had been proposed by Hook nearly a century before, lay dormant till it was applied by Frauenhofer, forty years later, to the Dorpat telescope. T. R. R.
Armagh

Morell's Geometry

IN answer to your criticisms on my work, "The Essentials of Geometry," I have given an explanation as to the sources of that book. I proceed to give very briefly my arguments for what is there advanced.

I shall do so under two heads, which will be in the form of indictments against my reviewer.

For I charge him, first, with overlooking the nature and object of the book ; and, secondly, with overlooking the context of passages he criticises, an omission that changes the entire aspect of the case.

First it is explained (Preface, p. vii.) that my little volume is an attempt at a manual and memento for students, of which so many exist in France and Germany It is notorious that such works do not dispense with others, or touch the plan of school text-books, and then much of their contents consists of results with hints of demonstrations. Then at p. viii. of Preface it is added that an inspection of the methods employed will show that German and French geometricians . . do not condemn the student to keep a geometrical figure rigidly in the place in which it is laid down on paper. Revolution and superposition are allowed . . . simplifying and shortening the proof, &c.

Passing to the second indictment, I find that the criticism levelled against my so-called theorems of parallels commits two serious offences. First, it garbles my matter ; secondly, it overlooks the principles first laid down in the preface, applying from logic two propositions treated by me both manually and logically ; thirdly, it overlooks claims in pp. 15, 24, 25, where the technical terms in p. 20 are explained ; lastly, it ignores the fact that all our theorems about parallels rest on assumptions and not on logic.

It is evident that if superposition be allowed, two parallels as they cannot cut (hyp.) must coincide, thus the angles they form with a secant will be equal.

Again, the charge of want of logic in my proof of the inequality of triangles with three equal sides falls to the ground, if the first clause of p. 44 be read. For as this is a case of superposition by making the bases coincide, the arms of both triangles must coincide as radii of equal length intersecting at only one point on the same side of the base. The proof is equally direct from symmetry, from inversion and juxtaposition, and from subposition, as in the Notes to Todhunter's School Euclid.

As to the critic's difficulties about explaining the coincidence of two semicircles, to any one used to the free handling of geometrical figures in France and Germany, the thing wears a ludicrous aspect.

Then about the statement that two equal adjacent dihedral angles are right angles, a moment's reflection shows that if a dihedral angle be defined (Bos. p. 32) as an angle formed by the revolution of a movable plane at its common section over a stationary plane, when it reaches the point where the two adjacent angles are equal, they must be right angles. The definition may be disputed, but the conclusion is correct.

As regards the criticisms on my definitions, I do not think it necessary to enter into this matter. The ground of definitions is a wide and a disputed one, and I am content to err, if err I do, with very high authorities. Euclid has defined a straight line to be that which lies evenly or equally between its extreme points. This definition affords no assistance in arriving at the properties of straight lines. In Dr. Simson's edition, a point is defined to be that which has no parts or no magnitude. This is objec-

tionable, as being wholly negative. Again Dr. Simson, in the notes to his edition of Euclid, admits that the 11th axiom is not self-evident.

In conclusion, the reviewer is of course as likely to attack the free treatment of theorems and problems practised, especially in Germany, by the conception of the generation of all figures from their elements by the movement of points and lines. But it can scarcely be charged against the author of the "Essentials" that he has not shown some of these shorter methods of demonstration as used in France and Germany.

The nature of revolution is fully illustrated at pp. 6, 8, and the treatment of angles as ratios in note 2, p. 9. Our limits prevented anything more than indications, but *verbum sat.* to the great logicians of England. J. R. MORELL

On the Derivation of the name "Britain"

HAVING been from home, I did not see the letter of "A. H." in your publication of March 16 until yesterday. His only objection to my derivation of the name *Britain* is that the word *tin* in his opinion was "not used in this island so early as the argument for its forming part of the word *Britain* requires. The following remarks will show that it *must* have been used in this island quite as early as the word *Britain*.

His assertion that "our word *tin* is of comparatively modern formation," cannot be established. It *must* have been familiar to the Cornish centuries before Diodorus Siculus described St. Michael's Mount, in Cornwall, under its name of *Iktin*, from whence tin was exported by the Phœnicians as far back as the time of Moses (Numb. xxxi. 22) ; and from none but the Phœnicians could the Cornish have derived the word *tin*—for that metal, as well as its name, was unknown to them before they were visited by the Phœnicians. The name *Iktin* (Tin-port) by which the Mount was called in the time of Diodorus, proves the existence of the word *tin* prior to that period, and the present Cornish word *stean* can only be a corruption of the very anciently adopted word *tin*—a corruption arising probably during the Roman period, so that instead of *tin* being a corruption of the Welsh *ystaen*, or of the Latin *stannum*, as "A. H." imagines, the reverse is evidently the case.

Assuming, with most authors, the original Phœnician word to be *tin*, that name continues unchanged in the Saxon, English, Dutch, Danish, and Icelandic languages ; but the Swedish name is now *tinn ;* the German, *zinn ;* the French, *étain* and *tain ;* the Latin, *stannum ;* the Italian, *stagno ;* the Spanish *estano ;* the Portuguese, *estanho ;* the Irish, *stan ;* the Welsh, *ystaen ;* the Cornish, *stean ;* the Armoric, *stean* and also *staen*—the initial letter or sound *s* in each of the last nine names being a mere prefix, as in the modern word *sneeze* for *neeze* (Job xli. 18). With this exception, and except the ordinary terminations of the Latin, Italian, Spanish, and Portuguese names, these thirteen different spellings are merely the different ways in which different nations of Europe pronounce the Phœnician word *tin*.

Diodorus speaks of *Iktin* as an island adjoining *Britain ;* and this island (for it *is* an island two-thirds of the day) was no doubt long before his time called sometimes *Iktin* and sometimes *Bretin ;—Iktin* when it was regarded as a "port," and *Bretin* when regarded as a "mount"—*ik* being the Cornish for "port," and *bre* the Cornish for "mount." It was however most generally known as a mount, and as the most remarkable object in *Mount's* Bay, to which it has therefore given its *English* name, having long before the Christian era, in all probability, given its ancient Cornish name of *Bretin* to the island in which we live.
Plymouth, March 29 RICHARD EDMONDS

Records of European Research

THE Chemical Society has taken up a good cause, that of reporting foreign labours much more fully than could be worth the while for any periodical publication to undertake.

I have suggested in another quarter the advisability, if possible, of joining in this scheme. But funds are requisite to have the work well done.

It has struck me that, as a matter of completeness and economy, it would be far better if the learned societies subscribed, and the Royal Society made a grant besides its subscription, to engage an efficient staff to report foreign contributions not merely to one branch of science, but to all, forming, let us say, a quarterly *comptes rendus* of European research.