

Dr. Hicks, added to that already obtained, led irresistibly to one of two conclusions;—either that, when the Cambrian was formed, an area of very ancient metamorphic rock was exposed near Ty Croes and in the Caernarvonshire district, or that the rhyolitic volcanoes were so much older than the Cambrian time that their granitic cores were already laid bare by denudation. Hence, in either case, the existence of Archæan rock in North Wales was proved. To one or other of these conclusions he could see no possible alternative, and he considered the former to be (even if some of the granitoid rock were granite) far the most probable.

3. "On some Post-glacial Ravines in the Chalk-Wolds of Lincolnshire." By A. J. Jukes-Browne, Esq., F.G.S.

In a former paper the author stated that of the valleys intersecting the Chalk Wolds some were older and some were newer than the formation of the Boulder-clays (Hessle and Purple Clays). He now described some cases where the modern watercourse, after flowing for some distance along the line of an ancient (pre-Boulder-clay) valley, suddenly deserts that valley and passes through a ravine excavated entirely out of the Chalk.

These ravines are very different from the other parts of the valley traversed by the same stream, being deep and narrow cuts or trenches with steep wooded sides, and exhibiting more the scenery of Derbyshire vales than of ordinary Chalk valleys.

In accounting for the origin of these ravines, the author pointed out that the whole district in which they occur must once have been completely covered by the Boulder-clays; and he supposes that at certain points where the ancient valleys were blocked with high mounds of Drift, the streams found it easier to cut new channels through the flanking ridge of Chalk than through the obstacles in front of them.

CORRESPONDENCE.

THE PERMIAN-TRIAS QUESTION.

SIR,—As the Permian-Trias question was brought forward rather prominently (thanks to your courtesy) in the pages of this Journal during last year, perhaps you will further allow me to make a remark or two with reference to the paper bearing upon the subject which I had the honour of reading this year before Section C. of the British Association. The evidence which I was able to bring forward (from recent work in Germany) as to the existence of local discordance and unconformity on a large scale between the Dyas and Trias was admitted even by Prof. Hull to have fully established that position. This, however, which was the main point, was not noticed in any report of the discussion which I have seen in the newspapers. It follows of course that wherever in my papers of last year (following Murchison) I have spoken of a conformable sequence between the Dyas and Trias of Central Europe, all that must be considered now as unsaid.

The retention of the name "Permian" after it, has admittedly

ceased to connote what the author of the term intended by it, is quite a minor question; and I was so completely satisfied with Professor Hull's surrender of the *argumentum ad rem* that I did not care to lay myself open to the charge of prolonging the discussion upon a collateral issue. In appealing to the English sentiment of an audience composed mostly of people who could scarcely be expected to be familiar with the question in all its ramifications, it was of course not difficult to obtain an expression of opinion in favour of the retention of the name Permian on that ground. But when we come to consider the rival claims of *connotative* and *geographical* names of groups of strata, a question of principle, rather than one of opinion, is raised. For individual *formations* (*pace* the International Commission) geographical terms are probably upon the whole preferable, except in certain cases (*e.g.* 'Bunter,' 'Keuper'), in which the general uniformity of character of a formation over a very large area renders the difficulty of naming it from any locality very great. In the main, however, the instincts of English geologists, which have led them to give geographical names for the most part to single formations, have led them at the same time to show a preference for connotative names for the larger groups of strata. Thus, taking any authoritative table of the British series, such as that in the excellent Geological Chart of Prof. Morris, the preponderance is nearly three to one in favour of connotative names for the more comprehensive groups, as the following lists show:—

<i>Connotative Names.</i>	<i>Geographical Names.</i>
Recent.	_____
Pleistocene: Quaternary.	_____
Pliocene.	_____
Miocene.	_____
Eocene: Oligocene.	_____
Cretaceous.	_____
Oolitic.	Jurassic.
Lias.	_____
Trias: New Red Sandstone.	_____
Dyas: Magnesian Limestone.	Permian.
Carboniferous.	Devonian.
	Silurian.
Old Red Sandstone.	Cambrian.
Archæan.	Laurentian.

The argument then in favour of the retention of the name 'Permian' (as against, *e.g.* that of 'Dyas') is based on no logical consistency with established geological nomenclature. It is an excellent local name for the Russian series, but as a general term for the European series it is highly misleading. A. IRVING.

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ORIGIN OF CONTINENTS.

SIR,—My article under the above title, in the June Number of the GEOLOGICAL MAGAZINE, is criticized by Prof. Le Conte, in the November Number, in a way that implies some misconception of my position. My arguments were directed chiefly against Prof. Dana's theory, and only incidentally against that held by Prof. Le Conte,