

infers, therefore, that when the river began to erode its channel, the plateau was relatively lower than the tract to the south of the present course of the stream, but that by denudation the relations have been reversed, whilst the river has never left its originally selected course.

The author compares the state of things with that which must have occurred in the case of the northerly rivers running from the centre of the Wealden axis; but mentions that Prof. Safford and Mr. J. Leslie account for the Cumberland plateau by faulting, though he thinks that the well-defined escarpment along the valley of East Tennessee seems to show that this cause is insufficient.

In conclusion, he believes that the denudation was accelerated during the pluvial or "Champlain" period, and calls attention to the "Columbia formation" on the east side of the Alleghanies, and to the deposit of red loam by which the surface of the country of the valleys of the Tennessee and Sequachee is overspread, and which is probably referable to a similar stage.

3. "On certain Ornithosaurian and Dinosaurian Remains." By R. Lydekker, Esq., B.A., F.G.S.

The author is indebted to Professor O. C. Marsh for the correct determination of the bones described in the paper.

1. *Ornithosaurian Quadrates*.—The reptilian bones in the British Museum, Nos. 43034, 44183, and 41179, are Ornithosaurian quadrates. The two latter belonged to the right side of the skull. The distal extremity of each forms a deeply grooved oblique trochlea, above which is a nearly quadrangular shaft. To the inner side of this shaft is attached, by suture, a flattened plate of bone, concave internally, and convex externally, representing part of the pterygoid; so that the relation of the quadrate to the pterygoid in the *Ornithosauria* is the same as in the *Rhynchocephalia*.

The smaller quadrate would agree approximately in relative size with the so-called *Pterodactylus Manseli*, Owen, and the larger more nearly with the so-called *Pt. suprajurensis*, Sauvage, both of which may be provisionally referred to *Rhamphorhynchus*.

2. *Tibia of Cœluroid Dinosaur*.—The author would provisionally refer the right tibia of a small Dinosaur from the Wealden of the Isle of Wight, which had been incorrectly referred to *Hypsilophodon*, to the species originally described, from an examination of two vertebræ, as *Calamospondylus Foxi*, but which he would now name *Calamosaurus Foxi*. It presents striking avian affinities.

CORRESPONDENCE.

PROF. BONNEY AND GENERAL McMAHON ON THE GEOLOGY OF THE LIZARD DISTRICT.

STR.—In your last issue, Prof. Bonney in his characteristic style refers to my late work in this district. He, however, at once, falls into error as to the number of my communications to the MAGAZINE, there being five, not four as stated by him. The one he overlooks

being that "On the Schists of the Lizard District," April, 1890, perhaps the one he likes least.

As to the points in his letter under his figures 1, 2, 3 and 4, I have no doubt but that Prof. Bonney will in good time demonstrate these assertions; but in the meanwhile they are only assertions. I will freely and gladly admit the errors, both in my observations and inductions, when proofs are forthcoming. I was much amused by General McMahon's letter. I am well aware (perhaps before the General was) of the apparent sequence of the various rocks laid down by the masterly mind of De la Beche, and also (perhaps) I have seen more of the true dykes in the Lizard District than has fallen under the observations of General McMahon. There are dykes, however, that I regard as of contemporaneous or segregation origin.

Independent of the sequence of the rocks referred to, I think them the product of eruptions of one geological period, that intermittent action is noticeable, and that there is a decided passage of the main masses into each other, and that the same magma, cooling under different conditions, has given rise to many varieties of rock. My communications were intended to lead up to this point.

As to my theory of the origin of the "banded structure," let it with the others "sink or swim." I care not which survives.

As to the close of General McMahon's letter, I much regret having to say, that I think it is quite uncalled for.

TORQUAY, 9TH December, 1890.

ALEXR. SOMERVAIL.

REPORT OF THE INTERNATIONAL GEOLOGICAL CONGRESS.

SIR,—I am periodically asked by friends who joined the last Geological Congress how it is that the promised report to which each member was said to be entitled has not yet appeared, although some of us paid an additional subscription to expedite its production.

Ought not the eminent geologists whose names appeared on the circular inviting support to that Meeting to be asked to furnish some explanation for this unaccountable delay? (B. V).²

ON DYNAMO-METAMORPHISM.

SIR,—I certainly had no thought of "rolling back the development of chemical theory a few decades at least," when I wrote of energy taking "the molecular forms of heat and chemical action." Dr. Irving in his criticism of this expression leaves out my reference to heat. I conclude therefore that he has no objection to that part of the statement. As to the assertion that part of the energy, which previously existed in the molar form, was converted into the "molecular form of chemical action," I was unable to know whether Dr. Irving's stricture expressed the generally received views upon the subject, owing to my imperfect acquaintance with chemistry. I have, therefore, consulted the highest authority on such questions to whom I could apply and on whose opinion I can place reliance. With respect to Dr. Irving's apparently general statement, that "chemical combination must generate heat," he replies, that, "when