

"*Clay Ironstone Nodules from Arigna*.—Mean of five analyses:—

Protoxide of iron . . . . .	51·36
Lime . . . . .	1·59
Magnesia . . . . .	1·92
Alumina . . . . .	0·98
Insoluble clay . . . . .	12·82
Carbonic acid . . . . .	31·33
	100·00

And this contains 40 per cent. of metallic iron.

"The loss by calcining, the iron remaining as protoxide, should be in average 31·33 per cent.; and the calcined ore should consist of 100 parts of

Iron . . . . .	58·2
Oxygen . . . . .	16·6
Lime and magnesia . . . . .	5·1
Clay . . . . .	20·1
	100·00 "

(See Sir R. Kane's 'Industrial Resources of Ireland,' p. 136.)

## CORRESPONDENCE.

### *Crocodilian Remains in the Scottish "Old Red."*

SIR,—Observing that the report of a Scottish crocodile having been found in the Old Red Sandstones of Morayshire has been commented on in your Notes and Queries for February, I think it right to state that no reptilian remains have been recovered from any of the sandstones of that county, of whatever age, with the exception of those of the well-known *Telerpeton*, *Stagonolepis*, and *Hyperodapedon*.

The stone containing the first of these, the *Telerpeton Elginense*, was got from a quarry near the Loch of Spynie, some two to three miles south of Elgin, by the late Mr. Patrick Duff, and is now in my possession. It is described and figured by the late Dr. Mantell (Jan., 1852), in a paper contained in the eighth volume of the 'Geological Journal,' as a small lacertian reptile, about four and a half inches in length.

The *Stagonolepis Robertsoni* has been long known, and was so named by Agassiz, and is by him described, in the 'Poiss. Foss. du Vieux Grès Rouge,' as a ganoid fish. The discovery of many fragments of bones since has enabled Professor Huxley to fix the true nature of these remains. The *Stagonolepis* is described by him, in the fifteenth volume of the 'Geological Journal' (1858), as a reptile having considerable affinities to the crocodile, and as having reached from 16 to 18 feet in length. Many remains of bones and scutes belonging to this creature have been found in a quarry at Lossiemouth, some five miles south of Elgin, and are preserved in different museums, as in that of Elgin, the Museum of the Royal School of Mines in Jermyn Street, etc.

The remains of *Hyperodapedon Gordoni* were got from the same quarry

which affords those of *Stagonolepis*, by the Rev. G. Gordon, of Birnie, and is noticed in a note to a paper on the sandstones of Elgin by Sir Roderick Murchison, also published in the fifteenth volume of the 'Geological Journal.' It is supposed to have been a Saurian reptile, of from 6 to 8 feet in length.

Besides these, numerous slates covered with reptilian footprints are from time to time dug from the neighbouring quarries of Cummingstone.

The sandstones containing these remains were originally believed to belong to the upper division of the Old Red Sandstone series, and are described as such by Sir R. Murchison in the paper above referred to. In the note to that paper, however, it is remarked that, in consequence of the high organization of these reptiles, and their affinity to those found in Mesozoic strata, and as the stratigraphical relation of these sandstones with the undoubted Old Red Sandstones of Elgin cannot, from overlying soil, be positively determined, there is considerable reason to suppose that they may belong to a more modern epoch; and since that time they have been looked on by most geologists as Triassic. The question of age has again been opened up lately by the discovery of footprints similar to those of Cummingstone in sandstones, believed to be Old Red, in Ross-shire. At present it would be premature to give any opinion as to the true position of these reptiliferous sandstones; but, as this is being very carefully wrought out by well-qualified parties, it is to be hoped that a short time will suffice finally to set at rest this *questio vexata*. JAS. POWRIE, F.G.S.

*Reswallie, February 12, 1863.*

### *Analysis of Red Chalk.*

DEAR SIR,—The article on the above subject, by R. Calvert Clapham, Esq., in the 'Geologist' for January, 1863, p. 29, will no doubt have been read with pleasure by geologists taking interest in such matters, more especially those who study the chemical properties of the two strata mentioned in the article above alluded to. At the same time I beg to refer Mr. Calvert Clapham to a paper on the Red Chalk of England, by the Rev. T. Wiltshire, in the 'Geologist' for 1859, p. 161. In speaking of the analysis of the Red Chalks of Speeton and Hunstanton, Mr. Wiltshire states that "one of the members of the committee of the Geologists' Association, Mr. Rickard, has been good enough to make me an analysis.

"The Speeton is as follows :—

Carbonate of lime, with a little alumina	81·2
Peroxide of iron . . . . .	4·3
Silica . . . . .	14·5
	—
	100

From Hunstanton—

Carbonate of lime . . . . .	82·3
Peroxide of iron . . . . .	6·4
Silica . . . . .	11·3
	—
	100

The above results of Mr. Rickard are nearly the same as those produced by Mr. Calvert Clapham. The latter gentleman seems to have paid more minute attention to the minor contents of the substances analysed.