No. XII.—NOTE ON THE OCCURRENCE OF FOOTPRINTS IN THE CALCIFEROUS SANDSTONE BETWEEN WEST KILBRIDE AND FAIRLIE. With a Drawing to Scale. By JOHN SMITH, Kilwinning.

[Read 14th November, 1889.]

ON 12th June of this year, whilst examining the fine section of red Calciferous sandstone which is exposed in the cutting of the Ardrossan and Largs Railway, situated about two and a quarter miles north of West Kilbride, I was not a little surprised to discover a double row of what appeared to be the fossil footprints of some animal. When the cutting is entered from the south end a white post, with " $\frac{1}{4}$ " painted in black figures on it, will be seen. The footprints are on the east side of the cutting, opposite the 102nd sleeper from the post mentioned. In other parts of the cutting there are also a few prints, but these are the best marked.

The sandstone at this point dips towards the east at the high angle of 80° , and the footprints are seen *in relief* on the under surface of the stratum of rock. The prints are in two rows, the right hand one showing six and the left hand one seven impressions, and they run in a S.W. and N.E. direction. No doubt if the rock was further quarried they would be found to continue for some distance more or less. The prints are all much of a size—about three inches long by two broad and half an inch deep. The spacings, measured from centre to centre of the prints, are, for the right hand row, 8, 8, 8, $7\frac{1}{2}$, and $8\frac{1}{2}$ inches, and for the left hand row, 8, 8, 8, 8, $6\frac{1}{2}$, and 8 inches respectively, and the lateral distances apart are from 6 to $6\frac{1}{2}$ inches from centre to centre. They are, of course, all pretty much abraded, having been exposed to the weather since the cutting was made some years ago, but are still very distinct, though the finer features are gone. They are roughly oval in outline, and some of them show a slight notch on what was probably the fore part of the foot, which in both rows inclines slightly inwards.

Mentioning the matter to Messrs. John Young, James Thomson, and other members of the Society, I found none of them had heard of footprints having been found so far down as the Calciferous sandstone. I also wrote our member, Mr. James Bennie of the Geological Survey, who from his position was likely to know the

"latest" in regard to such matters, and he, in his characteristic style, wrote at once—"In reply about footprints in the Calcareous sandstone, I don't mind of any, and if yours are four-footed you should ring the bells loudly at once, as we want much to get beasts with feet other than scorpions in that part of the formation."

Dr. Buckland, in his "Geology and Mineralogy," plate 26, figures some footprints from the New Red Sandstone of Corncockle Muir, near Dumfries, which he describes as "fossil footprints indicating the tracks of ancient animals, probably tortoises." They agree pretty much with the ones under consideration as regards size and lateral distance apart, but the "pacing" is altogether different.

Hugh Miller, in his "Fossiliferous Deposits of Scotland," printed at the end of his "Old Red Sandstone," page 367, says that the "footprints of a much larger reptile" (than *Parabatrachus colei*, Owen) have been "detected in our Dalkeith coal-field by Mr. Henry Cadell, the experienced and intelligent mineral surveyor to His Grace the Duke of Buccleuch."

At the meeting of the British Association of this year, held at Newcastle, Mr. T. P. Barkas read some "Notes on numerous newly-discovered Fossil Footprints on the Lower Carboniferous Sandstones of Northumberland, near Otterburn."

Much discussion has taken place as to the age of the Elgin sandstone, in which both footprints and remains of reptiles have for a long time been known, but as to whether the "balance of evidence" points to these rocks belonging to "Old Red" or "New Red," or to some other formation, I am not prepared to say.

The section in the railway cutting between West Kilbride and Fairlie, apart from the footprints, is well worthy of a

visit from the members of the Society. Nowhere could I point to a finer display of ripple marks, sun cracks, worm tracks, and rain pittings than are there to be seen. As the sandstone dips at the high angle of 80° , the railway at this part may be said to be bounded by inscribed walls. The sun cracks are magnificent, some I measured being eight inches long by five broad, and one, to one and a quarter inches deep. They were filled with soft red shaly sandstone. The ripple marks are of a great variety of sizes, ranging from three-quarters of an inch to three inches from ridge to ridge, and very distinct and sharp in outline, running in the different beds in almost every direction. Some have their ridges neatly shaved off, as if the beds had been moved in the deposition plane, probably during the time when they were being tilted to the high angle at which they now rest.

NO. XIII.—NOTES ON THE EXCURSION TO THE NEW RESERVOIR
FOR BOWLING WATER SUPPLY ON 23RD MARCH, 1889. With
a Drawing. By W. J. MILLAR, C.E.

[Read 11th April, 1889.]

THE Secretary having asked me to give a short description of the special features noted during the excursion, I may say that little need be said in regard to the Bowling district in general, as the members of this Society, from frequent visits to the well-known quarry, so rich in minerals, near the village, and to the glens in the neighbourhood, are quite conversant with the geological aspects.

The main object of the special excursion was to examine some well-marked glaciated rocks exposed during the excavation of the new reservoir just completed for the Bowling water supply, a few notes in connection with which may be of interest, and may serve to elicit information from members who were present or who may have made this interesting department of geological research their special study.

The site of the reservoir is at an elevation of about 600 feet above sea-level and about three-quarters of a mile to the north of the village of Bowling. A branch of the Auchentorlie Burn running through a hollow constitutes the feeder to the reservoir.

On the south-east side there is a rocky crest of trap very much weathered and broken up.