

sun during the last two or three years. These tended to show that the absorbing atmosphere, termed the chromosphere, which he had proved to exist round the sun's body, had gradually diminished in thickness since the last solar spot minimum in 1867.—Mr. Boyd Dawkins, F.R.S., gave a short account of the examination of Offa's Dyke made in the autumn by Col. Lane Fox and himself. The portion examined extended from Chisbury in the south to the abrupt range of limestone hills to the north of Llanamynlech. At Nantcribba Hall, near Forden, the dyke passes nearly due north between the road to Montgomery and the abrupt boss of volcanic trap which looks at a short distance like a ruined castle, and which has been encircled by a very broad and deep moat. There can be no doubt but that this was a point of observation, and as it is but some twenty yards on the English side of the dyke, it was most probably one of the permanent positions occupied by the English followers of the Mercian King. From this point the dyke gradually swerves to the east from the road between Montgomery and Buttington, and makes directly over the low slopes of the hills, in some places being nearly ploughed down, and in others, and especially in the small valleys, being of considerable height and resembling a railway embankment, until it reaches the higher ground of Fron. Thence it runs through Pentre and gradually approaches the road, and finally dies away in the alluvium of the Severn, nearly a quarter of a mile to the south of Buttington Church. The commanding camp to the south of this portion of the line is Caer Digol, or the Beacon Ring, on the top of the Long Mountain. The morass, which in Offa's time must have extended between the main ditch and the Severn, prevented the necessity of any bank being made between Buttington and the Cefn. Where, however, the open country demands a defence to the north of Cefn, an embankment makes straight for the Greenstone ridge of the Garreg, and is very plainly seen close to the farm-house of that name, near the Trewern Gate. Here we lost our clue, and it is very likely that the steep ridges of Moel y Golfa, and the marvellously strong camps of the Breiddan and Middleton Hills, formed a sufficiently strong barrier without any dyke being raised. We picked it up again, however, on the western or Welsh side of the Severn, from which it runs, as shown in the Ordnance map, due north to the four crosses, where it joins the Oswestry road, and where it is cut across by the new railway. There it makes straight for the fortified hill of Llanamynlech, its line coinciding with the high road. On reaching the summit of Llanamynlech it takes the western or Welsh side of the two large camps, and passes down into the valley to the south of Whitehaven, which was the limit of our expedition. The results of our examination are the direct proof that the dyke was made for military purposes, and that it took the line which was best adapted for repelling the incursions of the Welsh. Throughout the district which was examined the embankment faces Wales, and was therefore made to defend the country within it from the Welsh. Dr. Wright's view, therefore, that it was a mere geographical boundary to prevent the Welsh from stealing the cattle of the Mercians cannot be maintained, although it may perhaps receive some confirmation from the nursery legend of Taffy. The camps in the neighbourhood of the dyke are probably older than Offa's time. The bronze spears found in Llanamynlech imply that the camp is not later than the bronze age, while the Roman coins in that of the Breiddan point to its occupation by the Romans.

November 1.—Rev. William Gaskell, Vice-president, in the chair. Mr. William H. Johnson, Mr. Walter Morris, and Professor Balfour Stewart were elected ordinary members of the Society. Dr. Joule exhibited a series of curves obtained by Dr. Stewart from the self-recording instruments at the Kew Observatory, showing a large amount of disturbance of the magnetic declination and horizontal force during the progress of the aurora of the 25th October. He also showed a curve of the changes which took place in the magnetic dip as observed by himself at Broughton. The most remarkable variation occurred during the interval from 6<sup>h</sup> 15<sup>m</sup> to 6<sup>h</sup> 23<sup>m</sup> G.M.T., when the dip increased from 69° 8' to 70° 30'.—"Notes on Glacier Moraines in Cumberland and Westmoreland," by Mr. Brockbank, F.G.S. The author referred to the proceedings of the Geological Society of London for 1840—1, which contain notices of the evidences of glaciers having existed in Great Britain, by Professor Agassiz, Dr. Buckland, and others, and which point out (1) "Moraine-like Masses of Drift," which occur near the junction of the Eamont and Lowther with the Eden, near Penrith; (2) The "large and lofty insulated piles of gravel in the valley of the Kent near Kendal, and the smaller moraines and their detritus,

which nearly fill the valley from thence to Morecambe Bay;" (3) "Similar mounds near Shap," and (4) the "Gravel mounds near Milnthorpe and thence to Lancaster." Of these the author considered the Kentmere Group, near Kendal, as most nearly fulfilling the conditions required in true glacier moraines, and that in the other cases it admitted of doubt whether they were really due entirely to glacial action. The districts more particularly the subjects of the author's notes are (1) the valleys of Eskdale and the Duddon (which were not visited by Dr. Buckland, but in which he supposed moraines to exist, from the appearances of the valleys as delineated in Fryer's map of Cumberland); (2) the valleys eastwards from Bowfell; and (3) the district of Shap Fells.

## DIARY

## THURSDAY, NOVEMBER 24.

LONDON INSTITUTION, at 7.30.—On the Precious Metals and their Distribution: Prof. Morris  
ROYAL SOCIETY, at 8.30.—Note on the Pendulum Observations in India: Col. J. T. Walker, F.R.S.—The Theory of Resonance: Hon. J. W. Strutt  
SOCIETY OF ANTIQUARIES, at 8.30.—Roman-Celtic Sword exhibited by Lord Wharcliffe: Mr. A. W. Franks.—Wall Decorations of the Roman Period in Sertile Work, especially in Glass: Mr. A. Nesbitt.

## SUNDAY, NOVEMBER 27.

SUNDAY LECTURE SOCIETY, at 3.30.—On the Antiquity of Man: Dr. Cobbold

## MONDAY, NOVEMBER 28.

LONDON INSTITUTION, at 4.—On Chemical Action: Prof. Odling  
INSTITUTE OF ACTUARIES, at 7.—On Legislation in reference to Life Insurance and Life Insurance Companies: Mr. T. B. Sprague, M.A.

## TUESDAY, NOVEMBER 29.

GEOGRAPHICAL SOCIETY, at 8.30.  
MANCHESTER LITERARY AND PHILOSOPHICAL SOCIETY, at 7.

## WEDNESDAY, NOVEMBER 30.

SOCIETY OF ARTS, at 8.—On Peat and its Profitable Utilisation: Robert M. Alloway.

## THURSDAY, DECEMBER 1.

CHEMICAL SOCIETY, at 8.—On some Derivatives of Anthracene: Mr. W. H. Perkin.  
LINNEAN SOCIETY, at 8.  
LONDON INSTITUTION, at 7.30.—On Gems and Precious Stones: Prof. Morris.  
SOCIETY OF ANTIQUARIES, at 8.30.

## TUESDAY, DECEMBER 6.

ANTHROPOLOGICAL SOCIETY, at 8.—On the Races inhabiting the British Isles: Mr. A. L. Lewis.—On Archaic Structures of Cornwall and Devon: Mr. A. L. Lewis.—On Forms of Ancient Interment in Antrim: Dr. Sinclair Holden.

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ERRATA.—Page 28, second column, line 19, for "cumulus" read "nimbus." Page 54, first column, line 25 from bottom, for "Mr. Care" read "Mr. Earle."