

of this mass, which weighed originally from 200 to 300 lbs., are to be met with in most collections; its cosmical origin, however, has been regarded as doubtful, especially since Stromeyer reported that he had discovered the presence of carbon in the metal. It has recently been submitted by Haushofer to a fresh examination with the aid of the more delicate analytical methods of the present day, and he finds that the mass is unquestionably meteoric. When etched it gives very distinct Widmannstätten figures. One part of the metal he found to contain 95·2 per cent. of iron, while the composition of another fragment was:

Iron = 91·1; Nickel = 7·7; Cobalt = 0·2; Phosphorus = 0·3; Carbon, trace.
Total = 99·3.

He states the specific gravity of the iron to be 7·596, a number very slightly in excess of that given by Chladni. Haushofer finds, as Chladni long since remarked, that the malleable character of the metal varies considerably in different parts of the mass.

With this I conclude the Second Part of the task which I have set myself, that of preparing a critical digest of the results, published during the last seven years, which deal with questions relating to our knowledge of meteorites. In Part II. the readers of this *MAGAZINE* have in a manner a supplement to Part I., concluded on page 264, and are placed *en rapport* with all that has appeared during those years on the subject of meteorites which have fallen from the earliest times down to the present moment. The remaining matter now in course of preparation, which treats of questions of great importance, although less directly appealing to the readers of the *GEOLOGICAL MAGAZINE*, will, together with considerable additions to what has already appeared, be incorporated in a little work now passing through the press. I cannot take my leave of the readers of the *GEOLOGICAL MAGAZINE* without begging my friend and colleague, the Editor, to permit me in these columns to express my very hearty thanks for the generous manner in which, throughout the entire year, he has so liberally granted me space for this “Chapter in the History of Meteorites.”

W. F.

NOTICES OF MEMOIRS.

ON A MASS OF TRAVERTINE OR CALCAREOUS TUFF CALLED THE GLEN ROCK, NEAR BALLYCASTLE, CO. MAYO, IRELAND. By WM. A. TRAILL, M.A.I. (Master in Engineering), F.R.G.S.I., H.M. Geological Survey of Ireland.¹

THE author, after briefly describing the district, which consisted of Carboniferous sandstones, shales, and limestones, inclined at low angles E. N. E., referred to the occurrence of stalactitic formations and deposits of carbonate of lime in various places; but especially drew attention to the Glen Rock, distant about two miles from Ballycastle, on the eastern flanks of the valley of the Ballinglen

¹ Read before the British Association, Bristol, 1875, in Section C. Geology.

River, and which forms such a remarkable feature in the district. This rock was a mass of Travertine or Calcareous Tuff, approximately of the following dimensions: in length, N. and S. 310 ft.; E. and W. 285 ft.; and in thickness varying from 6 ft. to about 80 ft., and estimated as containing over 2,100,000 cubic feet.

This tuff varies from a soft, open, porous nature to a hard, ringing travertine. It is in part stalactitic, mammillated, or reniform, and often efflorescent, but mostly an intricate network of the casts or incrustated forms of various vegetations, brambles, grasses, mosses, ferns, ivy, etc., which, on being coated with the deposit of carbonate of lime, and the vegetable matters decomposing, have left their impressions behind. In addition to these are also included the bones of some small animals and birds and the shells of land snails, etc., instances occurring of their being thus entombed while still alive.

The origin or source of this large mass, in the author's opinion, was due solely to a large spring or Holy Well situated a little above, on the slope of the hill, from which there issues a copious and constant supply of water. This probably passing for a considerable distance through the limestone rocks, and becoming thus highly impregnated with lime, and prevented from flowing in a regular channel, overspread the rank vegetation, which engendered a more rapid evaporation and consequent deposition of the carbonate of lime, the marly soil encouraging the more rapid growth of the mosses, ferns, weeds, etc., each in succession falling a prey to the covering of lime as it was deposited upon them, and thus more rapidly building up this isolated mass of calcareous tuff.

At present the action does not seem to be going on as actively as at former times, the stream being more confined to a regular channel, and flowing round the side of the mass; but even still the ivy roots and stems are inclosed in stony cases, the living plant growing out therefrom. Large quantities are annually carried away for spreading over the cultivated lands and for forming ditches.

Although many streams in a limestone country have a tendency to deposit calcareous matter, in few localities in the North of Ireland does there exist such a remarkable and isolated mass of Tuff. The age of this rock must be considered of very late origin geologically, long after the present configuration of the country had been formed, and though probably accumulating somewhat even to the present time, it has not increased in thickness for the last 300 years, as foundations of that age exist on its highest part; it seems rather to be now breaking up under its own superincumbent weight. In the year 1831, a large mass becoming detached fell and completely crushed a cottage which was built adjacent to it, killing four people within it at the time.

In addition to the geological interest, there was an historical and local interest connected with it, and also many legendary tales.

In one portion of the rock, in a cave partly natural, but enlarged to a circular form of about 22 feet in diameter, for upwards of 20 years a school was held, with an attendance of 60 children. This school was supported by the inhabitants of the Glen, but was dis-

continued in the year 1815, when free schools were established in the district. Christopher Purcell was the last teacher. The roof of the cave has since subsided, and thus it is reduced to its present small dimensions. Tradition states that in 1570 a holy friar with a small community established themselves in a building which they erected on the rock, and of which the foundations are still discernible. At this time the holy well was established and dedicated to the superior of the community as patron saint, under the Irish name of Niève Eïâne (as pronounced).

The waters of this well are believed to have healing properties, and for some cases water so highly impregnated with lime would be very beneficial. Over the well was a small structure, inside which over the outlet for the water was a carved head of the patron saint; this, however, has been lost, and a rude stone and timber erection is all that now exists.

R E V I E W S .

I.—RELICS OF THE CAVE-DWELLERS OF AQUITANIA.

(PLATE XV.)

MORE than fifty years have passed away since Dr. Buckland,¹ one of the most able and distinguished of our early geologists, commenced the exploration and record of the organic remains found in and beneath the breccias and stalagmites of ossiferous caverns.

But although the Dean was well aware of the occurrence of stone implements of undoubted human manufacture together with human bones in several of these deposits, he was led to conclude that they were not coëval with the Mammoth and other extinct and foreign animals contained in the same cave-earths.

Yet even at that early period, other able and competent observers were at work in the same field of inquiry, who did not share the conclusions of Buckland.

Earliest of these was Dr. Fleming² (afterwards Professor of Natural Philosophy in New College, Edinburgh); and the Rev. J. McEnery³ (a highly intelligent Roman Catholic priest at Torquay); subsequently Dr. Schmerling⁴ of Liège; and later (in 1841), M. Boucher de Perthes,⁵ of Abbeville, and Dr. Rigolott,⁶ at Amiens, carried on their own separate lines of research, which, however, did not result in attracting public attention until after 1858, when the exploration of the Brixham cave stimulated scientific men to take

¹ "Account of an Assemblage of Animals discovered in a Cave at Kirkdale, Yorkshire," 1821, *Phil. Trans.* vol. cxii. p. 171; and "*Reliquiæ Diluvianæ*," 1826, 4to. Lond.

² *Edinb. Phil. Journ.* vol. xiv. p. 205.

³ McEnery's MS., written in 1824, was not published until 1859, by Mr. Vivian, and more fully by Mr. Pengelly, "*Literature of Kent's Cavern*," Devonshire Association, 1868-9.

⁴ *Recherches sur les Ossements Foss. dans les Cavernes de la Prov. de Liège*, 4to. Atlas and folio, 1833-34.

⁵ "*Antiquités Celtiques*," 1847, vol. i.

⁶ *Comptes Rendus*, 1847, p. 649; 1864, p. 230.