"THE OLD MAN OF HOY."

Sketched from the Sea.

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ORIGINAL ARTICLES.

I.—THE OLD MAN OF HOY.

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(PLATE II.)

THE tidal wave of travellers which, thanks to railroads and steamboats, pours northward over the country every summer, even as far as John o' Groat's, has hardly as yet risen much beyond that utmost shore. The tourist stops short at the Pentland Firth; indeed, when he reaches its bare treeless coast, and finds that there is really no traditional house at John o' Groat's (though a good inn, with careful host and kindly hostess, should tempt him to rest there a while), he is in a hurry to get back by daylight to the busy hum of men in the hyperborean city of Wick or Thurso, and as eager to flit southwards again next morning. He makes a fatal mistake, however; for he misses the very points which it would have been worth his while to make the whole of his long journey to see. Let him, for instance, take up his quarters for a day or two by the side of the Pentland Firth, and sitting or lying on one of its grim cliffs, let him spend his hours watching the race of its tideway. Nowhere else round the British Islands can he look down on such a sea. It seems to rush and roar past him like a vast river, but with a flow some three times swifter than our most rapid rivers. Such a broad breast of rolling eddying foaming water! Even when there is no wind, the tide ebbs and flows in this way, pouring now eastwards now westwards, as the tidal wave rises and falls. But if he should be lucky enough to come in for a gale of wind (and they are not unknown there in summer, as he will probably learn), let him by no means fail to take up his station on Duncansbay Head, or at the Point of Mey. The shelter of a flagstone "dyke" and a water-proof will save him from any ulterior consequences of the exposure, or should he be under some misgivings on this point, when he gets back to the shelter of the inn at John o' Groat's, mine host has sundry specifics of well-tried potency, at the very sight and taste of which rheums, catarrhs and the rest of that tribe of ailments at once decamp. Ensconced in his "neuk," he can quietly try to fix in his mind a picture of what he sees. He will choose if he can a time when the tide is coming up against the wind. The water no longer looks like the eddying current of a mighty river. It rather

DECADE II.—VOL. V.—NO. II.

4

resembles the surging of rocky rapids. Its surface is one vast sheet of foam and green yeasty waves. Every now and then a huge billow rears itself impatiently above the rest, tossing its sheets of spray in the face of the wind, which scatters them back into the boiling flood. Here and there, owing to the configuration of the bottom, this turmoil waxes so furious that a constant dance of towering breakers is kept up. Such are the terrible "Roost of Duncansbay," and the broken water grimly termed the "Merry men of Mey." With a great gale from the north-east or south-east, the shelter even of the stone wall on Duncansbay Head would be of little avail. For solid sheets of water rush up the face of the cliffs for more than 100 feet, and pour over the top in such volume, that it is said they have actually been intercepted on the landward side by a dam across a little valley, and have been used to turn a mill. Should the meditative tourist be overtaken by such a gale, he will find shelter in the quaint cottage of the kind-hearted but hard-headed John Gibson, who, perched like a sea-eagle at the head of a tremendous chasm in the cliffs, can spin many a yarn about the tempests of the north.

No one can see such scenes without realizing, as he probably has never done before, the restless energy of nature. His eyes are opened. He feels how wind and rain, wave and tide, are leagued together, as it were in spite of their apparent antagonism, to batter down the shores. Everywhere he witnesses proofs of their prowess. Tall gaunt stacks rise out of the waves in front of the cliffs of which they once formed a part. Yawning rents run through them from summit to base; their sides are frayed into cusp and pinnacle that seem ready to topple over when the next storm assails them; their surf-beaten basements are pierced with caverns and tunnels into which the surge is for ever booming. On the solid cliffs behind, the same tale of warfare is inscribed. But the traveller who has seen so much will perforce desire to see more. From his perch on the southern side of the foaming Pentland Firth he looks across to the distant hills of Hoy—the only hills indeed which are visible from the monotonous moorlands of northern Caithness, save when from some higher eminence one catches the blue outline of Morven on the southern sky-line. The Orkney Islands are otherwise as tame and as flat as Caithness. But in Hoy they certainly make amends for their general featureless surface. Yet even there it is not the interior, hilly though it be, but the western coast-cliffs which redeem the whole of the far north of Scotland from the charge of failure in picturesque and impressive scenery. One looks across the Pentland Firth and marks how the flat islands of the Orkney group rise from its northern side as a long low line until westwards they mount into the rounded heights of Hoy, and how these again plunge in a range of precipices into the Atlantic. Yellow and red in hue, these marvellous cliffs gleam across the water as if the sunlight always bathed them. They brighten a grey day, and grey days are only too common in the northern summer; on a sunny forenoon, or still better on a clear evening, when the sun is sinking

beneath the western waters, they glow and burn, yet behind such a dreamy sea-born haze, that the onlooker can hardly believe himself to be in the far north, but recalls perhaps memories of Capri and Sorrento, and the blue Mediterranean. Looking at them from the mainland, we are soon struck by one feature at their western end. A strange square tower-like projection rises behind the last and lower spur of cliff which descends into the sea. We may walk mile after mile along the Caithness shore, and still that mysterious mass keeps its place. As we move westwards, however, the higher cliffs behind open out, and we can see on a clear day with the naked eye that the mass is a huge column of rock rising in advance of the cliff. It is the Old Man of Hoy—a notable landmark, well deserving its fame.

Let no tourist who has got up as far as Thurso hesitate to cross the Firth and reach Stromness in Orkney. He will find a steamer ready to carry him thither in a few hours, and in the voyage will pass close under the grandest cliff in the British Islands. Above all he will make the personal acquaintance of the Old Man, or at least will be brought so near as to conceive a very profound respect for him. The accompanying vignette was sketched from the vessel in this passage, and though by no means taken from the most picturesque point of view, may serve to convey some notion of the form and size of this the most remarkable feature in Orkney scenery. The Old Man is a column of yellow and red sandstone more than 600 feet high. It stands well in front of the cliff, with which however it is still connected by a low ridge of ruined blocks. Doubtless one main cause of its impressiveness lies in the fact that its summit is considerably higher than the cliff behind it. Thus it stands out against the sky even when seen from a distance. Its base is washed on three sides by the waves, which rise and fall over a low reef running out from underneath the base of the column. Formerly a huge buttress, like the Giant's Leg of Bressay in Shetland, used to project into the sea. But it has been swept away and for many years the Old Man has had to keep his watch and wage his battle with the elements with the support of but one leg.

Unless the ground-swell be too heavy, the steamboat usually keeps close enough to the base of the great precipices to allow the masonry of this wonderful obelisk to be distinctly seen. Like the cliff behind, it is built up of successive bars of sandstone forming portions of horizontal or very gently inclined strata. Its base, however, rests on a pedestal of different materials, consisting of two well-defined bands, both of which can be traced stretching landwards and passing under the base of the cliff. The lower of these two bands is plainly marked by lines of parallel stratification inclined at a considerably higher angle than the dip of the sandstones, and evidently composed of something quite different from them. Viewed thus from the sea in a brief and passing way, the column can be recognized as composed of at least two very distinct portions. The main pillar rests unconformably upon a platform of older and tilted strata.

It is only when one lands on the island of Hoy, and examines the

cliffs in detail, that the true nature and history of the threefold bars of the Old Man can be made out. The yellow and red sandstones are then found to present the ordinary characters of the Upper Old Red Sandstone, to which they are with probability referred, though as yet they have yielded no fossils. Irregularly alternating in thick and thinner beds, they are rent by innumerable perpendicular joints. By means of these divisional lines, slice after slice falls away from the face of the cliffs, which thus maintain their precipitous front towards the Atlantic. Except in regard to their scenic features, these sandstones, however, are less full of interest than the two bars of the Old Man's pedestal. The upper bar consists of a band of dark amygdaloidal lava with a slaggy surface. The same rock appears elsewhere, rising out from beneath the sandstones of the precipices, particularly at the north-western headland, where it consists of three or more distinct bands with well-stratified volcanic tuffs. To the north-east of that headland, on a tract of lower ground intervening between the base of the hills and the edge of the sea, several well-marked volcanic "necks" or pipes occur, representing some of the vents from which the streams of lava and showers of ash were poured. The complete interstratification of the beds of erupted material with the lower portion of the sandstones proves that the volcanic action showed itself at the beginning of the deposition of the Upper Old Red Sandstone in this region. Another little vent may be observed on the Caithness coast, near John o' Groat's House; perhaps some may still remain to be noticed among the central and northern members of the Orkney Islands. It seems to have been a singular and local outburst of volcanic energy during Upper Old Red Sandstone times—the only one yet discovered to the north of the Highlands. The uppermost bar then of the pedestal on which the Old Man has taken his stand is a massive sheet of lava.

The lower bar belongs to a very different period, and has a totally dissimilar history. On looking more closely into the strata which, even seen from the sea, plainly lie unconformably below the lava and its overlying sandstones, we find that they consist of dark thin-bedded sandstones, shales and impure limestones. In short, they are a portion of the great series of deposits known as the Caithness flagstones. On many of their exposed surfaces shining jet-black scales, bones and teeth of the characteristic fishes of these flagstones may be noticed. What a suggestive picture of the imperfection of the geological record is presented to us by some of these weather-beaten or surf-worn sheets of rock! We pick up from their crannies the broken whelks, nullipores, and corallines, tossed up by the last storm from the zones of life now tenanted the sea below us. The limpet and sea-anemone, the whelk and barnacle, are clinging to the hardened sand over which the *Osteolepis* and *Coccosteus* and their bone-cased brethren disported in the ancient northern lake of Lower Old Red Sandstone times. Nay, we may now and then watch a living mollusc creeping over the cuirass of a palæozoic fish. Yet who can realize the lapse of time which here separates the living from the dead?

Below and beyond the horizon of the flagstones no evidence among the Hoy Cliffs remains to lead us. But in the neighbouring isles of Pomona and Gremsa, bosses of crystalline rocks—granite, gneiss and schists—project from under the flagstones. They are wrapped round with conglomerates, doubtless representing the shore-gravel heaped up around them when they rose as islets out of the Old Red Sandstone lake.

So much for the materials out of which the Old Man has been carved. And now a few words as to the process of carving. If the traveller who has reached Stromness finds himself with even one spare day at his disposal, he cannot employ it to more conspicuous advantage than by taking a boat with a couple of stalwart Norse-like Orcadian boatmen, crossing the strait to Hoy, and ascending that island by the Cam and the north-western headland, until he finds himself at the summit of the great western precipice with the surface of the surging Atlantic some 1300 feet below him. The scene tells its own tale of ceaseless waste, and needs no lecture or text-book for its comprehension. Pinnacles and turrets of the richly-tinted sandstone roughen the upper edge of the cliff, often fretted into the strangest shapes, and worn into such perilous narrowness of base that they seem doomed to go headlong down into the gulf below when the next tempest sweeps across from the west. Buttresses, sorely rifted and honey-combed, lean against the main cliff as if to prop it up; but separated from it by the yawning fissures which will surely widen until they wedge off the projecting masses, and strip huge slices from the face of the cliff. One sees as it were every step in the progress of degradation. It is by this prolonged splitting and slicing and fretting that the precipice has been made to recede, and has acquired its shattered but picturesque contours. The Old Man is thus a monument of the retreat and destruction of the cliffs of which it once formed a part. To what accidental circumstance it may have owed its isolation, we may not be able to say with certainty. But it is suffering in the prevalent decay. Every year must insensibly tell upon its features.

On the calmest day some motion of air always keeps playing about the giddy crest of these precipices, and a surge with creaming lines of white foam meets at their base. But when a westerly gale sets in, the scene is said to be wholly indescribable. The cliffs are then enveloped in driving spray torn from the solid sheets of water which rush up the walls of rock for a hundred feet or more, and roll back in thousands of tumultuous waterfalls. The force of the wind is such as actually to loosen the weathered parts of the rock and dislodge them. Thus along the mossy surface of the slope which ascends inland from the edge of the cliff, large flat pieces of naked stone may be picked up by scores lying on the heather and coarse grass, whither they have been whirled up from the shattered crags by successive gusts of the storms.

The destruction of this coast-line has not yet, however, wholly effaced traces of other powers of waste which have long since passed away. On the very edge of the cliff, to the south-east of the Old.

Man, some well-preserved striations on the sandstone point to the movement of the ice-sheet of the glacial period across even the hilly island of Hoy in a N.W. and S.E. direction. Again in the green corry at the Cam of Hoy, some beautifully perfect little moraines remain to show that after the great land-ice had subsided, the snow-fall in these northern regions continued heavy enough to nourish in so small an island as Hoy groups of valley glaciers. Though the general form of the hills and valleys remains now much as it was when the last lingering glacier melted away, there have been stupendous changes since then in the shaping of the precipices. At that time the Old Man still formed a portion of the solid cliff. It is in the ensuing interval that this impressive landmark has been left during the destruction of the surrounding masses. Long may he be able to stand his ground! When his last hour comes, as come it must, may some reverential geologist, duly impressed with a sense of the potency of denudation in the relief of the land, be there to pay the last honours to his dust!

II.—GEOLOGICAL SKETCH OF A VISIT TO IRELAND IN AUGUST, 1876.¹

By DR. FERDINAND ROEMER,

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I HAVE been this autumn in the Land of the Giant's Causeway and of the Giant Stag. For a long time it had been my earnest desire to become acquainted with "The Green Isle." In my colleague, Professor von Lasaulx, I found a wished-for companion on my journey. It is easy to get to Ireland. In a single night's journey one is whirled from London to Dublin *viâ* Holyhead. In Dublin the best directions for a geologist are to be had at the Geological Survey Office for Ireland, which forms a department of the Government Geological Survey of Great Britain. Prof. Hull, the Director of the establishment, and Mr. Helliier Bailly, the Palæontologist attached to it, afforded me, with the greatest kindness, every necessary assistance. Besides these two gentlemen, who reside in Dublin, the Geological Survey includes a number of other geologists scattered through the country, who carry out its purposes. A large portion of Ireland is already surveyed, and the maps containing the results for the most part published. Explanations of these maps appear under the title of "Memoirs of the Geological Survey." The last part that was published this year bears the title: "Explanatory Memoir to accompany Sheets 21, 28, and 29 of the Maps of the Geological Survey of Ireland, including the Country around Antrim, Larne, and Carrickfergus, by Edward Hull, Director, with Palæontological Notes by W. H. Bailly, Dublin, 1876." This part treats of one of the most remarkable districts of the North of Ireland. Several years ago a good general geological map of Ireland was published by the late Professor Jukes, then the distinguished Director of the Survey, the title being: "Geological Map of Ireland, by Joseph Beete Jukes (E. Stanford, London), 1864."

¹ From the Neues Jahrbuch für Mineralogie, Geologie und Paläontologie, Jahrgang 1877. Translated from the German by Richard J. O. Mulrenin.