

## Landscape & The Imagination [1]

### *Landscape in history and other essays*

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THE more marked features on the surface of the land have from early times awakened the curiosity and stimulated the imagination of men. Mountainous regions with their peaks and crests, where cloud and tempest find a home, their rugged scarps of cliff and crag, whence landslips sweep down into the valleys, their snows and frosts, their floods and avalanches, their oft-repeated and too frequently disastrous shocks of earthquake, supply the most striking illustrations of this relation of the external world. Yet while it is from these elevated parts of the earth's surface, where the activities of nature seem to beat with a more rapid pulse, that the human imagination has been more especially stimulated, even among the comparatively featureless lowlands the influence of outer things, though less potent, may be distinctly traced. Wherever, for instance, the monotony of a lowland landscape is broken by an occasional oddly-shaped hill, by a conspicuous grassy mound, by a group of prominent boulders, by a cauldron-shaped hollow, or by a river chasm, we may expect to find that these diversities of scenery have from time immemorial arrested attention.

Whatever departs from ordinary usage and experience prompts, even among the rudest people, a desire for explanation. The more striking elements of topography accordingly aroused the curiosity of the earliest races who came to dwell among them, and to whom, in the infancy of the world, the forces of nature were more or less mysterious. These forces were then looked upon as visible manifestations of the agency of superior beings, whose conflicts or co-operation were held to account for the changes of external nature. Thus, by a system of personification that varied from clime to clime, primeval mankind surrounded itself with invisible deities, to each of whom some special function in the general government and progress of the world was assigned.

Hence the problems presented by the more impressive details of the scenery of the earth's surface were in truth among the earliest with which the human race began to deal. If we try to discover how they were first approached, and how their treatment varied, not only with peculiarities of race and national temperament, but with conditions of climate and variations of topography, we are led backward into the study of some of the most venerable efforts of the human imagination, which, though now in large measure faded or vanished, may yet be in some slight degree recovered from the oldest mythologies and superstitions. In many of the earlier myths we may recognise primitive attempts to account for some of the more prominent features of landscape or of climate. And as we trace the variations of these legends from country to country, we learn how much their changes of dress have arisen from local peculiarities of environment.

Of the earlier interpretations of nature, some may be partially restored from a comparison of ancient myth and superstition with the physical characters of the regions wherein these legends took their rise, or where, at least, they assumed the forms in which they have been transmitted to later ages. Others have survived in place-names which, still in common use, connect our own generation with the days of our ancestors.

In pursuing the investigation of this subject we soon perceive that the supernatural interpretations, and the tendency to personification which led to them, began eventually to be supplanted by natural explanations founded on actual observation of the outer world, and that

this change of view, commencing first with the few observant men or philosophers, made considerable way among even the ordinary populace, long before the decay of the mythological systems or superstitions of which these primeval supernatural interpretations formed a characteristic part. The growth of the naturalistic spirit was exceedingly slow, and for many centuries was coeval with the continued vigorous life of religious beliefs which accounted for many natural events as evidence of the operations of supernatural beings.

Those features of the outer world which most attract attention were the first that appealed to the observing faculty of mankind. Among them the elements of topography obviously hold a foremost place, including, as they do, the most frequent and impressive manifestations of those natural agencies whereby the surface of the land is constantly modified. It was impossible that after men had begun to observe, and to connect effects with causes, they should refrain from referring the resultant changes of landscape to the working of the natural processes that were seen or inferred to produce them. They were led to trace this connection even while their religious belief or superstition remained hardly impaired. The conclusions thus popularly reached were sometimes far from correct, but inasmuch as they substituted natural for supernatural causes, they undoubtedly marked a distinct forward step in the intellectual development of man.

From that time onward the influence of scenery on the human imagination took a different course. The gods were dethroned, and the invisible spirits of nature no longer found worshippers ; but it was impossible that the natural features which had prompted the primeval beliefs should cease to exercise a potent influence on the minds of men. This influence has varied in degree and in character from generation to generation, as we may see by comparing its place in the literature of successive periods. Probably at no time has it been more potent than it is at the present day.

To discuss fully this wide subject would demand far more space than can be given to it here. I propose, therefore, to select two portions of it only ; one from the beginning and the other from the end of its historical development. I shall try to show first, by reference to primitive myth and legend what were the earliest and most obvious effects of prominent elements of topography on the imagination, and secondly, what these effects are or should be now in the midst of modern science and universal education. The mythology of Ancient Greece supplies many illustrations of the way in which the physical aspects of the land have impressed their character on the religious beliefs and superstitions of a people. The surface of that country is almost everywhere rugged, rising into groups of bare, rocky hills and into chains of lofty mountains which separate and enclose isolated plains and valleys. The climate embraces all the softness of the Mediterranean shores, together with the year-long snows and frosts of Olympus on the one hand, and the almost sub-tropical heat of the lowlands of Attica on the other. The clouds and rains of the mountains have draped the slopes with umbrageous forests, and have spread over the plains a fertile soil which has been cultivated since before the dawn of history. Thus, while a luxuriant vegetation clothes the lower grounds with beauty, bare crags and crests are never far away. The soft and the harsh of nature, the soothing and the repulsive, are placed side by side. The indolence begotten of a teeming soil and sunny clime is quickened by proximity to the stern mountain-world—the home of thunder-clouds, tempests, and earthquakes. In the childhood of mankind, the physical features of such a country could not fail to react powerfully upon the imagination of those who dwelt among them, calling forth visions of grace and beauty, and at the same time imparting to these visions a variety and vigour which would hardly have been developed among the dwellers on monotonous plains. The natural influence of scenery and climate like those of Greece upon the imagination of a race endowed with a large share of the poetic faculty has never been more forcibly or gracefully expressed than by our own Wordsworth, in a well-known passage in the fourth book of his *Excursion*.

With the source of the early Hellenic myths we are not so much concerned in the present inquiry as with the form in which they have reached us. Whether they arose in Greece, or, having been brought from some other home, received their final shape there, is of less moment than the actual guise in which we find them in the earliest Greek literature. There cannot, I think, be any doubt that to the striking topography of Thessaly they are largely indebted for the dress in which they appear in the poems of Homer and Hesiod. We may recognise among them some of the earliest recorded efforts of the human imagination to interpret the aspects of nature, and these aspects were unmistakably such as presented themselves in that particular portion of the ancient world.

The wide Thessalian plain, the largest area of lowland in Greece, lies upon Cretaceous and Tertiary rocks, which, in the lower parts of the region, are overlain with a level tract of alluvial soil. Round this plain stretches a girdle of lofty and imposing mountains, composed chiefly of hard crystalline schists and limestones. On the north the crags and snowy crests of Olympus rise high and bare above the dense forests that clothe their slopes. To the eastward, above the narrow chasm of Tempe, through which the drainage of the great inland basin escapes to the sea, the grey peak of Ossa forms the northern end of a long chain of heights which, farther south, mount into the ridge of Pelion. Along the southern edge of the plain another vast mountain barrier sweeps eastward from Mount Pindus through the lofty chain of Othrys to the sea.

No other part of Greece presents such diversities of topography and of climate as are to be found within the region thus encircled with mountains. The peaceful beauty and spontaneous fertility of the plain offer an impressive contrast to the barren ruggedness of the surrounding heights. High above the gardens, meadows, and corn-fields, sharply-cut walls and pinnacles of white limestone mount out of the thick woodland into the clear upper air. Nor is evidence wanting of those catastrophes which from time to time convulse a mountain region. At the base of the bare cliffs and down the rocky declivities lie huge blocks of stone that have been detached by the weather from the precipices above. And, doubtless, from time immemorial the dwellers on these slopes have been familiar with the crash and tumult of the landslide, and with the havoc wrought by it on forest and field. Along the mountain-ridges, too, clouds are ever gathering, and thunderstorms are of continual recurrence. The lightnings of Olympus are visible from Othrys, and to the inhabitants of the intervening plain the incessant peals and reverberations from the northern and southern ranges might well sound like shouts of mutual defiance from the two lines of lofty rampart, as where, in a more northern clime

“ Jura answers from her misty shroud  
Back to the joyous Alps that call to her aloud.”

If to these daily or frequently returning meteorological phenomena we add the terrors of occasional earthquakes, such as affect most mountainous countries and are known to have convulsed different parts of Greece within historic times, we perceive how favourable the conditions of environment must have been for exciting the imagination of an impressionable people. Whether, therefore, the early Hellenic myths arose in Hellas, or came from elsewhere, they could hardly fail in the end to betray the influence of the surroundings amid which they were handed down from generation to generation. The snowy summits of Olympus, rising serenely above the shifting clouds into the calm, clear, blue heaven, naturally came to be regarded as the fit abode of the gods who ruled the world. The association of that mountain-top with the dwelling-place of the immortals, first suggested to the imagination of the early settlers in Thessaly, passed outwards to the utmost bounds of the Hellenic world. Everywhere the word Olympus came to be synonymous with heaven itself.

In the myth of the Gods and the Titans, as handed down in early Greek poetry, the influence of Thessalian topography is abundantly conspicuous. The two opposite mountain

ranges of Olympus and Othrys became the respective strongholds of the opposing hosts. The convulsions of that ten years' struggle, whether suggested or not by the broken features of the ground and the conflicts of the elements, assuredly took their poetic colouring from them. The riven crags piled in confusion one above another, the rock-strewn slopes, the trees uprooted by landslips, the thunder-peals that resound from the misty mountain-chains, seem still to tell of that primeval belief, wherein the Titans were pictured as striving with frantic efforts to scale the heights of Olympus by piling Ossa on Pelion, hurling huge rocks and trees through the darkened air, and answering the thunderbolts of Zeus with fierce peals from the clouds of their lofty citadel. In the magnificent description of Hesiod, beneath all the supernatural turmoil we catch, as it were, the tumult of a wild storm among the Thessalian hills, with such added horrors as might be suggested to the imagination of the poet from the recollection or tradition of former earthquake or volcanic eruption.

Long after the time of the primitive mythology, the more striking features of the land continued to appeal to the Hellenic imagination and to perpetuate the prowess of gods and heroes, even down to generations of men among whom belief in these legends was already beginning to grow dim. The narrow gorge of Tempe may be cited in illustration of this influence. Cleft between the precipices of Olympus and Ossa, and serving as the only outlet for the drainage of the wide Thessalian plain, this chasm must have arrested the attention of the earliest settlers, and certainly continued for many centuries to be one of the most noted valleys of the Old World. The contrast between the vast level plain through which the River Peneius and its tributaries wander, and the narrow gorge through which the accumulated waters issue; the apparently insurmountable barrier interposed across the course of the stream ; the singular and unexpected ravine by which the drainage is allowed to escape to the sea ; the naked, fissured walls of white limestone on either side of the narrow pass, even now powerfully impress the observant traveller of to-day.

These striking features could not fail to appeal to the imagination of the old Greek. From early times it was recognised that the plain of Thessaly had once been covered with a sheet of water, of which the remaining portions formed two considerable lakes. Had no passage been opened for the outflow of the drainage across the barrier of mountains the plain would have remained submerged. The cleaving of a chasm whereby the pent-up waters were allowed to flow down to the sea, and thus to lay bare so wide an area of rich land for human occupation, was looked on as the work of some benevolent power, and naturally came to be associated with the name of Poseidon, the God of the Sea. [2] In later times, when the deeds of gods and heroes began to be confounded with each other, the supernatural character of the Vale of Tempe was still acknowledged ; but the opening of the cleft was in course of time transferred to Hercules, who, by cutting a hollow across the ridge, allowed the stagnant waters of the interior to flow off into the sea. [3]

Prominent hills and crags in other parts of Greece gave rise to legends, or became the localised scenes of myths which had floated down from an older time, and sometimes perhaps from another birthplace. Thus the hill Lycabettus, that stands so picturesquely on the north-east of Athens, suggested to the lively fancy of the early Athenians a record of the prowess of their patron-goddess. When Athene, so the legend ran, was founding their state and wished to strengthen the city, she went out to Pallene, a demos lying to the north-eastward, and procured there a great hill which she meant to place as a bulwark in front of the Acropolis, but on her way back, hearing from a crow of the birth of Erichthonius, she dropped the hill, which has remained on the same spot ever since. Legends of this kind, but varying in dress with local topography and national temperament, may be found all over the world.

To the early Greeks the West was a region of marvels. It lay on the outermost bounds of the known world, where the sun descended beneath the earth and where Atlas supported the

vault of Heaven. By degrees as the spirit of colonisation drew men in that direction, the occidental marvels of the first voyagers faded away before a more accurate knowledge of the Mediterranean shores. But the legends to which they had given rise remained in the popular mythology, and served as subjects for chroniclers and poets.

Thus the two singular masses of rock in which, at Gibraltar and Ceuta, the European and African continents respectively terminate, and which form, on each side of an intervening strait, only some seventeen miles wide, a kind of gateway for the vast Mediterranean basin, naturally fixed the attention of the early navigators on those distant waters, and filled a prominent place among the travellers' tales from the remote West. They took their part in the myths, becoming the 'pillars of Hercules,' that were erected by this legendary explorer and knight-errant as an eternal record of his labours and of the ultimate limit of his wanderings. The details of the story vary. By some narrators the hero was represented as having narrowed and shallowed the strait, and built his pillars on the two sides to keep the huge monsters of the outer ocean from entering the Mediterranean sea. By others he was believed to have actually excavated the strait itself, and by thus separating Europe and Africa, previously joined together, to have allowed the waters of the ocean and those of the inner sea to mingle. [4]

In a mountainous country, where the streams, swollen by sudden or heavy rains, sweep down much detritus into the valleys and plains, the great changes of topography thereby produced impress the imagination and dwell in the memory of the inhabitants. In Greece, the myths that gathered round the Achelous—the largest and most famous river in the country—probably arose, as Strabo showed, from the varying operations of the stream itself. The stories of the river-god assuming the form of a bull and of a serpent, his contests with Hercules, and the loss of his horn, are obviously only personifications of a rapid stream, rushing impetuously from its mountainous birthplace and winding in twisted curves across the plain ; now strewing the meadows with gravel, now curbed by the laborious construction of embankments, and now bursting forth again to resume its old wayward course. [5] The river still retains the character which prompted its ancient legends. It is now called the Aspropotamo or white river, from the abundance of white silt suspended in its water and lying on its bed. While in winter, fed by the rains and melting snows of distant Pindus, it often fills its channel from bank to bank, it shrinks in summer into a number of lesser streams, which wind about in a broad gravelly channel.

In the myths that grew round other rivers of ancient Greece, we may recognise similar early attempts to account for striking features of local topography. When, for instance, Hercules is fabled to have barred back the river Cephissus and to have submerged and destroyed the country about Orchomenos in Bœotia, [6] we may doubtless recognise the traditional record of some prehistoric inundation, perhaps an abnormal rise of the singularly variable Lake Copais, whereby a large tract of land was flooded ; possibly even an attempt to account for the lake itself.

But there was one physical feature which, more than any other, must have impressed the imagination of the dwellers by the Mediterranean shores ; and that was furnished by the volcanic phenomena so characteristic of the great depression between Europe and Africa. Among the islands of the Ægean sea, some were continually smoking ; others retained, in their cindery cones and ashy slopes, the memorials of subterranean fires not long extinguished. From time to time actual eruptions broke forth, with their accompaniments of convulsion and terror. We know from geological evidence that one of the most violent volcanic explosions which have affected the Mediterranean basin took place where now is the island of Santorin, after the original site was inhabited by a civilised people. [7] A conical volcanic mountain—an eastern Vesuvius or Etna—stood on that site, but in some prehistoric age it was blown into the air, as happened at Krakatoa in August, 1883, only portions of the

base of the cone being left to form the present semi-circular ring of islands. Whether this stupendous catastrophe occurred after the Hellenic race appeared in the Ægean area has not been determined. But the tradition of it may have lingered in the district, down to the time when, about two hundred years B.C., a new volcano rose from the sea in the centre of this group of islands. Another marked eruption occurred in the year 46 B.C. Even in our own day, this ancient vent has shown renewed activity, fresh eruptions have taken place from the middle of the engulfed crater, and another central volcanic cone is gradually rising there.

The Greeks, thus accustomed to volcanic phenomena among their own islands, were prepared to accept the stories, brought to them from the remote West, of far more colossal volcanoes, and more gigantic and continuous eruptions. Like the accounts of other physical phenomena imported from that distant and half mythical region, the tales of the volcanoes were no doubt at first more or less exaggerated. The adventurous voyagers who, sailing as far as Sicily and the Æolian Islands, saw the noble snow-capped cone of Etna, loftier than the mountains of Hellas, yet emitting smoke by day and a glare of fire by night ; who watched Stromboli continually in eruption ; who perchance beheld the land convulsed with earthquakes, the air darkened with volcanic dust, the sea covered with floating cinders, and who only with much effort were able to steer their vessels into opener water, would bear eastward with them such tales of horror as would not fail to confirm and increase the popular belief in the national mythology, and might even suggest new myths or new versions of those already current. The greater size and vigour of the volcanoes would tend to create the impression that other characteristics of the region were on a similarly exaggerated scale. Sicily was accordingly believed in Homeric times to be the home of a gigantic race of shepherds—the Cyclops.

It is obvious how the legend arose of the hundred-armed giant Typhœus or Enceladus, who was fabled to lie buried beneath the region between Etna and the Phlegræan Fields. The belching of the volcano suggested to the popular imagination, which so loved to personify the powers of nature, the gasping of an imprisoned monster. The tremors so constantly affecting the islands were his quiverings as he lay on his uneasy, burning bed, and the earthquakes that from time to time shook the region marked how he tried now and again to shift his position there.

As intercourse with the West made the volcanic phenomena of that region more familiar, the mythological interpretation underwent gradual modification. On the one hand, it was observed that eruptions from Etna, sometimes disastrous enough when they occurred, took place at irregular and often widely separated intervals. On the other hand, it was noticed that among the Æolian Islands, which lay to the north, within sight of the Sicilian volcano, subterranean rumblings and explosions were of daily occurrence. The Cyclops of older time, being no longer extant above ground, came to be transferred in popular fancy to the underground regions as associates of Hephaistos or Vulcan. The incessant commotion below the surface suggested the idea of a subterranean workshop, where these beings were employed in forging the thunderbolts of Jove and in making arms and implements for other gods and heroes. Accordingly the belief gradually spread over the ancient world that the god of fire had his abode under Sicily and the neighbouring islands.

Further, the abundant discharges of steam and vapours, both in the quiescent and the active phases of volcanic eruptivity, suggested that somehow they were due to wind imprisoned within the earth, and led to the myth which represented the god of the winds as having his home in the same subterranean caverns.

It has often occurred to me that one phenomenon, connecting the meteorological conditions of the atmosphere with the volcanic activity of the Æolian Islands, which must have early attracted attention, would not improbably react on mythological beliefs in that part of

the Mediterranean basin. Though continually in a state of eruption, Stromboli is said to be more especially active when atmospheric pressure is low. Its clouds of steam and discharges of stones are most marked before or during stormy weather, and are consequently more conspicuous in winter and spring than in summer and autumn. Since the days of Polybius and Strabo, the fishermen of the region have regarded the cloud-cap of that volcanic cone as a trustworthy indication of the kind of weather to be expected.

In Roman times, this increase of subterranean excitement in the early part of the year appears to have received a supernatural interpretation. It was looked on as evidence that at that season Vulcan and his Cyclops were specially busy over their furnaces, forging the thunderbolts that the Father of Gods and men was to use during the ensuing summer. Thus Horace, when joyously enumerating to his friend L. Sextius the signs that winter is giving way to spring the disappearance of ice and hoar-frost, the coming of the balmy west wind, the release of the cattle from their stalls and of the farmer from his fireside, the advent of the goddess of love, and the dances of the nymphs and graces under the bright moon adds that now is the time

‘ When fiery Vulcan lights anew  
The Cyclops' glowing forge.’ [8]

Long before these fables had ceased to be tacitly accepted by the people, they had begun to be rejected by the more thoughtful men in the community. There slowly grew up a belief in the settled and continuous sequence of nature. [9] In the midst of the schemes that were devised for explaining the old myths or making them fit into the widening experience of later ages, we may detect the dawn of the scientific spirit. Observant men were now able to recognise that what had been regarded by their grandfathers as evidence of supernatural agency, might well have been produced by natural and familiar processes of change. The early geographers afford us some interesting illustrations of the growth of this naturalism. Thus, Herodotus, in his excellent description of the physical geography of Thessaly, takes occasion, as a man of his reverent spirit naturally would, to mention the popular belief that the striking gorge of Tempe had been rent open by a blow from the trident of Poseidon. He admits the likelihood of the explanation, but immediately proceeds to state his opinion that the formation of this defile was not an abnormal manifestation of divine power, but was to be regarded as an example of the ordinary system of the world. ‘ Whoever believes,’ he says, ‘ that Poseidon causes earthquakes and rents in the earth will recognise his handiwork in the vale of Tempe. It certainly appeared to me to be quite evident that the mountains had been there torn asunder by an earthquake.’ [10]

Coming down some four centuries later we find that in Strabo, while all allusion to the supernatural has disappeared, the formation of the topography by natural causes is described with as much confidence as if the events were vouched for by documentary evidence. ‘ When the present chasm of Tempe,’ he remarks, ‘ was opened by the shocks of an earthquake, and Ossa was torn away from Olympus, the Peneius flowed out through this passage to the sea, and thereby drained the interior of the country.’ [11] He speaks also of the two lakes Nessonis and Bœbeis as remnants of the large sheet of water which had originally covered the lowlands of Thessaly.

The myths and legends of the Teutonic races supply many illustrations of primitive attempts to account for some of the more striking external phenomena of nature. In comparing these interpretations with those of the Greeks, we cannot fail to perceive the influence of the different scenery and climate amid which they took their birth. The dwellers in the west of Scandinavia spent their lives under the shadow of lofty, rugged fjelds, surmounted by vast plains of snow. They were familiar with the gleam of glaciers, the crash of ice-falls, the tumult of avalanches. Cloud and mist enshrouded them for weeks together. Heavy rains from

the broad Atlantic swelled their torrents and waterfalls. Out of the dark forests, the naked rock rose in endless fantastic and suggestive shapes. The valleys were strewn with blocks of every size detached from the cliffs above. Mounds of earth and stones, like huge graves, mottled the lower grounds over which they had been dropped by old glaciers and ice-sheets. It was a region difficult of access and hard to traverse, stern and forbidding in aspect, abounding in gigantic, fantastic, and uncouth features, while the harshness of its topography was but little tempered by that atmospheric softness which sometimes veils the rocky nakedness of sunnier climes.

Away from the great mountain-tracts of Norway, though the topography was on a diminished scale, there were many features similar in kind, and fitted to awaken like fancies in the minds of those who dwelt among them. The hill groups that rise out of the great Germanic plain, such as the Hartz and the detached heights of central Scotland, though far less imposing than the Scandinavian fjelds abound nevertheless in picturesque details. Along the sides of their cliffs, especially in the narrow valleys by which they are traversed, crags and pinnacles of odd and often imitative shapes rise one above another. Solitary boulders, unlike any of the rocks around, are strewn over the hills and scattered far across the plains. Green, grassy mounds, like gigantic earthworks, or groups of sepulchral tumuli, stand conspicuously on the bare heathy moors. And when to these singular natural features there is added the strangely impressive influence of the clouds, mists, and other meteorological conditions that mark the changeful climate of western Europe, we are presented with such a combination of effective causes as might well stimulate the fancy of an imaginative people, and might, among the members of the great Teutonic family, evoke feelings and superstitions not less characteristic than those of ancient Greece.

The grandeur and ruggedness of the scenery of these western and northern European countries, and the frequent sombreness of the climate are faithfully reflected in the prevalent Teutonic myths and superstitions. Thor and his mallet found a congenial home among the Scandinavian mountains and fjords. There, too, was the appropriate haunt of the Frost-giants. The race of giants, with their fondness for stones and rocks, to whom so much influence in altering the external aspects of nature was ascribed by the Teutonic races, might have had their ancestral abode among the crags and defiles of the north-west, but they readily naturalised themselves among the less rugged tracts of northern Germany and of Britain. The dwarfs, trolls, fairies, and hill-folk who, whether or not they are to be regarded as representatives of a diminutive human population that originally inhabited those regions, were believed to dwell under the earth and in caves, and who were regarded as having played a distinct though subordinate part in changing the surface of the land, would find appropriate haunts wherever the Teutons established themselves. The personification of natural forces and the effects produced by the supernatural beings so pictured to the imagination, certainly bear a marked family likeness all over the west and north-west of Europe.

There is, moreover, one feature that distinguishes the myths and legends of those northern lands—the grim humour which so often lights them up. The grotesque contours of many craggy slopes where, in the upstanding pinnacles of naked rock, an active imagination sees forms of men and of animals in endless whimsical repetitions, may sometimes have suggested the particular form of the ludicrous which appears in the popular legend. But the natural instinct of humour which saw physical features in a comical light, and threw a playful human interest over the whole face of nature, was a distinctively Teutonic characteristic.

A few examples from the abundant collection that might be gathered must here suffice. Some of the most singular features of the landscapes of the north-west of Europe arise from the operations of the ice-sheets, glaciers, and icebergs of that comparatively late geological period to which the name of the Ice Age is given. The perched boulders which stand poised near the verge of cliffs or scattered over the sides and summits of hills, everywhere suggested



the working of supernatural agency. In some districts they were looked upon as missiles hurled by giants who fought against each other. In others, they were regarded as the work of giantesses, or 'auld wives' as they were called in Scotland, who to exhibit their prowess would transport masses of rock as large as hills from one part of the country to another.

This capacity in such supernatural beings to carry huge burdens of stone or earth has furnished an explanation of many islands and mounds along the maritime parts of Britain and the countries bordering the Baltic Sea. Ailsa Craig, that stands so picturesquely in the middle of the Firth of Clyde, was the handiwork of a carline, who, for some object which is not very clear, undertook to carry a huge hill from Scotland to Ireland. Before she had got half-way over, her apron-strings broke and the rock fell into the sea, whence it has projected ever since as the well-known island. In proof of the legend a hollow among the Carrick hills is pointed out as the place from which the mass of rock was removed.

Along the Baltic coasts many similar tales are told. Thus the island of Hven was dropped where it stands by the giantess Hvenild, who wished to carry some pieces of Zealand over to the south of Sweden. Sex seems to have counted for little in the nature or amount of work accomplished, for witches and warlocks, giants and giantesses, were equally popular and equally powerful. A mighty giant in the Isle of Rugen, vexed that, as his home stood on an island, he had always to wade from it when he wished to cross over to Pomerania, resolved to make a causeway for his greater convenience. So, filling his apron with earth, he proceeded to carry out his purpose, but soon the weight of his burden broke an opening in the apron, and such a quantity of stuff fell out as to form the nine hills of Ramin. Stopping the hole, however, he went on until another bigger rent was torn open, from which earth enough tumbled to the ground to make thirteen of the other little hills that now appear in that district. But he succeeded at last in reaching the sea with just enough of earth left in the apron to enable him to make the promontory of Prosnitz Hook and the peninsula of Drigge. There still remained, however, a narrow passage between Pomerania and Rugen which he had no material left to bridge over, and so in a fit of rage and vexation he fell dead, and his undertaking still remains incomplete. [12] The geologist who has studied the singular forms and distribution of the 'glacial drift' can best appreciate this and similar attempts to account for the shapes and grouping of these still enigmatical mounds and ridges.

The progress of Christianity extirpated the pagan gods and giants, but failed to destroy the instinctive craving after a supernatural origin for striking physical features. This surviving popular demand consequently led to gradual modification, of the older legends. In Catholic countries the deeds of prowess were not infrequently transferred to the hands of the Virgin or of saints. Thus at Saintfort, in the Charente region, a huge stone that lies by the river Ney is said to mark where the Virgin dropped from her apron one of four pillars which she was carrying across. In Britain, and especially in Scotland, the devil of the Christian faith appears to have in large measure supplanted the warlocks and carlines of the earlier beliefs, or at least to have worked in league with them as their chief. All over the country 'devil's punchbowls,' 'devil's cauldrons,' 'devil's bridges' and other names mark how his prowess has been invoked to account for natural features which in those days were deemed to require some more than ordinary agency for their production.

These popular efforts to explain physical phenomena which, from the earliest days of human experience, have appealed most forcibly to the imagination, have survived longest in the more rugged and remote regions, partly, no doubt, because these regions have lain furthest away from the main onward stream of human progress, but partly also because it is there that the most impressive topographical features exist. The natural influence of mountain-scenery upon the mind is probably of an awe-inspiring, depressing kind. We all remember the eloquent language in which Mr. Ruskin depicts what he calls the 'mountain gloom.' Man feels his littleness face to face with the mighty elemental forces that have found

there their dwelling-place. Even so near our own time as the later decades of the eighteenth century men of culture could hardly find language strong enough to paint the horrors of that repulsive mountain-world into which they ventured have made every allowance for the physical discomforts inseparable from such journeys at that time, when neither practicable roads nor decent inns had been built, it is clear that mountain-scenery not only had no charm for intelligent and observant men, but filled them with actual disgust. Not until the nineteenth century did these landscapes come into vogue with ordinary sightseers. Only within the last two or three generations have mountains begun to attract a vastly larger annual band of appreciative pilgrims than ever crowded along what used to be called the 'grand tour.' For this happy change we are largely indebted to the Alpine ascents and admirable descriptions of the illustrious De Saussure on the Continent, and to the poetry of Scott and Wordsworth in this country.

It is interesting to inquire how, after the popular feeling has thus been so entirely transformed, mountainous scenery now affects the imagination of cultivated people who visit it, whether impelled by the mere love of change or by that haunting passion which only the true lover of mountains can feel and appreciate. Even under the entirely changed conditions of modern travel and general education, we can detect the working of the same innate craving for some explanation of the more salient features of mountain-landscape that shall satisfy the imagination. The supernatural has long been discarded in such matters. Even the most unlearned traveller would demand that its place must be taken by scientific observation and inference. But the growth of a belief in the natural origin of all the features of the earth has grown faster than the capacity of science to guide it. Nowhere may the lasting influence of scenery on the imagination be more strikingly recognised than in the vague tentative efforts of the popular mind to apply what it supposes to be scientific method to the elucidation of these more impressive elements of topography. The crudest misconceptions have been started and implicitly accepted, which, though supposed to be based on observation of nature, are in reality hardly less unnatural than the legends of an older time. They have nevertheless gained a large measure of popular acceptance, because they meanwhile satisfy the demands of the imagination.

To the geologist whose duty it is to investigate these questions in the calm dry light of science, there is no task more irksome than to combat and dislodge these popular, pre-conceived opinions, and to procure an honest, intelligent survey of the actual evidence of fact upon which alone a solid judgment of the whole subject can be based. It is not that the evidence is difficult to collect or hard to understand. But so vividly does striking topography still appeal to the imagination, so inveterate has the habit become of linking each sublime result with the working of some stupendous cause, and of choosing in this way what is supposed to be the simplest and grandest solution of a problem, that men will hardly listen to any sober presentation of the facts. They refuse to believe that the interpretation of the earth's surface, like that of its planetary motion, is a physical question which cannot be guessed at or decided *a priori*, but must be answered by an appeal to the evidence furnished by Nature herself.

For this antagonism geologists are, no doubt, chiefly themselves to blame. While the growth of a love of natural scenery, and especially of that which is lofty and rugged, has been late and slow, the desire to ascertain the origin and history of the various inequalities of surface on which the charms of scenery so largely depend, and by careful scrutiny to refer these inequalities to the operation of the different natural agencies that produced them, has been later and slower still. Men had for several generations explored the rocks that lie beneath their feet, and had, by laborious and patient effort, deciphered the marvellous history of organic and inorganic changes of which these rocks are the record, before they seriously set themselves to study the story of the present surface of the land. And thus what was one of

the earliest problems to interest mankind has been one of the latest to engage the attention of modern science.

This slowness of development, though it has allowed much misconception to grow up rank and luxuriant, has been attended with one compensating advantage, inasmuch as the various branches of inquiry into which the discussion of the problem resolves itself have made rapid progress in recent years. We are thus in a far better position to enter on a consideration of the subject than we were a generation ago. And though one may still hear a man gravely expounding familiar topographical features much as his grandfather would have done, as if in the meanwhile no thoughtful study had led to a very different interpretation, these popular fallacies, which manifest such vitality, can now be combated with a far wider experience, and a much ampler wealth of illustration from all parts of the globe.

The various elements of a landscape appear to the ordinary eye so simple, so obviously related to each other, and often so clearly and sharply defined, that they are not unnaturally regarded as the effects of some one general operation that acted for their special production ; and where they include abrupt features, such as a ravine or a precipice, they are still popularly believed to be in the main the work of some sudden potent force, such as an earthquake or volcanic explosion. There is a general and perfectly intelligible unwillingness to allow that scenery which now appears so complete and connected in all its parts was not the result of one probably sudden or violent cause. Yet the simplest explanation is not always necessarily the correct one. In reality, the problems presented to us by the existing topography of the land, fascinating though they are, become daily more complex, and demand the whole resources of geological science. They cannot be solved by any rough-and-ready process. They involve not only an acquaintance with the recent operations of Nature, but an extensive research into the history of former geological periods. The surface of every country is like a palimpsest which has been written over again and again in different centuries. How it has come to be what it is cannot be told without much patient effort. But every effort that brings us better acquainted with the story of the ground beneath our feet, and at the same time gives an added zest to our enjoyment of the scenery at the surface, is surely worthy to be made.

These remarks lead me naturally to the concluding section of my subject, in which I propose to inquire how far the discoveries of science have affected the relation of scenery to the imagination. It has often been charged against scientific men that the progress of science is distinctly hostile to the cultivation alike of the fancy and of the imagination, and that some of the choicest domains of literature must necessarily grow more and more neglected as life and progress are brought more completely under the sway of continued discovery and invention. We hear these complaints, now in the form of a helpless and hopeless wail, now as an angry and impotent protest. That they are made in good faith, and are often the expression of deep regret and anxious solicitude for the future of some parts of our literature cannot be doubted, and in so far they deserve to be treated by scientific men with hearty respect and sympathy. But is there really anything in the progress of science that is inimical to the cultivation of the imaginative faculty and the fullest blossoming of poetry ? The problems of life—truth and error, love and hope, joy and sorrow, toil and rest, peace and war, disease and death, here and hereafter—will be with us always. From the days of Homer they have inspired the sweet singers of each successive generation of men, and they will continue to be the main theme of the poets of the future. As for the outer world in which we live, the more we learn of it the more marvellous does it appear, and the more powerfully does it make its mute appeal to all that is highest and best within us. And, after all, how little have we yet learnt ! How small is the sum of all our knowledge ! It is still and ever must be true that, in the presence of the Infinite, ‘ the greater our circle of light, the wider the circumference of darkness that surrounds it.’ When the man of letters complains that we have dethroned the old gods, discarded the giants and witches, and erected in their place a system of cold and formal laws that

can evoke no enthusiasm, and must repress all poetry, has he never perceived how a true poet can pierce, as our late Laureate could, through mere superficial technicalities into the deeper meaning of things, and can realise and express, in language that appeals to the soul as well as to the ear, the divine harmony and progressive evolution which it is the aim of science to reveal? Let me ask such a critic to ponder well the sonnet of Lowell's :

‘ I grieve not that ripe knowledge takes away  
The charm that nature to my childhood wore ;  
For, with that insight, cometh, day by day,  
A greater bliss than wonder was before :  
The real doth not clip the poet's wings ;  
To win the secret of a weed's plain heart  
Reveals some clue to spiritual things,  
And stumbling guess becomes firm-footed art.’

It will not, I think, be hard to show that in dissipating the popular misconceptions which have grown up around the question of the origin of scenery, science has put in their place a series of views of nature which appeal infinitely more to the imagination than anything which they supplant. While in no way lessening the effect of human association with landscape, science lifts the veil that hides the past from us, and in every region calls up a succession of visions which, by their contrast with what now presents itself to the eye and by their own unlooked-for marvels, rivet our attention. Scenes long familiar are illumined by ‘ a light that never was on land or sea.’ We view them as if an enchanter's wand were waving over us, and by some strange glamour were blending past and present into one.

Let me try to illustrate these remarks by three examples culled from the scenery of each of the three kingdoms. First, I would transport the reader in imagination to a lonely valley in the far west of the county of Donegal. The morning light is sparkling in diamonds from the dew-drops that cluster on the bent and heather, and is throwing a rainbow sheen across each web of gossamer that hangs across our path as we climb the long rough slope in front. Around are bare bleak moorlands, too high and infertile for cultivation, from the sides and hollows of which the peasants dig their fuel. The signs of human occupation grow fewer and fainter as we ascend. The barking of the village dogs and the shouts from the school playground no longer reach our ears. And while we thus retire from the living world of to-day, it almost seems as if we enter into progressively closer communion with the past. Yonder, only a few miles to the north, lies the deep hollow of Glen Columbkil—that western seclusion where tradition records that St. Columba, the great apostle of the Scots, in his earlier years, loved to bury himself for meditation and prayer. Mouldering cross and crumbling cairn, to which latter every pious pilgrim adds a stone, keep his memory green through the centuries. It is with him and his courageous friends and disciples, rather than with sights and sounds of the present time, that we feel ourselves in contact here. And when, high up on this bare mountain-side, we come upon the ruined cells which these devoted men built with their own hands out of the rough stones of the crest, and to which they betook themselves for quiet intercourse with Heaven, amid the wild winds and driving rains of these western hills, the halo of human courage and self-denial falls for us on this solitude to heighten its loneliness and desolation.

Musing on these memories of the past, we find ourselves at last at the top of the slope, nearly two thousand feet above the sea, and discover that from this lofty summit, which is known as Slieve League, the ground plunges down on the other side in a succession of precipices into the Atlantic Ocean, which stretches from the far western horizon up to the very base of the crags beneath our feet. We have in truth been climbing a mountain whereof one-half has been cut away by the sea. What a picture of decay here presents itself ! We peer over the verge of the cliffs, still wrapped in their morning shadows, and mark how peak, ridge, and wall of flinty quartzite, glowing in tints of orange, yellow, and red, uprear themselves from

the face of the declivity, like the muscles on the limb of some sculptured Hercules, as if the mountain had gathered up its whole strength and knit its frame together to defy the fiercest assaults of the elements. But look how every crag is splintered, how every jutting buttress is rent and creviced, how every ledge is strewn with blocks that have fallen from the naked wall above it ! If we detach one of these loosened blocks and set it in downward motion, we may watch it plunge into the abyss, flash from crag to crag, career down the screes of rubbish and make no pause until, if it survive so far, it dashes into the surge below. What we can thus carelessly do in a few moments is done deliberately every winter by the hand of Nature. Slowly but ceaselessly this vast sea-wall, swept by Atlantic storm, sapped by frost, soaked with rain, dried and beaten by sun and wind, is being battered down under the fire of Nature's resistless artillery.

So far the scene is one that requires no special acquaintance with science for its appreciation. The man of literature, who may most disparage the man of science, may well affirm that here they meet on common ground and have equal powers of reception and enjoyment. Nor will he be gainsaid if he claims that for the enjoyment of the distant view he is likewise quite as well equipped as the other. His eye, too, can range over the whole glorious panorama of sea and land, across the wide bay to the hills of Mayo, among which the noble cone of Nephin rises like a distant Vesuvius ; southward to the terraced heights of Sligo, with their green tablelands and gleaming cliffs, which look away to the western ocean ; eastward and northward, over the billowy sea of hills that stretch through Donegal round again westward to the Atlantic. What is there of note in such a landscape, he may demand, which he, ignorant of science, misses ? What added pleasure, what brighter light, can science cast over it ?

By way of reply to these queries, let me ask the reader who has thus far accompanied me to turn from the distant view to what lies beneath his feet on the bare, stony, wind-swept summit of Slieve League. Never shall I forget my own astonishment and enthusiasm when, in company with some of my colleagues of the Geological Survey, I found the splintered slabs of stone lying there to be full of stems of fossil trees, belonging to kinds which occur abundantly in the sandstones below our Coal-measures. The geologist will at once appreciate the full meaning of this discovery. It showed that, perched on the summit of this mountain, some two thousand feet above the sea, lay a cake, only a few acres in extent, of that division of the Carboniferous rocks called the Millstone Grit—a formation which spreads over a large tract of country farther to the east. Here, in the north-west of Ireland, in the very heart of the region of the ancient crystalline schists, and occupying the highest ground of the district, lay a little remnant, which demonstrated that a sheet of Millstone Grit once stretched over that remote part of the island, and may have extended much farther westward over tracts where the Atlantic now rolls. And as the Millstone Grit is followed by the Coal-measures, the further inference could be legitimately drawn that the Irish coal-fields, now so restricted in extent, once spread far and wide over the hills of Donegal, from which they have since been gradually denuded. Truly the woes of Ireland may be traced back to a very early time, when not even the most ardent patriot can lay blame on the invading Saxon.

That little cake of grit on the top of Slieve League stands as a monument of waste so prolonged and so stupendous as to be hardly conceivable. It proves that the north-west of Ireland was buried under a sheet of strata many hundreds of feet thick, and that, inch by inch, this overlying mantle of solid stone has been worn away, until it has been reduced at last to merely a few scattered patches of which that of Slieve League is the most westerly. Not only so, but the present system of hill and valley is thus demonstrated not to be part of the primeval architecture of the earth, but to have come into being after that upper envelope of Carboniferous rock had begun to be removed. What a marvellous series of pictures is thus presented to our imagination ! Standing on that bare mountain-top, we think of the ages represented by the quartzite of those craggy precipices below, then of the time when the

region lay beneath the waters in which the coal jungles spread over a large part of Ireland. We try to realise how these jungles sank foot by foot beneath the sea, how sand and silt were heaped over them, and how, in course of ages, this submerged area was once more upraised into land. But we fail to form any adequate conception of the lapse of time required for the long succession of changes that followed. We only know that, slowly and insensibly, by the fall of rain, the beating of wind, the creeping of ice-fields, and the surging of the ocean, hollow and glen have been carved out, hill after hill has emerged, like forms from a block of marble under the hand of a sculptor, that ravines have been cut out here and crags have been left there, until, at last, the whole landscape has been wrought into its present forms.

We look once more down the face of the precipice, now lit up by the advancing sun, and, though everywhere upon its ruined surface we mark how—

‘ Nature softening and concealing,  
Is busy with a hand of healing—’

crusting the bare rock with golden lichen, or hiding its rawness under a cover of richly tinted weather-stains, we none the less perceive the sure signs of constant and inevitable decay ; we recognise the working of the same forces that have sculptured the whole landscape, far as well as near ; and we feel awed in presence of this revelation of the continuity of law and of the potency even of the unregarded operations of nature when they have had untold ages in which to accomplish their appointed work.

[1] Fortnightly Review, *April*, 1893.

[2] Herodotus, vii. 129.

[3] Diod. Sic., iv. 18. See also Lucan, *Pharsalia*, vi. 345.

[4] Diod. Sic., iv. 18. who allows his readers to choose which version of the legend they prefer.

[5] See Strabo, x. 458. Diodorus also (iv. 35), giving a similar interpretation of the legends, tells us how Hercules hollowed out a new bed for the Achelous, thereby reclaiming a vast tract of exceedingly fertile land.

[6] Diod. Sic., iv. 18.

[7] Fouqué, *Santorin et ses Eruptions*, chap. iii.

[8] *Carm.* I., iv. 7.

[9] See this subject fully discussed by Grote, *History of Greece*, vol. i.

[10] Book vii. 129, see ante p. 37.

[11] Book ix. 429.

[12] See Grimm's *Deutsche Mythologie*, i. 502.

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