

The Landscapes in Ourselves:

An Analysis of Giant's Causeway and How we Perceive Landscapes Differently

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An Analysis of Giant's Causeway: Introduction

Observation is one of the most intriguing topics of human nature. On a surface level, it is easy to think of observation as a passive, one-way process where the environment that surrounds you sends you a message. You observe a cloud with a peculiar shape in the sky, and that determines how you perceive it. If the cloud shape were changed, whether it be more ordinary looking or more distinctive, your interpretation of the cloud would be changed as well. Most importantly, if there was no cloud, nothing to provide the observation, you would not perceive anything. This last component traps people into the false interpretation that the object, in this case a cloud, provides your perception. This could not be further from the truth. Perception is an aspect of life that is dependent on multiple different factors. Yes, the whimsicality of the cloud is a big component to the perception of it, however, it also depends on who is looking. Is it someone with an imagination, or is it Scrooge? Does this person enjoy the odd, or is this a perfectionist? Is the person interested only in the cloud's appearance, or are they wondering what led to its shape being formed? Perception is a two-way street with millions of factors in between, and it is imperative to understand that when looking at world landscapes. Every landmark, whether natural or artificial, monumental or modest, will invoke a variety of ideas, interpretations and perceptions based on the individual. It is not about the form of the cloud. It is about interpretation that happens in between the cloud and the observer. In terms of major world landscapes, there is no better site that demonstrates the ability for one landscape to spawn a wide breadth of ideas than Giant's Causeway. Giant's Causeway's natural features set a gateway for a range of perception, including scientific bewilderment and research, emotional art and poetry, and inspired mythological legends.

The Causeway: An Overview

Giant's Causeway is a natural coastline off Antrim County, Northern Ireland. Its hillside descends into the shore filled with neatly packed, hexagonal rings of basalt volcanic columns. The columns are staggered, raising to varying heights depending on where you are on the coast. The forty thousand unique hexagonal columns were believed to be formed over six million years ago.¹ Along with the basalt columns, a few more notable features consist of 'chimney stacks' in which a column was raised on its own with no adjacent columns following, as well as 'basalt boulders' that due to the conditions, resemble unique configurations depending on how the ocean cooled the lava.²

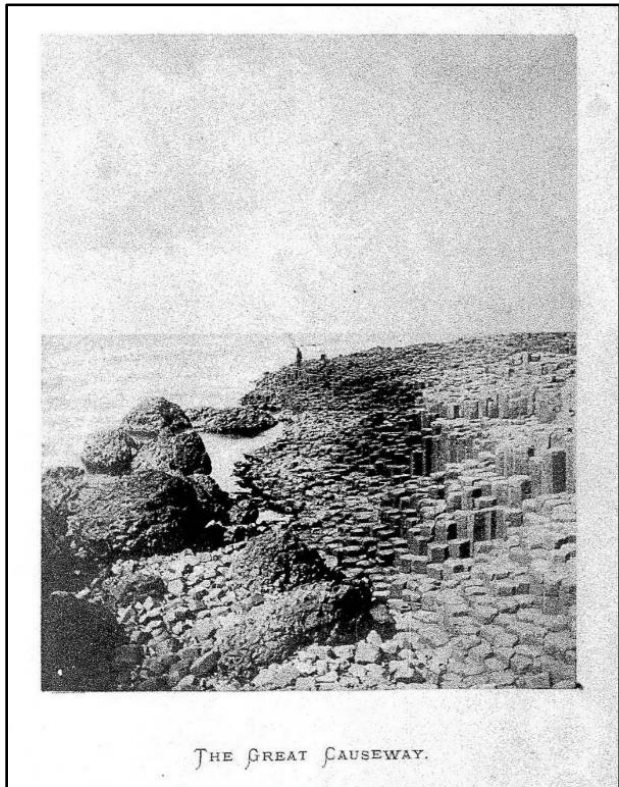


Fig. 1: Photographed by F.H Mares, the North Side of Giant's Causeway off the North Antrim Coast.

Mares, Frederick H. *Photographs of the Giant's Causeway with Descriptive Letterpress*. Glasgow: A. Duthie, 1860.

Fig. 2 & 3: Photographed by Dan Brownsword, A chimney stack (left) and a basalt boulder (right) on the Causeway.

Carillet, Joel, Tonnaja, MediaProduction, Marek Godlewski, Julian Herbert, Eye Ubiquitous, Noel Habgood, et al. "Northern Ireland's Giant's Causeway Photos." Getty Images.

¹ Tomkeieff, S. I. *The Basalt Lavas of the Giant's Causeway District of Northern Ireland*. Napoli, 1940.

² Mares, Frederick H. *Photographs of the Giant's Causeway with Descriptive Letterpress*. Glasgow: A. Duthie, 1860.

The Floor is Lava: The Science

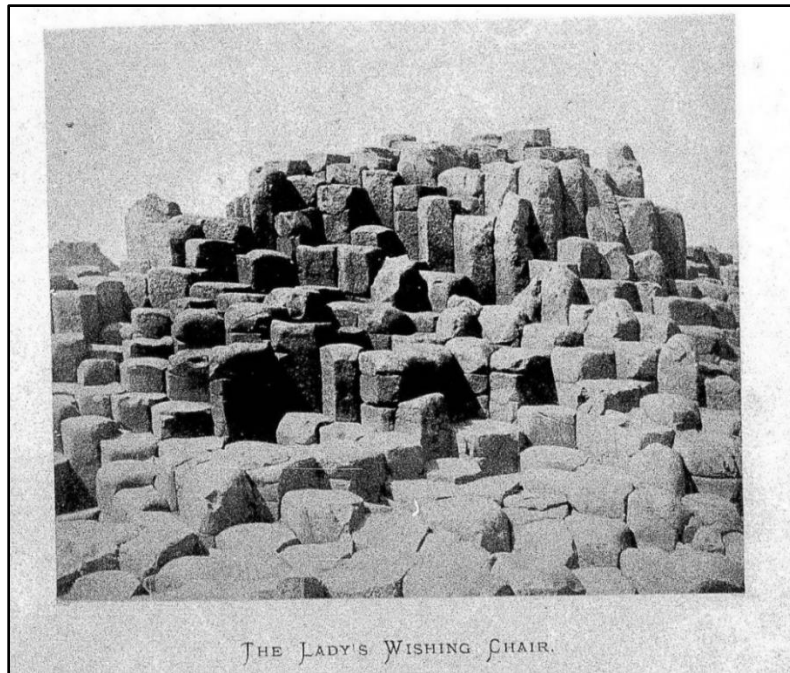


Fig. 4: Photographed by F.H Mares, The Lady's Wishing Chair showing perfectly stacked columns of honeycomb stromatolites.

Mares, Frederick H. *Photographs of the Giant's Causeway with Descriptive Letterpress*. Glasgow: A. Duthie, 186AD.

One group of people who were awe inspired by this site were scientists. Unlike any others who looked at the site, it was the scientists who immediately begged the question, 'how was this site possible?' The site contradicts everything about how chemistry should

thermodynamically proceed: neat to messy, from order to disorder. How is it that every

column was perfectly hexagonal? Why do some rise farther up than others? Why are certain coastlines richer with the basalt rock? The scientific community was determined to find out. More research uncovered the fact that more research was needed. As numerous factors were discovered, the site seemed that much more impossible. With causes like submarine volcanic fissures, unique microbial flora, and the uncontrolled barbarity of the northern Atlantic weather, this site is a result of the perfect chemical and geographic storm.³ As early as the mid-

³ Vučković, Aleksa. "The Giant's Causeway – Where Geology Blends with Mythology." Ancient Origins. Ancient Origins, November 1, 2020.

1800s, the scientific community believed to have an explanation for the honeycomb-like basalt rocks. The theory was a volcanic event where the eruption happened quickly, and the cooling process was even quicker. With help from ravaging northern storms, the rapid cooling shrunk the hardened lava, causing cracks which favorably cut into seemingly perfect edges. “Rapid cooling of the outsides of the columns would cause compression here and tension in the interior. The fissure would originate at the point of maximum tension somewhere inside the column and from that point would spread rapidly outwards, giving rise to a curvilinear joint.”⁴ Modern evidence suggests that there might be more going on here. Not too long after the previous hypothesis, scientists have found thriving microbial flora in the cracks of the basalt rocks and hypothesized that these cyanobacteria could have contributed to the stromatolite columns present in the Causeway.⁵ The most recent scientific publication found even more evidence that proves the site to be even more complex than what was previously believed. Chemical composition tests using various spectroscopy methods have found a myriad of different molecules present in the rocks. With this many substances at work, the complex

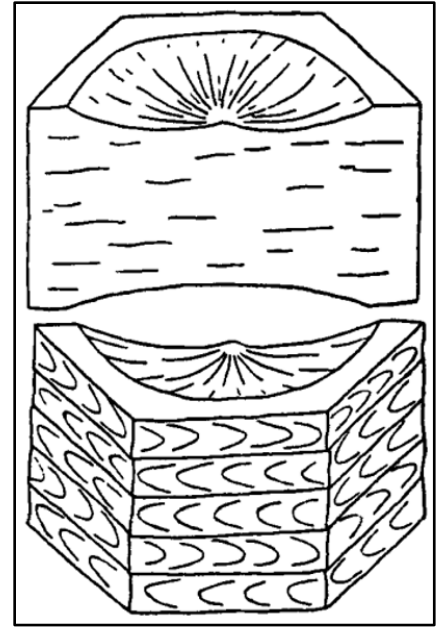


Fig. 5: A diagram of a single block of columnar basalt. The outside of the column shows the chisel structure fractures leading to step fissures.

Tomkeieff, S. I. *The Basalt Lavas of the Giant's Causeway District of Northern Ireland*. Napoli, 1940.

⁴ Tomkeieff, S. I. *The Basalt Lavas of the Giant's Causeway District of Northern Ireland*. Napoli, 1940.

⁵ Lyle, Paul & John, Preston. “Geochemistry and Volcanology of the Tertiary Basalts of the Giant's Causeway Area, Northern Ireland.” *Journal of the Geological Society* 150, no. 1 (1993): 109–20.

Sample number	24	28	48
Sub-group	II	I/II	I
Flow number	2	3	3
SiO ₂	52.62	51.35	49.73
TiO ₂	0.99	0.93	0.88
Al ₂ O ₃	14.66	14.92	14.95
Fe ₂ O ₃	na	na	na
FeO	na	na	na
MnO	0.19	0.19	0.18
MgO	6.21	6.67	7.35
CaO	10.28	11.12	12.30
Na ₂ O	2.98	2.58	2.17
K ₂ O	0.61	0.34	0.14
P ₂ O ₅	0.12	0.11	0.10
Fe ₂ O ₃ ¹	10.75	11.01	10.25
Total (water free)	99.41	99.22	98.06
Rb	17	6	1
Sr	253	249	212
Ba	294	231	99
Zr	100	93	74
Y	26	25	23
Nb	9	8	5
Cu	350	355	385
Ni	37	40	66
V	295	277	280
Cr	39	52	151
Zr/Nb	11.1	11.6	14.8
Zr/Y	3.9	3.7	3.2
La	11.76	11.09	7.27
Ce	23.81	22.29	14.92
Pr	3.29	3.07	2.23
Nd	13.62	12.68	9.48
Sm	3.43	3.27	2.68
Eu	1.11	1.04	0.92
Gd	3.62	3.39	3.01
Dy	4.40	4.18	3.75
Ho	0.91	0.88	0.78
Er	2.79	2.69	2.33
Yb	2.59	2.48	2.21
Lu	0.40	0.39	0.35

Fig. 6: Results of multiple sample composition tests of the Giant's Causeway basalt columns. Each sample showed over thirty-five different elemental and molecular species.

Lyle, Paul & John, Preston.
 "Geochemistry and
 Volcanology of the Tertiary
 Basalts of the Giant's
 Causeway Area, Northern
 Ireland." *Journal of the
 Geological Society* 150, no. 1
 (1993): 109–20.

intermolecular interactions are believed to form a material capable of a phenomenon known as fractional crystallization. This hypothesis points to the movement of tectonic plates as responsible for the fissures present in the rocks, as the Giant's Causeway is located perfectly on a fault line. As the tectonic plates moved, based on the composition of the material (unique multitude of elements at work), cracks were formed in sharp hexagonal shapes.⁶ Regardless of which theory is correct, and whether the mystery is solved or not, the beauty in this research is that fact that it is a response that scientists had when they first saw Giant's Causeway. Like the peculiar cloud, it inspired their perception to turn and look inside itself and ask what about it is relevant to them. Their immediate instinct was to ask for the origin, the 'how' that lies behind every landscape. And like the peculiar cloud, Giant's Causeway is acting as a vessel for people to express who they are, and in this case, a group of people chose science and research as their identity.

⁶ Lyle, Paul & John, Preston. "Geochemistry and Volcanology of the Tertiary Basalts of the Giant's Causeway Area, Northern Ireland." *Journal of the Geological Society* 150, no. 1 (1993): 109–20.

Adding Layers to the Site: Art & Poetry

In the case of the scientists, their aptitude towards Giant's Causeway was the question of scientific possibility. However, this is only but a small portion of the wide breadth of reactions to the Causeway. While the scientists asked "what is the science behind this?", the artists asked "how can I inspire?" The discovery of Giant's Causeway led to the creation of poetry and art rich with symbolism, living on for centuries. "The Coast of Antrim has long been subject of laudable curiosity, as it furnishes a fine field for geological enquiry, and presents a grand and novel spectacle to the eye of taste, in the wild sublimity of its promontories, the

fantastic winding of its bays, the romantic variety of its cliffs and rocks."⁷ Specifically, those interested in the eyes, the ears, the heart of taste, created more works associated with Giant's Causeway. Mostly written in the late 1700s and early 1800s, poetry was important during this

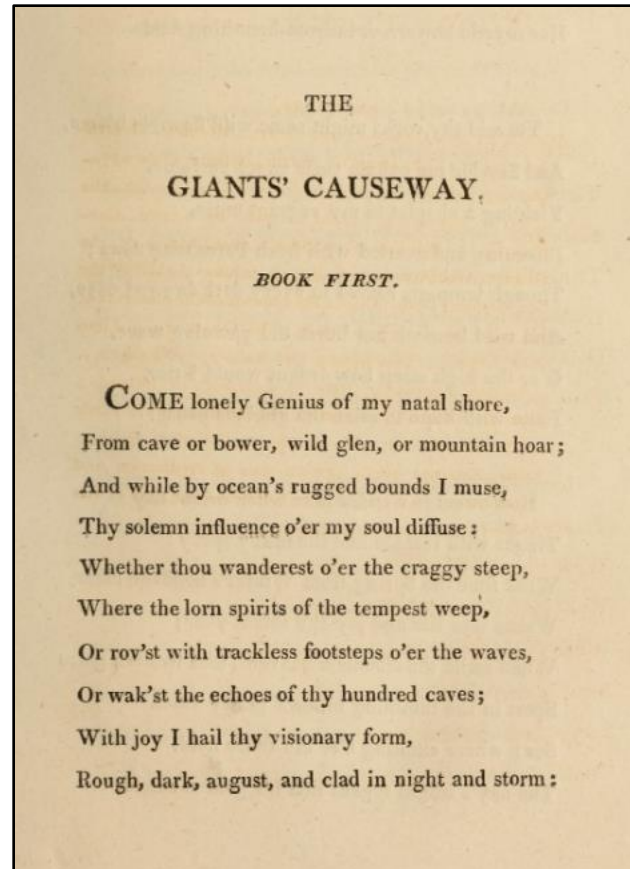


Fig. 7: Drummond's Poem, the first page of a compilation inspired by the Giant's Causeway.

Drummond, William Hamilton. *The Giant's Causeway, a Poem*. Belfast: Printed by J. Smith for Longman, Hurst, Rees, Orme & Browne, 1811.

⁷ Drummond, William Hamilton. *The Giant's Causeway, a Poem*. Belfast: Printed by J. Smith for Longman, Hurst, Rees, Orme & Browne, 1811. pg. 258

time period as symbolism in writing flourished in Northern Ireland. In the first book of Drummond's poem, he exclaims that "while by ocean's rugged bounds I muse, thy solemn influence o'er my soul diffuse."⁸ The whole poem is a tribute to Giant's Causeway's natural formation acting as symbolism of mother nature transcending what humans are capable of. A preface quote from Drummond summarizes this well: "[The Causeway], devised by her own ingenuity, and executed with a symmetry and grace, a grandeur and a boldness which nature only could accomplish."⁹ Alongside poetry, inspired were the hands of drawers and map makers. At

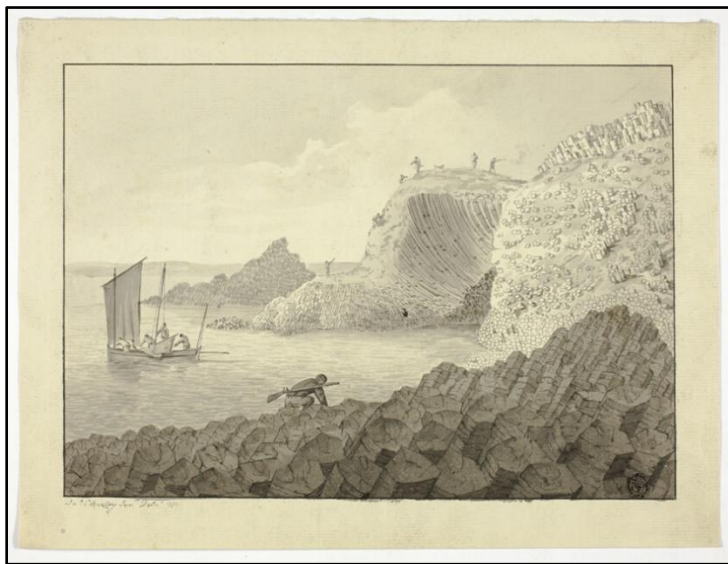


Fig. 8: Artist John Clevely II drawn picture of the Causeway in 1772 with only a black pen and graphite.

Clevely, John. "Giant's Causeway." The Art Institute of Chicago. Prints and Drawings. Accessed May 10, 2021.

one point, being able to replicate the wonder of the site onto the surface of a paper was the feat artists deemed impossible to do. Nothing could be made "more regular, more beautiful, and shedding a more serene, and more permanent splendour."¹⁰ Artists strove to capture its elegance and perfection, placing emphasis on the burnished basalt steps, the statuesque columns, the rivaling Northern Sea,

and the picturesque mountains surrounding. This is especially evident in the works of vintage artists John Clevely II and W. H. Bartlett, as their drawings try to capture every aspect notable to

⁸ Drummond, William Hamilton. *The Giant's Causeway, a Poem*. Belfast: Printed by J. Smith for Longman, Hurst, Rees, Orme & Browne, 1811. pg. 29

⁹ Ibid, pg. 45

¹⁰ Ibid, pg. 239

the site: the rugged basalt steps, the lively northern sea, the grand yet treacherous cliffs.¹¹¹² Artists used these features to embolden their intentions of immersing the observer into the landscape. Finally, map makers took the opportunity to add this site to the ever-growing subject of topography. Applying the extra element of direction, landmarks, and accuracy to the artwork of Giant's Causeway allowed for an extra dimension of immersion for the



Fig. 9: Artist W.H. Bartlett drawn picture of the Causeway in 1841 with emphasis on rock shape, mountainous cliffs, and the incoming Northern Sea.

Bartlett, W.H. "Scene On The Giants Causeway, County Antrim, Ireland." Drawing of Causeway. London: N.P.Willis And J.Stirling Coyne, 1841. *The Scenery And Antiquities Of Ireland*.

observer. You can be certain that the basalt columns will rise in a certain location and that a chimney stack is present at the top of a certain hill. Map makers like Christopher Cole Foley

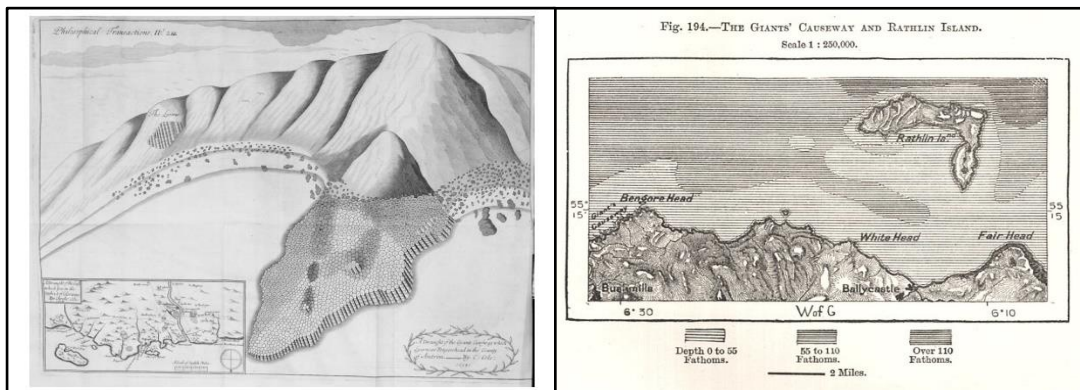


Fig. 10&11: Map maker Christopher Cole Foley's work on Giant's Causeway Topography, 1694.

Foley, Christopher Cole. "Giant's Causeway & Rathlin Island." Map. *Irish Landscape*. Bishop of Down and Connor, 1694.

¹¹ Clevely, John. "Giant's Causeway." The Art Institute of Chicago. Prints and Drawings. Accessed May 10, 2021.

¹² Bartlett, W.H. "Scene On The Giants Causeway, County Antrim, Ireland." Drawing of Causeway. London: N.P.Willis And J.Stirling Coyne, 1841. *The Scenery And Antiquities Of Ireland*.

demonstrated this best, noting the shape of the Coast as it borders the Northern Sea, the landmarks present alongside the basalt, the elevation at each point in the Causeway, and surrounding islands off the Coast.¹³ Regardless, upon observing Giant's Causeway, artists adopted a unique perception of inspiration. The site brought out their love to make works of their own for the purpose of invigorating others. As their hand wrote the poem, painted the picture, scaled the map, they were handing a piece of themselves forward to add to the site; a very different reaction than the scientists took, despite looking at the same exact peculiar cloud.

¹³ Foley, Christopher Cole. "Giant's Causeway & Rathlin Island." Map. *Irish Landscape*. Bishop of Down and Connor, 1694.

The Mighty & Brittle: Legend Behind the Causeway

While some look to Giant's Causeway as an opportunity to learn about science, and others look to it as a form of artistic expression, a third equally alluring group took a different route. Upon looking at the Causeway, this group asked themselves, "what story does this landmark tell?" Many centuries ago, the people of Ireland had one of the richest cultures centralized around mythology. This can be due to landscapes that were inexplicable, to the point where the supernatural was the answer. Whether it be adventure tales, Celtic mythology, or stories marking divinity, the importance of traditional tales was integral to the locals' understanding about their country.¹⁴

Monumental landscapes in Ireland like Giant's Causeway were certainly no exception. The myths and legends associated with Giant's Causeway account for what led up to its formation and how it received its name. The legend starts off with a giant warrior named Finn McCool,



Fig. 12: Artwork from Irish Folklore depicting Finn McCool working on his hexagonal steppingstones to confront Benandonner.

GCOGAdmin. "Myths & Legends of the Causeway: The Giants Causeway Guide: Tours: Info: Things ToDo." The Giants Causeway Guide | Tours | Info | Things ToDo. Accessed May 10, 2021.

¹⁴ GCOGAdmin. "Myths & Legends of the Causeway: The Giants Causeway Guide: Tours: Info: Things ToDo." The Giants Causeway Guide | Tours | Info | Things ToDo. Accessed May 10, 2021. <https://giantscausewayofficialguide.com/about/myths-legends-of-the-causeway/>.

who lived on the North Antrim coast. He would constantly get in fights with a towering beast that lived across the sea in Scotland named Benandonner. Their quarrels started off with throwing mountainous rocks across the sea at each other, and eventually escalating to the point where Finn carved forty-thousand hexagonal steps across the sea as a pathway to connect them to fight in person. With bravery from Finn, and some wit from Finn's Wife, they were able to trick Benandonner into thinking Finn was bigger, stronger and more powerful than him. As Benandonner fled the North Antrim Coast in fear, he launched all of Finn's stones back to the Antrim Coast in order to destroy the path connecting them.



Fig. 13: Artwork from Irish Folklore depicting Finn McCool in a quarrel with the distant beast Benandonner.

Callan, Paris Donnatella. "The EPIC Story Of Finn MacCool And The Giant's Causeway." Ireland Before You Die, April 27, 2021.

From there, Finn stacked the rocks neatly as a token to the triumph of good heroism.¹⁵ This legend is one that is created and told by many of those who have been to Giant's Causeway and claim that its formation must be due to supernatural beings. Those who take this side of the Causeway story, are inspired by the site as one that transcends human or even nature's power. Thus, Giant's Causeway comes to represent a source of a magnificent tale to many of those observing, which reflects another difference in perception as everyone takes witness to the peculiar cloud.

¹⁵ Callan, Paris Donnatella. "The EPIC Story Of Finn MacCool And The Giant's Causeway." Ireland Before You Die.

The Landscapes in Ourselves

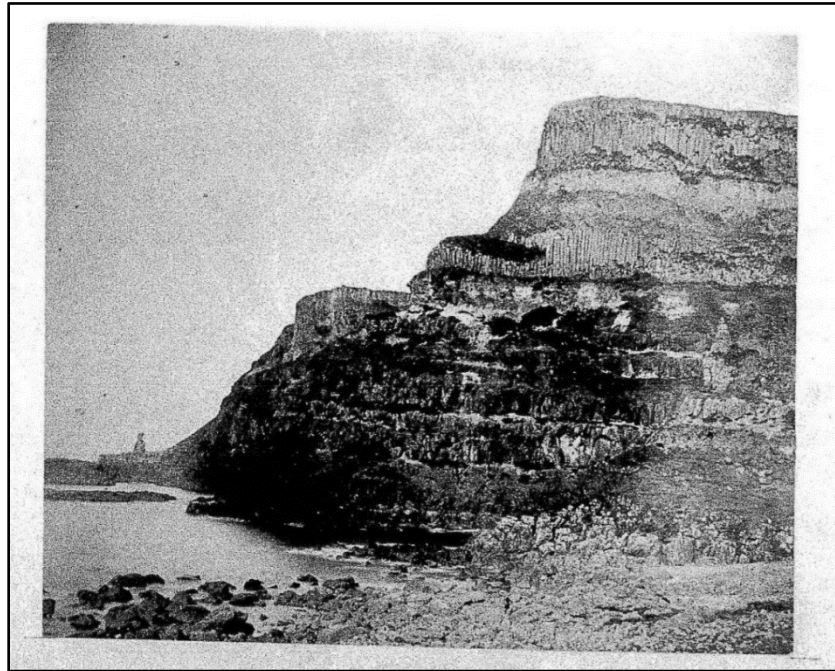


Fig. 14: The Giant's Causeway, Photographed by
F.H.Mares 1860

Mares, Frederick H. *Photographs of the Giant's
Causeway with Descriptive Letterpress*. Glasgow:
A. Duthie, 1860.

We have all seen the cloud that twists our imagination, makes us question more about the world, our lives and existence itself. For some, that cloud is Giant's Causeway. The differences inside of us as individuals is what makes the cloud so peculiar. Giant's Causeway would just be a shore with rocks if it were not for the uniqueness and flair that resides in each observer. To some, this shoreline represents the beauty and complexity of geochemistry. To some, this shoreline represents a vessel to express themselves alongside it with art and imagination. To some, this shoreline represents a storybook packed with emotion and wit. The most important part is the fact that Giant's Causeway represents something different to everyone. The Giant's Causeway is the landscape, and our perception is the landscape in ourselves.

Work Cited

Primary Sources:

Mares, Frederick H. *Photographs of the Giant's Causeway with Descriptive Letterpress*. Glasgow: A. Duthie, 1860.

Tomkeieff, S. I. *The Basalt Lavas of the Giant's Causeway District of Northern Ireland*. Napoli, 1940.

Secondary Sources:

Bartlett, W.H. "Scene On The Giants Causeway, County Antrim, Ireland." Drawing of Causeway. London: N.P.Willis And J.Stirling Coyne, 1841. The Scenery And Antiquities Of Ireland.

Callan, Paris Donnatella. "The EPIC Story Of Finn MacCool And The Giant's Causeway." Ireland Before You Die, April 27, 2021. <https://www.irelandbeforeyoudie.com/story-of-finn-maccool-and-the-giants-causeway/>.

Carillet, Joel, Tonnaja, MediaProduction, Marek Godlewski, Julian Herbert, Eye Ubiquitous, Noel Habgood, et al. "Northern Ireland's Giant's Causeway Stock Photo." Getty Images. Accessed May 10, 2021. <https://www.gettyimages.com/photos/giants-causeway?page=3&phrase=giants+causeway&sort=mostpopular>.

Clevely, John. "Giant's Causeway." The Art Institute of Chicago. Prints and Drawings. Accessed May 10, 2021. <https://www.artic.edu/artworks/82747/giant-s-causeway>.

Drummond, William Hamilton. *The Giant's Causeway, a Poem*. Belfast: Printed by J. Smith for Longman, Hurst, Rees, Orme & Browne, 1811.

Foley, Christopher Cole. "Giant's Causeway & Rathlin Island." Map. *Irish Landscape*. Bishop of Down and Connor, 1694.

GCOGAdmin. "Myths & Legends of the Causeway: The Giants Causeway Guide: Tours: Info: Things ToDo." The Giants Causeway Guide | Tours | Info | Things ToDo. Accessed May 10, 2021. <https://giantscausewayofficialguide.com/about/myths-legends-of-the-causeway/>.

LYLE, PAUL., and JOHN. PRESTON. "Geochemistry and Volcanology of the Tertiary Basalts of the Giant's Causeway Area, Northern Ireland." *Journal of the Geological Society* 150, no. 1 (1993): 109–20. <https://doi.org/10.1144/gsjgs.150.1.0109>.

Vučković, Aleksa. "The Giant's Causeway – Where Geology Blends With Mythology." Ancient Origins. Ancient Origins, November 1, 2020. <https://www.ancient-origins.net/ancient-places-europe/giants-causeway-0014480>.