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Wondering High and Low

It had been one of those summer days when the air is still and thick with heat. The walk up the fell had been ambitious, foolish even, given the forecast of record high temperatures. But I was now down from the tops, sitting with my feet dangling in the deliciously cold waters of the beck. A kaleidoscope of pebbles, smooth and sensuously shiny in their lizard greens and browns, pale yellows and reds, glistening beneath the ripples and rills.

I lay back on the grass. The sky was a soft, milky blue. In the distance, clouds were beginning to rise and tower. A buzzard, too, was catching the last of the day's thermals as it leisurely circled high above. It was late afternoon and the sun was sinking behind Bow Fell. Shadows stretched down the dale, and although struggling to be seen, a faint half-moon was rising low in the east, circling the Earth as the Earth circles the Sun.

Socks back on, boots laced and a slow walk back to the car. Great Langdale, a valley in the English Lake District, is an ancient landscape. Its rocky roots stretch back nearly half a billion years. Like all mountains, the fells inspire both poetry and prose. They evoke feelings of the sublime. In her book, *Vesper Flights*, the writer and naturalist Helen Macdonald talks of times when, immersed in nature, the world 'stutters, turns and fills with unexpected meaning. When rapturousness claims a moment and transfigures it. … Love, beauty, mystery. Epiphanies, I suppose. Occasions of grace.'[1]

Samuel Taylor Coleridge felt that untamed landscapes, and raw nature in particular, have the power to excite and cause us to wonder.

In 1802, finding himself alone on the summit of Scafell, he noticed storm clouds approaching. In his eagerness to get down, he took what proved to be a precipitous and hazardous route that left him in a thrilling state of tremble and terror: 'the sight of the Crags above me on each side, and the impetuous clouds just over them, posting so luridly and so rapidly northward, overawed me. I lay in a state of almost prophetic Trance and Delight.'[2]

High on the summit of Ben Hope, the writer Robert Macfarlane also felt, and feared, the majestic indifference of nature. 'All travellers to wild places', he wrote, 'will have felt some version of this, a brief blazing perception of the world's disinterest. In small measures it exhilarates. But in full form it annihilates.'[3]

I reached the car park. There was a distant rumble of thunder, another reminder of nature's power to frighten and excite.

Sensually then, there was a lot going on. I was pleasantly tired. The heat only added to a drowsy contentment. I had drunk most of my water. The hotel bar by the car park was doing a brisk trade. I bought a pint of ice-cold shandy and sat down in the shade of a table umbrella.

Another distant thundery growl. The clouds boiled higher, darker as the fast-rising, humid air cooled and condensed. Two hundred years earlier, two Lakeland characters had taken a particular interest in the weather, in general, and clouds and water vapour, in particular. A threatening storm would certainly have excited their interest.

John Dalton was born on 6 September 1766, one of six children. His father was a weaver. The family lived in Eaglesfield, a small village a couple of miles south-west of Cockermouth below the Lake District's western Fells. Elihu Robinson, a fellow Quaker and a leading figure in Eaglesfield, took an interest in the young boy, who was clearly bright and keen to learn. He taught Dalton to think scientifically and encouraged him to observe and record the weather using a variety of measuring instruments. From the age of twenty-two until his death fifty-seven years later, Dalton kept a daily record of the weather. However, his lasting fame is not as a meteorologist, although he did important work in that field, but rather as the father of the atomic theory of chemistry and how the elements combine to form compounds.[4]

Jonathan Otley was born in Nook House near Loughrigg Tarn on 19 January 1766, the same year as John Dalton. The house, also known less prettily as Scroggs House, was tucked beneath the western slopes of Loughrigg Fell, only a few miles down the dale from where I was

finishing my shandy. Otley became a watchmaker and instrument repairer based in Keswick.[5]

Dalton and Otley first met by accident on 6 July 1812. They were both on their way up Skiddaw when they bumped into each other. Otley noticed that Dalton was carrying a barometer to measure air pressure and estimate height. Naturally this piqued Otley's professional interest. The two men got talking and learned that they shared a deep fascination with the weather, including their taking daily readings of the wind and rain, humidity and temperature, pressure and height. This was the beginnings of a sustained friendship forged by a mutual interest, obsession even, with all things wet and windy.

Although Dalton lived most of his adult life in Manchester, he would holiday in the Lakes were he continued his practice of taking daily weather readings. His favourite mountain was Helvellyn. Over the course of his life, he reckoned he'd climbed the fell over forty times, always taking note of the wind and the rain, temperature and humidity, always taking a scientific interest in whatever was happening around him.

However, Dalton was not the only famous scientist to enjoy climbing Helvellyn. As a young man, the chemist Humphry Davy had become friends with the poets Robert Southey and Samuel Taylor Coleridge when all three were living in Bristol. In 1795 Coleridge married Sarah Fricker. A couple of months later Southey married Sarah's sister Edith. In 1800 the Coleridges moved into Greta Hall in Keswick, Lakeland. This allowed the family to remain in neighbourly proximity with their friends, William, Mary, his wife, and Dorothy Wordsworth, his sister, who were then living in Dove Cottage, Grasmere. In the late summer of 1803, Southey and Edith travelled up to Keswick to holiday with the Coleridges. The plan was to stay a couple of months but, in the event, the Southeys spent the rest of their lives living in the town.

Coleridge had been growing increasingly unhappy with his marriage to Sarah. In December 1803, restless and depressed, he walked out on his wife and children. Southey decided to do the decent thing. He and Edith stayed on at Greta Hall to help support and look after Sarah – Coleridge's abandoned wife – and her three living children.[6]

Humphry Davy would make periodic visits to the Lake District, on these occasions staying at Greta Hall with the Southeys, Coleridges' wife Sarah and their children. It was during one of these visits that Davy finally met the Wordsworths. On one famous occasion in 1805, Davy joined Southey, Wordsworth and the novelist Walter Scott on a

walk to the top of Helvellyn. Although Davy was destined to become a world-famous scientist, he never gave up his love of poetry, not just reading verse but also writing poems himself.[7]

Lakes, hills and weather have a habit of inspiring, not just poets but scientists too. The scientists wanted to explain and make sense of what they saw, both above and below. Why do clouds form as humid air rises over mountains? What are rocks made of? How old are they? By the late eighteenth century, mountains, in particular, were beginning to attract increasing scientific interest. Botanists, meteorologists, geologists, mineralogists, physicists, astronomers and mapmakers all began climbing the hills, collecting flowers, examining rocks, measuring the pressure of the air, testing humidity and looking up at the stars.

These pioneering naturalists were also keen, as Simon Bainbridge points out in his book, *Mountaineering and British Romanticism*, to describe their ascents 'among the rocks and precipices'.[8] They experienced the craggy tops as sublime, dangerous and perilous. They viewed their exploits as brave and heroic, but all done in the name of science. The grandeur and beauty seemed to fire their scientific imagination every bit as much as the poet's sensibilities. From these great heights, the world was being seen anew. Nature's mysteries lay all around, her secrets ready to be unveiled.

In contrast, the poets sought to understand and communicate what they *felt* and *experienced* as they wandered over the fells and amongst the flowers. They wanted to explore the human condition. What is our relationship with nature? What is our place in a world seemingly indifferent to our existence? In his poem, *The Prelude*, Wordsworth described himself as a 'Child of the mountains'. Like many Romantic poets, he felt that his relationship with mountains was visceral. Although no fell walker himself, William Blake said that: 'Great things are done when men and mountains meet.'[9]

Sitting by a tumbling stream, with all our senses alert, the world is experienced without division. Sight, sound, the brush of the breeze, the smell of grass immerse us in a seamless reality. Dissolved in nature, we enjoy the continuous flow of sensation. Indeed, the most fundamental aspect of being human is having a body. Experience is only possible because we have a body with senses. We know the world through our senses. For poets, climbing rugged terrains brought all the senses into play, the inner self could be experienced in all its registers, and the imagination could soar.

However, there were others who thought there was a tension between the poetic gaze and the scientific quest. The historian Theodore Roszak saw a conflict between the objective consciousness of the scientist and the vision and imagination of seers, mystics and artists, who felt themselves to be in touch with a different kind of reality.[10] William Blake feared that scientists were squeezing the mystery out of the universe, while poets, he famously wrote in the opening lines of his poem, *Auguries of Innocence*, were able:

> To see a World in a Grain of Sand
> And a Heaven in a Wild Flower,
> Hold Infinity in the palm of your hand
> And Eternity in an hour.

However, the argument in this book is that in both cases, to be at their creative best, scientists and poets alike first need to feel an overwhelming sense of wonder. In the minds of the curious, nature in all its glorious confusion, profusion and complexity invites the question, 'what's it all about?'[11]

The ancient Greeks were amongst the first to appreciate that wonder has the power to stretch the imagination. Feelings of wonder lead us to philosophise. Our thoughts are stimulated by nature's mysteries and secrets. We are curious whenever we meet the puzzling and peculiar. Our feelings, too, are heightened when we experience the sublime and beautiful. It is our capacity to wonder that gives rise to both the arts and sciences.

When we turn our gaze outwards and examine the world objectively, we want to explain. We ask, what is going on here? Why do things do what they do? Why are things like they are? Most dizzying of all, why is there something rather than nothing? These are the questions posed by natural philosophers and the men and women of science.

It is also the case, however, that, when we look out across a boundless sea or stare into a starry sky, our senses tremble. We feel ecstatic. In such moments, romance outshines reason. We reflect on our inner selves and our subjective experiences of being in the world. We even think about the very meaning of life and our presence in the universe. This is how poets, painters and musicians respond to nature.

Moreover, it's not just the grand and cosmic that can evoke such feelings. The exquisitely small can also enrapture us. Julian of Norwich, born in 1343, was an anchoress. In her little cell attached

to St Julian's church, she meditated on life and its wonders. In her book, *Revelations of Divine Love* – the first book believed to have been written in English by a woman – she reflects:

> And in this he showed me a little thing, the quantity of a hazel nut, lying in the palm of my hand, as it seemed. And it was as round as any ball. I looked upon it with the eye of my understanding, and thought, 'What may this be?' And it was answered generally thus, 'It is all that is made.' I marvelled how it might last, for I thought it might suddenly have fallen to nothing for littleness.[12]

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The biographer, Richard Holmes, describes the late eighteenth and early nineteenth centuries as *The Age of Wonder*.[13] It was a time of Romantic science as well as Romantic poetry. Davy and Dalton were celebrating the power of human reason to fathom nature's deepest secrets. Science was revealing nature to be more fluid, dynamic and energetic than previously thought. Constant change lay beneath the fabric of reality.

Coleridge and Wordsworth preferred to experience nature directly through the senses, unmediated by thought or theory. Amongst the flowers, by the streams, in the mountains, they sought to 're-enchant' nature. 'My opinion', wrote Coleridge, 'is that deep Thinking is only attainable by a man of deep Feeling, and that all truth is a species of Revelation.'[14] It was on their shared walk up the slopes of Helvellyn that both scientists and poets had cause to wonder as they climbed over ancient rocks, rambled by tumbling becks and wandered beneath vast skies.

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The gift of wonder is often at its most intense when we meet the strange and surprising. But we can also find ourselves wondering whenever we see and think about the everyday and familiar in a new light. Some people have a talent for this kind of thinking. Einstein's remarkable thought experiments allowed him to develop his revolutionary ideas about space and time. In his mind he wondered what things would look like if you could ride on a wave of light, at the speed of light. This talent to see the world from a different or unusual point of view can promote an original turn of mind.

Aronson and his colleagues give the example of Richard Feynman, the Nobel prize-winning physicist.[15] When he was a boy, Feynman's father would challenge the child's intellect by, for example, asking him to pretend that he was a tiny creature living in the carpet. What would the world look like if you were very, very small? Would the carpet's fibres rise like giant, branchless trees into a distant magnolia coloured sky? Such 'games' encourage children to see things from an unusual point of view. Feynman was famous for his brilliant ability to understand and explain the complexity and weirdness of the world at the sub-atomic, quantum level using images and ideas that could be grasped even by those who struggle with the abstract world of mathematics.

It is when we wonder that we also wish to understand. We become curious and begin to ask questions. Wonder and curiosity are the twin drivers that fire our imaginations and fuel our creativity. The beginnings of these creative urges are further aided by two other human characteristics; and it is these two proclivities that spin and spill their way throughout this book. On the one hand, there is the urge to discover *order* and see *patterns* in the world: science; and, on the other, there is our need to tell *stories* and *find meaning*: art.