

Revolutions

By Emma Lewis, Assistant Curator, International Art at Tate, London, 2018

- Setting out

It is the privilege of the artist to journey into terrains other than their own. To take the route that they wish, to stop where they please, and to report back with what they have found. For Noémie Goudal, this terrain has latterly been geology or, more precisely, the theories about the history of the earth before the term 'geology' even existed.

How, then, for you and I — as writer, reader, viewers — to understand Goudal's work in view of this landscape in which she immersed herself?

Certainly, Goudal's is a practice that rewards some grasp of the historical moment or philosophy that informs it. Yet rather than retrace her footsteps, it can be helpful to take our own route: to step back a little, look around, and see just what in her work has paved her way to this point. Only then can we understand not only what it was that captured her interest, we can also begin to consider why.

- Ambition

In 1681, philosopher Thomas Burnet published *Telluris Theoria Sacra* (Sacred Theory of the Earth), a treatise on the *History of the Earth* in which he put forth a rationalist explanation for the events of Great Flood¹. His idea was that Earth was made of many layers, including one that was aqueous. This was the source, he reasoned, of the vast amounts of water that God summoned forth as punishment for humanity's ills. When the waters receded, mountains and continents were revealed: the scar tissue of where Earth's once-smooth and perfect surface had ruptured and cracked. Gone was the perfection of the Creation; in its place a world 'lying in its own Rubbish'².

Though Burnet was the first to use the term 'theory of the Earth', philosophers had for centuries offered explanations for how Earth was formed. Many, like him, had used the mythological model of the earth as a primordial egg from which civilization hatches. Burnet called his the 'mundane egg', and what made it revolutionary — and indeed controversial — was not only the notion that humankind was existing in the detritus of the deluge, but also that Earth had taken shape through a series of catastrophic changes — the implication being that the earth was older than the 6,000 years that received wisdom of the time dictated. Yet while theologians and the general public voiced their outrage, some scientists began to put forward their own theories that engaged with Burnet's theory of what later became known as 'deep time'. In doing so, they effectively laid the foundations for the field of study that we understand geology to be today.

In the two centuries following Burnet's publication, through the Enlightenment and into the period of the French Revolution, numerous other theories about the history of Earth emerged, yet still elements of *Telluris Theoria Sacra* endured. Élie de Beaumont, Professor of École des Mines, was among the geologists who revived Burnet's Catastrophist theories. In a paper given in 1826 (and published in 1852) he presented his idea of a 'pentagonal network'³. Using the symbol of a withered apple, he suggested that mountain ranges were formed by cataclysmic upheavals that caused Earth's crust to rapidly cool and shrink, leaving behind a rumpled skin — the mountain formations — criss-crossing across its surface.

As aspects of Burnet's ideas continued to resonate among natural scientists, his prose garnered a different type of audience. Scientist merit aside, *Telluris Theoria Sacra* is a literary epic, and its doom-laden tales, Baroque prose and a sweeping narrative arc held great appeal to the Romantic poets. Among them was Samuel Taylor Coleridge, himself a climbing devotee, who expressed his desire to translate *Telluris* into a poem. The late literary scholar Marjorie Nicholson observed that in admiring Burnet's grand style, Coleridge classed Plato and Burnet together as evidence that 'poetry of the highest kind can exist without meter'⁴.

The fact that Burnet excited the minds of individuals working in as diverse fields as de Beaumont and Coleridge is not at all surprising if we consider the close relationship between the arts and sciences in the intellectual imagination of their time⁵. In Paris and London of the 1800s, artists and poets were alert to scientific developments because they represented the potential to expand the mind. As historian John Tresch explains in his book *The Romantic Machine*, technology was generally regarded as a fantastical extension of human capability that was consistent with, not in opposition to, the development of Earth itself⁶. The laws of progress fast at work in shaping 'not only organisms, but geologic formations, governments and ideas' was something that:

'humans could contribute to by remaking the landscape and altering nature's material order, by framing and arranging phenomena and concepts; and through the activity of perception, conceptualization and imagination. At each of these levels, the modification of nature was aided by machines, eroding the dichotomy between nature and the artificial'⁷.

Among the highest qualities something could possess, then — regardless of whether natural or manmade — was the potential to induce transcendence or transformation: to reshape thought, remodel labour and thus, to reorganize society. The need for new instruments and machines to reach as

1 Burnet, Thomas (1635?-1715), pre-1801 Imprint Collection, *Telluris Theoria Sacra. Amstelædami*, apud Joannem Wolters, 1699. Pdf. <https://www.loc.gov/item/02002662/>. A key resource in Goudal's research into the this theory and the field of geology as a whole was informed by Gohau, Gabriel Albert V. Carozzi, and Marguerite Carozzi, *A History of geology*, New Brunswick: Rutgers University Press, 1990.

2 Ibid, n.p

3 Beaumont, E. L. de., *Notice sur les systèmes de Montagnes*, 1852, T.I. T.I. Paris: G. Bertrand.

4 Nicholson, Marjorie Hope, *Mountain gloom and mountain glory: the development of the aesthetics of the infinite*, Ithaca, N.Y., Cornell University Press, 1969. New York: W.W. Norton. p.194

5 A minor, but telling, example of such is an 1836 edition of the British literary journal *Athenaeum* (London: J.Francis) that featured on the same page reviews of Coleridge's *Letters and de Beaumonts Memoirs on Mount Etna*.

6 Tresch, John, *The romantic machine: utopian science and technology after Napoleon*, 2014.

7 Ibid, p.

wide a public as possible made the theatre, in that respect, as significant a forum as the academies and salons⁹. Here, the mass spectacle – with its offer of phantasmoric, multi-sensory, experiences conjured by new technologies – held new and especial significance.

As theories of perception played out across the fields of the scientific and the theatrical, a painter and stage decorator named Louis-Jacques-Mandé Daguerre became a prominent figure in both. During the 1820s, he earned his reputation as a creator of the diorama. In this mechanically sophisticated version of the panorama, audiences around three hundred strong would file into a large room to experience a 360° landscape painting animated with motion and lighting effects. As the public marvelled at the illusion, scientists marvelled at what it told them about optics and perception and, later, writers observed what this dance between the technological and the fantastic represented in terms of a newly modern society. Looking back on this period from the vantage point of the early twentieth century, literary critic Walter Benjamin wrote: 'Announcing an upheaval in technology, panoramas are at the same time an expression of a new attitude toward life [...] In panoramas, the city opens out, becoming landscape – as it will do later, in subtler fashion, for the flâneurs'¹⁰.

When, in 1839, mathematician and politician Francois Arago presented the daguerreotype to the Academy of Sciences on his colleague's behalf he did so in his characteristically awe inspired, awe inspiring, tenor.¹⁰ Certainly, the daguerreotype had utilitarian uses, he conceded, from mapping territories to providing reference material for painters. But he also explained the daguerreotype as an artificial eye of sorts that could make even atmospheric matter and celestial bodies visible. The scientist had long been fascinated by optics and once described something akin to transcendence taking place in the moment when an object registers on the eye's retina. Thus, in his rhetoric, it was not only what the daguerreotype reproduced, but also what it had the ability to produce in the viewer's mind¹¹.

- Illusion

In 2018, when Goudal began the research that would result in the bodies of work *Telluris*, *Soulèvements* and *Démentèlements*, she had recently completed, in fairly quick succession, three series informed by early philosophical and mathematical systems for understanding the sky: *Observatories*, *Towers* (both 2015), and *Southern Light Stations* (2015–7). With this new work she wanted to orient her gaze in the opposite direction, to theories regarding the history of the earth.

It seems significant – revealing, even – that research that began with Burnet would lead Goudal, via de Beaumont, to a moment when developments in the field of optics were advancing in such close proximity, in terms of intellectual and cultural arenas, to theories of the Earth. Anyone who has seen Goudal's exhibitions over the past seven years will recognise in the aforementioned descriptions of the diorama and daguerreotype an affinity with the use of geometry, perspective, scale and perception that is central her work. (This applies not only to her standalone installations and photographs of constructions, but also to her design for the exhibitions themselves¹²).

In many ways, Goudal's technical enquiries can be traced back to 2012, when she included in her exhibition *Haven her body* a set of stereoscopes that she had taught herself to make. This device through which near-identical images are viewed side-by-side to read as one three-dimensional scene exploded in popularity in the mid-nineteenth century. Among the views that held the strongest appeal to that early audience of arm-chair travellers were mountains – incidentally the very same subjects that Goudal chose to depict. Shortly after these first stereoscopes came her architectural *trompe l'oeil* in search of the first line 2014, 170 x 220 cm, photographs of gothic architecture that she installed in cavernous industrial spaces. Then, *Study on perspective I* 2014, a 240 x 200cm metal frame modelled on a diorama card, within which she suspended fragments of a photograph at different depths, so that they cohered only from a frontal view¹³.

In Goudal's photographs, too, the construct is equally important. For the photographic prints in *Haven her body*, she hung in abandoned buildings her own photographs of lush landscapes, printed in A4 and visibly taped together. She also digitally combined images of vegetation and Brutalist architecture; photographed sites that appeared constructed, but weren't (Combat 2012 is a World War One bunker; Well an abandoned shipping container); and photographed objects that looked real, but weren't (Iceberg is a block of polystyrene). For *Observatories and Towers*, Goudal gathered images of architectural structures including the Jantar Matar astronomical instruments in Jaipur, and reproduced them as maquettes that she photographed atop the sea. Then, in *Southern Light Stations* she floated giant, moon-like, paper orbs into overcast skies above the ocean, or mountain ravines.

Importantly, in these the two-dimensional photographs Goudal almost always includes a visual clue that signals to the viewer that what they are looking at is a construction – folds in the paper, say, or ropes tethering the 'moon' to the ground. 'Clue' is the right word here because this is, after all, something being offered: a gesture extended from artist to viewer inviting them to look again, look closer, to spend time in the landscapes. To indulge in the oddly compelling pleasure of knowing our brain is reading the image as something we also know is not.

- Revolution

In French just as in English, the word 'soulèvements' has a double meaning: it is the circular movement of one thing around another, as in the earth turning on its axis; it is also an overthrowing, as in uprising or insurgency, but also a gradual change that takes place until everything that once was is transformed.

Within a practice concerned on the one hand with historical systems of understanding the elements and on the other with the ways in which we look, and what we see, could there be a more apt subject for Goudal than the mountain? Few natural forms reflect the philosophical, scientific, and

8 *Ibid.*, p.

9 Benjamin, Walter, and Rolf Tiedemann. 1999, 15th ed. *The arcades project*, Cambridge, Mass: Belknap Press, p.194.

10 Arago was active in the same circles as de Beaumont. A diary entry by Scottish physicist, geologist and Alpine explorer James David Forbes shows that in the same day in 1839 he received separate visits from de Beaumont and Isodore Niepce, son of Joseph, who showed him the 'first specimens of the Daguerrotype process' in the presence of one Francois Arago, who would introduce the process to the world at the Academie des Sciences two months later.

11 This account of Arago as outlined by Tresch in pp. X and pp. Y

12 See, for instance, *Southern Light Station*, *The Photographers' Gallery*, 2016, where a circular chamber in the centre of the room housed viewfinders, functioning as an observatory. In exhibitions at Fotofestival Lodz (2015) and Edel Assanti; Fotografiska, Switzerland; and the Finnish Museum of Photography (2018) the photographs could be viewed only by navigating through a maze-like wooden grid. In 2018, Goudal also described the set for the stage play *La double inconstance (ou presque)*, *La Compagnie Jean-Michel Rabeux*.

13 Whereas Daguerre's diorama was made to be experienced in 360°, smaller-scale derivatives also existed, made using planes angled at 90° or 150°.

political belief systems of any given moment in time so well.

The nature writer Robert MacFarlane suggests that our responses to these landforms are no more than cultural constructs: 'what we call a mountain,' he writes, 'is in fact a collaboration of the physical forms of the world with the imagination of humans – a mountain of the mind'¹⁴.

MacFarlane explains that in the three centuries since Burnet's Sacred Theory of the Earth, a 'tremendous revolution of perception occurred in the West concerning mountains.' As science advanced, so the 'desolation and peril' for which mountains were once feared came to be among their most attractive qualities.¹⁵ (It is worth us remembering here that one period in which the most significant shift in attitudes took place – when mountaineering became popular and Alpine tourism was a fledgling industry – was the 1830s, when Coleridge, Daguerre and de Beaumont were all active.)

The wooden cubic frames in *Telluris* represent these different imaginations that have shaped understanding of the history of the earth over time. Goudal chose this shape because the square traditionally symbolises the physical earth, and because it brought to mind the English idiom of putting something (or someone) 'in a box'. Meaning, to apply order, to classify and ultimately to simplify, so as to make the subject more manageable to understand. Looking at the towering arrangements of cubes stacked one atop the other I am also reminded of how geologist William Glassley described the place of the scientist contributing to their field: 'a building block in an ongoing refinement of the story of how a landscape evolved'¹⁶

Burnet was central to Goudal's concept, of course; so too was the revolution that followed Copernicus's theory (published 1543) that placed the sun, not the earth, at the centre of the universe. But her research also took her much further back: to Xanthus of Lydia in 5th BC, for instance, who concluded that the presence of shell-shaped stones far inland meant that area had once been the sea; or Chinese legends of the Middle Ages that explained fossils on mountain tops with the idea of 'stony swallows' that took flight during thunderstorms¹⁷. It must have been tempting to focus on the romance of these early ideas and yet there is little room for whimsy even in *Telluris*'s metres-long frameworks. Shot in the California desert, where the searing light renders their image as precise as draughtsman's etchings, these careful arrangements seem to suggest logic, lucidity, a certain clarity of thought.

Of all the attempts to structure knowledge of the earth that Goudal concentrated on, by far the most eccentric was that of one Eugène Emmanuel Viollet-le-Duc. A medieval architect by profession, best known for his restoration of Notre-Dame Cathedral, Viollet-le-Duc was also a keen mountaineer. Claustrophobic in Paris, he sought the solace of high altitude at every opportunity he could and in 1868 embarked upon a restoration study of the Mont Blanc Massif: 'its geodesic and geological constitution, its transformations, and the ancient and modern state of its glaciers, following the geometrical network proposed by de Beaumont'¹⁸. He made elaborate panoramas of the terrain, drew up plans and elevations, and seven years and at least one near-fatal descent later, eventually published a 280-page study in which he revealed the crystalline structure that regulated the mountain's entire formation. Discovering this structure was like finding the key: according to his logic, if an underlying order could be identified in a ruin, it follows that the thing can be restored – the same method applying to mountains as to architecture, just on a grander scale. Viollet-le-Duc's endeavor was not without practical application – the crystalline structure became a characteristic of his buildings – but nor was it without folly, even hubris. It was fellow Gothic architect John Ruskin who grounded things somewhat when he said: 'C'est magnifique, mais ce n'est pas géologie' (It's magnificent, but it's not geology)¹⁹.

If, then, the structures in *Telluris* represent man's attempts to determine order and regularity within nature's apparent chaos, *Soulèvements* suggest the inherent absurdity of that endeavor. A first glance at these photographs and we see mountainous rock formations. A second and it becomes clear, from the fine grids of light that shine through the structures like crevasses, and from their often wildly irregular edges, that the rocks were not in fact there at all. To create this illusion, Goudal fixed a stack of forty mirrors at different angles, so that what we see in the photograph are the many reflections of rock surfaces as one. Her constructions symbolize the great uplifts that result in mountain ranges, but they also suggest the intellectual revolutions that can shatter the status quo; change a field of knowledge beyond recognition. Slippery to behold, they are a reminder that everything we believe to be true can be turned on its head in a minute.

This sense of if not motion, exactly, then at least the movement associated with change is evident, too, in *Démentèlements*, where the image of the mountain dissolving (a result of the hydrosoluble paper on which it is printed) could also represent the dismantling of ideas or attitudes over time. As the title suggests, a gradual taking-apart – a disassembly – which itself implies being put back together in an improved form. It can seem paradoxical to speak about mountains in the same breath as movement, yet in Goudal's photographs, so unerringly still and quiet, the structures they depict so resolutely there, there is the reminder that in photography as in mountains, layers of movement and indeed time are there if only you know what to look for. In the photograph this might not be deep time of the mountains – years counted in the millions or billions – but it can be dizzying to think of all the same.

In *Telluris*, *Soulèvements* and *Démentèlements*, then, we have not only elegant abstractions of the mountain's physical form, but also visualizations and abstractions of the ways in which they have been understood, or misunderstood, over time. Reading these photographs through the context of Goudal's research and the various moments in history at which she alighted draws attention to a paradox in the prevailing attitudes to the mountain that appears to have set in over the past two hundred years. That is, on the one hand, the mountain as promise of escape and transcendence, whose energizing, mind-bending effects our ancestors sought to replicate with optical illusion, and to domesticate in the form of the photograph. On the other, the mountain as an entity so complex to fathom, so mammoth to comprehend, so precarious to traverse, that we are foolhardy to even try. 'Nous sommes si petits', wrote Viollet-le-Duc, in his introduction to *Le Massif de Mont Blanc*. ('We are so very small')²⁰.

14 Macfarlane, Robert, *Mountains of the mind: a history of a fascination*, 2018.

15 Ibid.

16 Glassley, William E., *A wilder time: notes from a geologist at the edge of the Greenland ice*, 2018, p.66.

17 As described by Gohau, p.22.

18 Viollet-Le-Duc, *Mont Blanc: a treatise on its geodesical and geological constitution; its transformations; and the ancient and recent state of its glaciers*, London: Sampson Low, 1877.

19 Arthur Coleman, *The transfiguration of the commonplace: a philosophy of art*, Cambridge (Mass.), Harvard University Press, 2006, p.90.

20 Ibid.