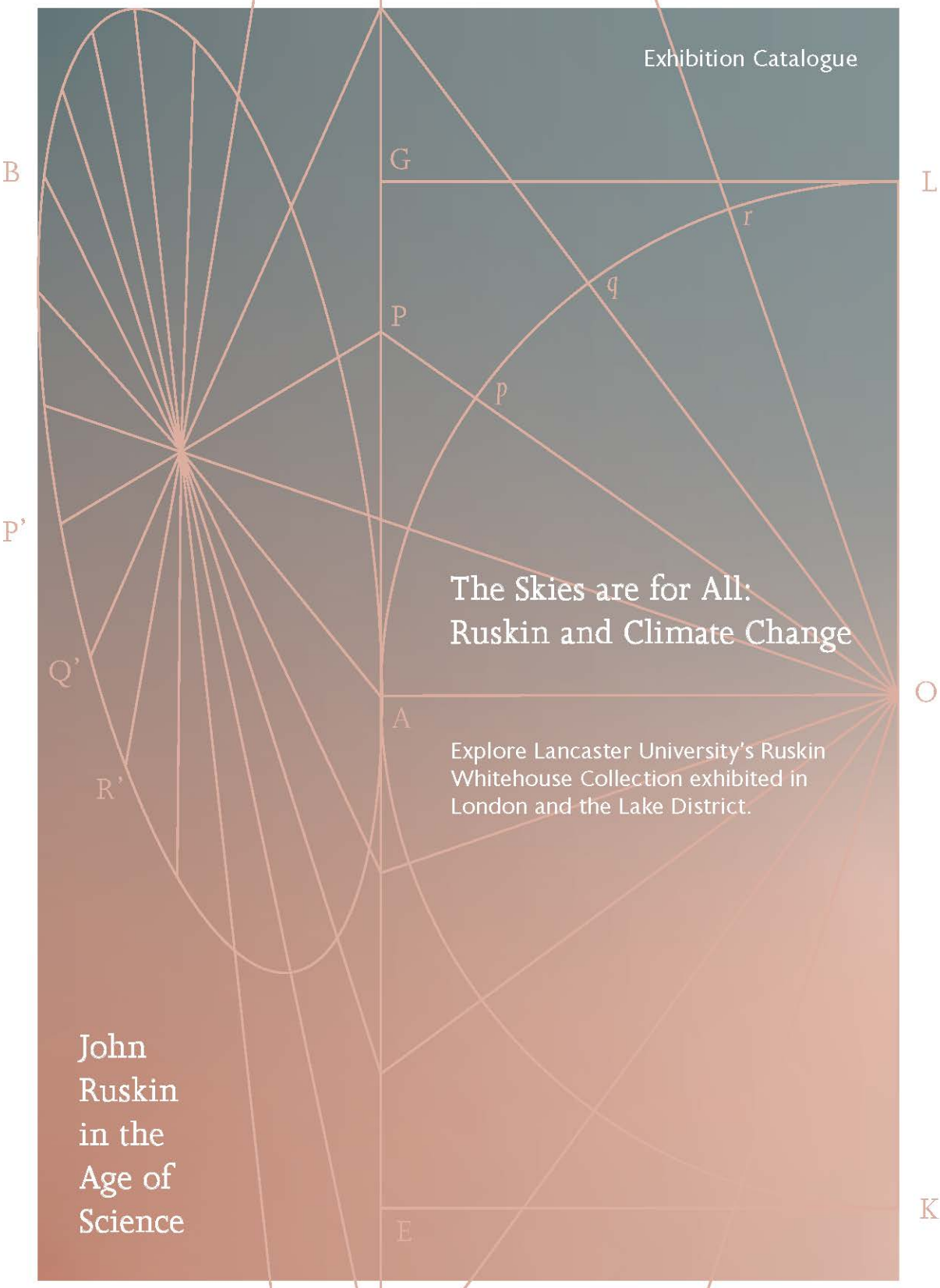
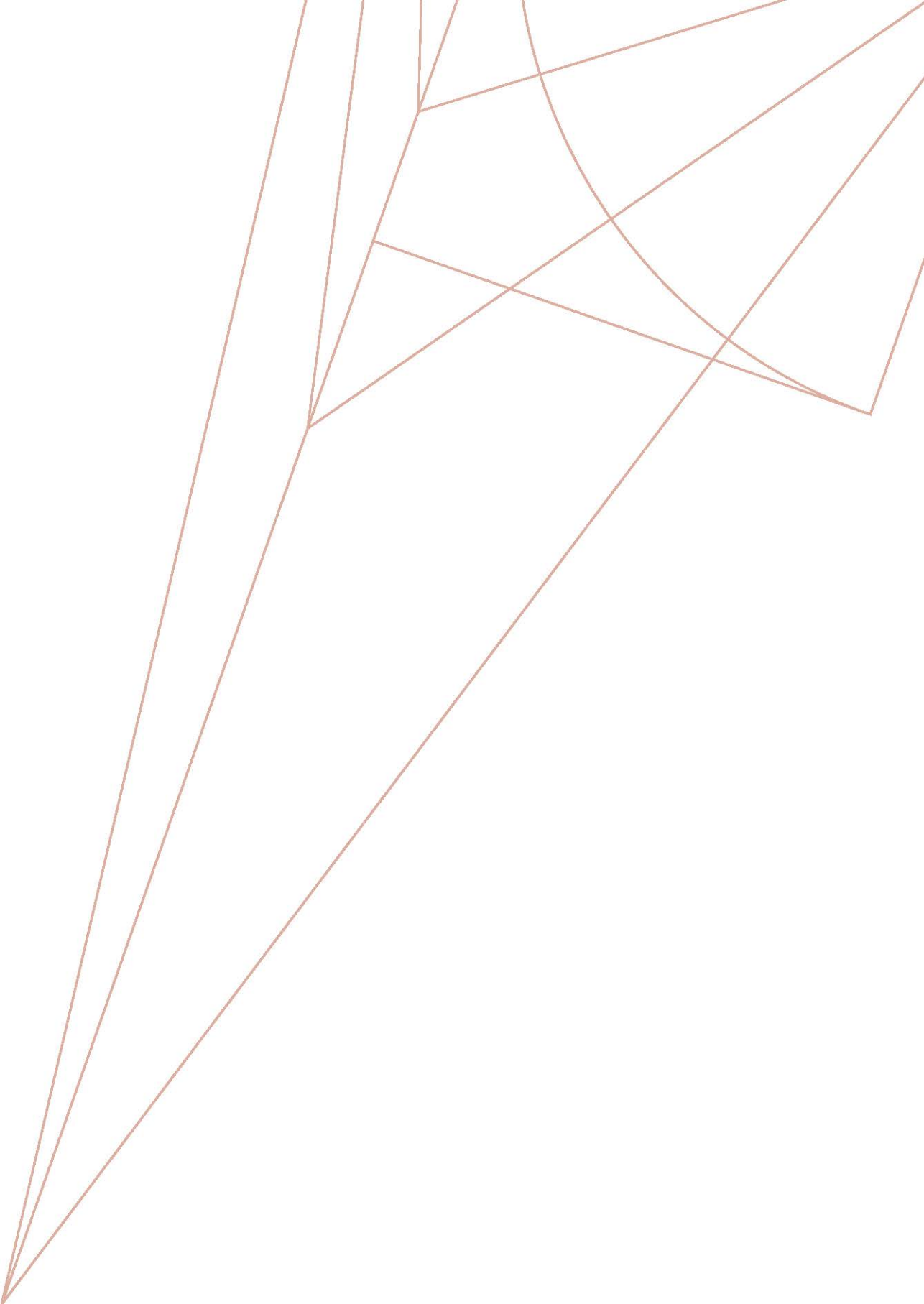


Exhibition Catalogue

The Skies are for All: Ruskin and Climate Change

Explore Lancaster University's Ruskin Whitehouse Collection exhibited in London and the Lake District.

John Ruskin in the Age of Science



The Skies are for All: Ruskin and Climate Change

22
April
–
26
June
2022

The Skies are for All: Ruskin and Climate Change

Drawing on the collections of The Ruskin, Lancaster University, and the Royal Society, 'The Skies are for All: Ruskin and Climate Change' is exhibited at Ruskin's former home at Brantwood.

This exhibition is based on the Google Arts and Culture exhibit, 'Painting with Sunlight: Ruskin and Science', curated by Sandra Kemp and Keith Moore, at the Royal Society in 2020. It is the first in a series of on-site exhibitions in London and the Lake District, 'John Ruskin in the Age of Science', which examine Ruskin alongside his scientific contemporaries, exploring his influence on science and society, in his time and our own.

'The Skies are for All: Ruskin and Climate Change' explores the ways in which John Ruskin, one of the great visionaries of the nineteenth century, contributed to new understanding of the atmosphere, and anticipated the destructive social and environmental impacts of innovation in science and industry.

22
April
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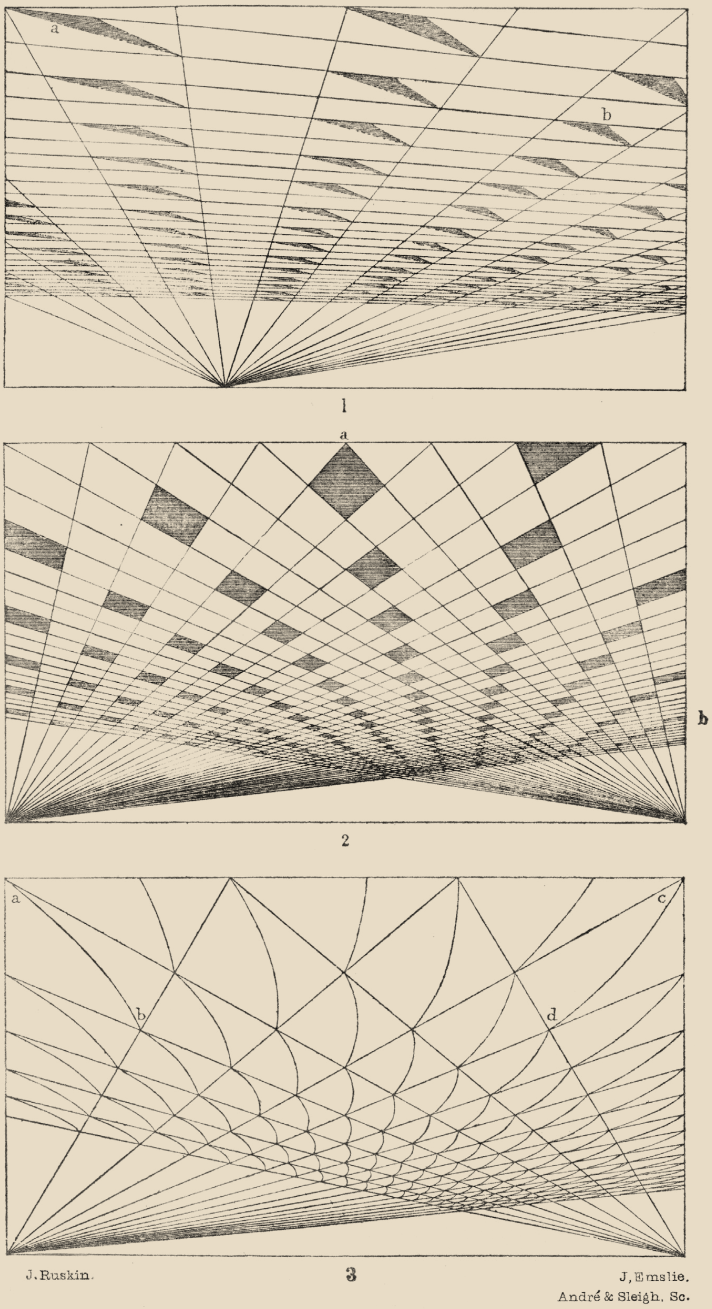
June
2022



64. Cloud Perspective (Rectilinear).

John Ruskin, ***Cloud perspective: rectilinear***, *LE*, VII, Plate 64 (London: George Allen, 1905)

INTERFERENCE SPECTRA, PRODUCED BY DIFFRACTION.

FIG. 18.

To face p. 235.

5

John Tyndall, ***Interference spectra produced by diffraction*** 1860 © The Royal Society

Cloud Perspectives

Lecturing on Art at Oxford University in 1870, John Ruskin (1819 – 1900) complained:

'We live in an age … without honest confidence enough in itself to carve a cherry stone with an original fancy, but with insolence enough to abolish the solar system, if it were allowed to meddle with it.'
(*LE* 20 1905, 177)

But Ruskin himself wasn't averse to meddling with what he called 'our whole concept of the architecture of the sky'. He wrote in 1856 that 'if a characteristic name were needed for modern landscape art, none could be better invented than the service of clouds' (*LE* 5 1904, 318).

The starting point for his drawings of cloud formations was a defence of truth to nature in the paintings of the landscape artist Joseph Mallord William (J.M.W.) Turner RA (1775 – 1851).

Ruskin described Turner's skies as follows:

'It is a painting of the air, something into which you can see, through the parts which are near you, into those which are far off; something which has no surface, and through which we can plunge far and farther, and without stay or end, into the profundity of space.'
(*LE* 3 1903, 348)

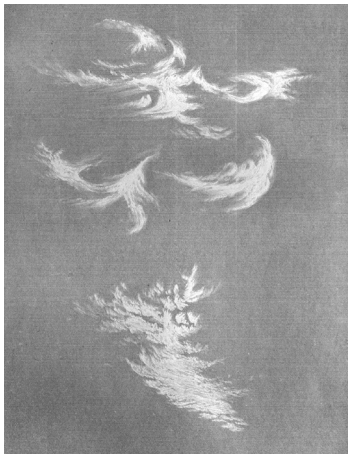
Introduction

‘… the sky is for all; … And yet we never attend to it, we never make it a subject of thought …’

John Ruskin, *Modern Painters*, I

Joseph Mallord William Turner, ***Venice: The Dogana and San Giorgio Maggiore*** 1834 (detail)
Widener Collection (1942.9.85), National Gallery of Art, Washington DC (public domain)

Ruskin's drawings and paintings of the sky bridge new scientific understanding of the flux of atmospheric elements with experimental image-making. Like the painters John Constable RA (1776 – 1837) and Turner before him, Ruskin drew on the classification of cloud types created by Luke Howard FRS (1772 – 1864). These were also used by scientists: for example, in the watercolours and photographs of Charles Piazzi Smyth FRS (1819 – 1900), Astronomer Royal for Scotland, and by the meteorologist and celebrated captain of the voyage of HMS *Beagle*, Robert FitzRoy FRS (1805 – 1865), who refined Howard's classifications. FitzRoy's work anticipates weather forecasting as we know it today, based on the study and understanding of the elements, including the behaviour of wind and clouds.

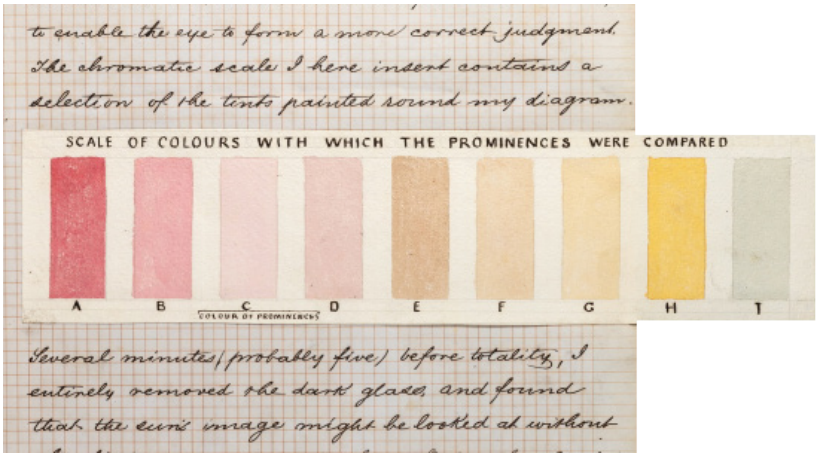


Ruskin's writing on the processes and phenomena of the atmosphere supports his claim that he engaged more closely with science than any other artist of his day. The synergies of art and science in visual and verbal depiction of the action of intense light upon the eye is evident in the illustration by physicist John Tyndall FRS (1820 – 1893), in the depiction of interference spectra during an ascent of Mont Blanc in 1858. Ruskin too was fascinated by the behaviour of light in relation to thermal radiation and varying levels of water vapour in the sky; and optical events resulting from the interaction of light and matter.

Cloud formations by (L-R) John Ruskin, *LE*, *VII* 1905; Robert FitzRoy, ***The Weather Book*** 1863 (© The Royal Society); Luke Howard, ***On the Modifications of Clouds*** 1803 (© British Library Board. All Rights Reserved / Bridgeman Images)

His near-daily sketches of the skies document numerous observable optical events, like a rainbow over Brantwood. For Ruskin, gradations of line were central to the delineation of clouds. In inviting his readers to observe the skies, Ruskin used drawing as an alert practice of interpretation, deploying techniques from a range of different disciplines to elicit and synthesise ideas and information. In *Modern Painters*, a pair of diagrams show geometric compositional rulings applied to the natural curvature of cloud formations. Ruskin argued, 'attention to the real form of clouds, and careful drawing of effects of mist … becomes a subject of science with us …, under the name of aerial perspective' (*LE* 5 1904, 317).

Ruskin painted the skies using a cyanometer, a device for measuring the colour intensity of a blue sky, created by Horace-Bénédict de Saussure FRS (1740 – 1799). 'The loveliest colours ever granted to human sight are those of morning or evening clouds before or after rain', Ruskin wrote (*LE* 20 1905, 166). The same precision was deployed by the astronomer Warren de la Rue FRS (1815 – 1889), who devised a colour chart or 'chromatic scale of colour' to better represent the hues of solar prominences. Ruskin's only known visit to the Royal Society was in 1862, when he attended de la Rue's lecture on the 1860 total solar eclipse.



Warren de la Rue, ***Chromatic scale*** 1862 © The Royal Society

Above all, meteorology appealed to Ruskin as 'a science of the pure air, and the bright heaven' (*LE* 1 1903, 208). In the preface to his book, *The Queen of the Air* (1869), Ruskin lampoons early attempts by Tyndall to simulate in a bottle the processes occurring naturally in the sky: 'within an experimental tube, a bit of more perfect sky than the sky itself!' (*LE* 19 1905, 292). Tyndall used a simple glass tube with a white light at one end for the sun to simulate the sky. He theorised that the colour of the sky is caused by light from the sun scattering off particulates (dust, vapour) in the atmosphere – though we now know blue light is scattered more because it has a shorter wavelength.

Ruskin's later life just coincided with the early work of the Scottish physicist and meteorologist Charles Thomson Rees Wilson FRS (1869 – 1959), who later won the Nobel Prize for his cloud chamber, developed as a result of his research into cloud formations, particularly thunderclouds and lightning. Cloud chambers are sealed devices saturated with water vapour in which ionising radiation forms visible 'cloud trails'. In *Modern Painters*, Ruskin also light-heartedly satirises scientific attempts to recreate clouds in a laboratory in order to study these phenomena: 'It got the clouds packed into cylinders, and made them carry its wise self at their own cloud pace' (*LE* 5 1904, 383).

John Ruskin, ***Mer de Glace, Chamonix*** 1849 © The Ruskin, Lancaster University

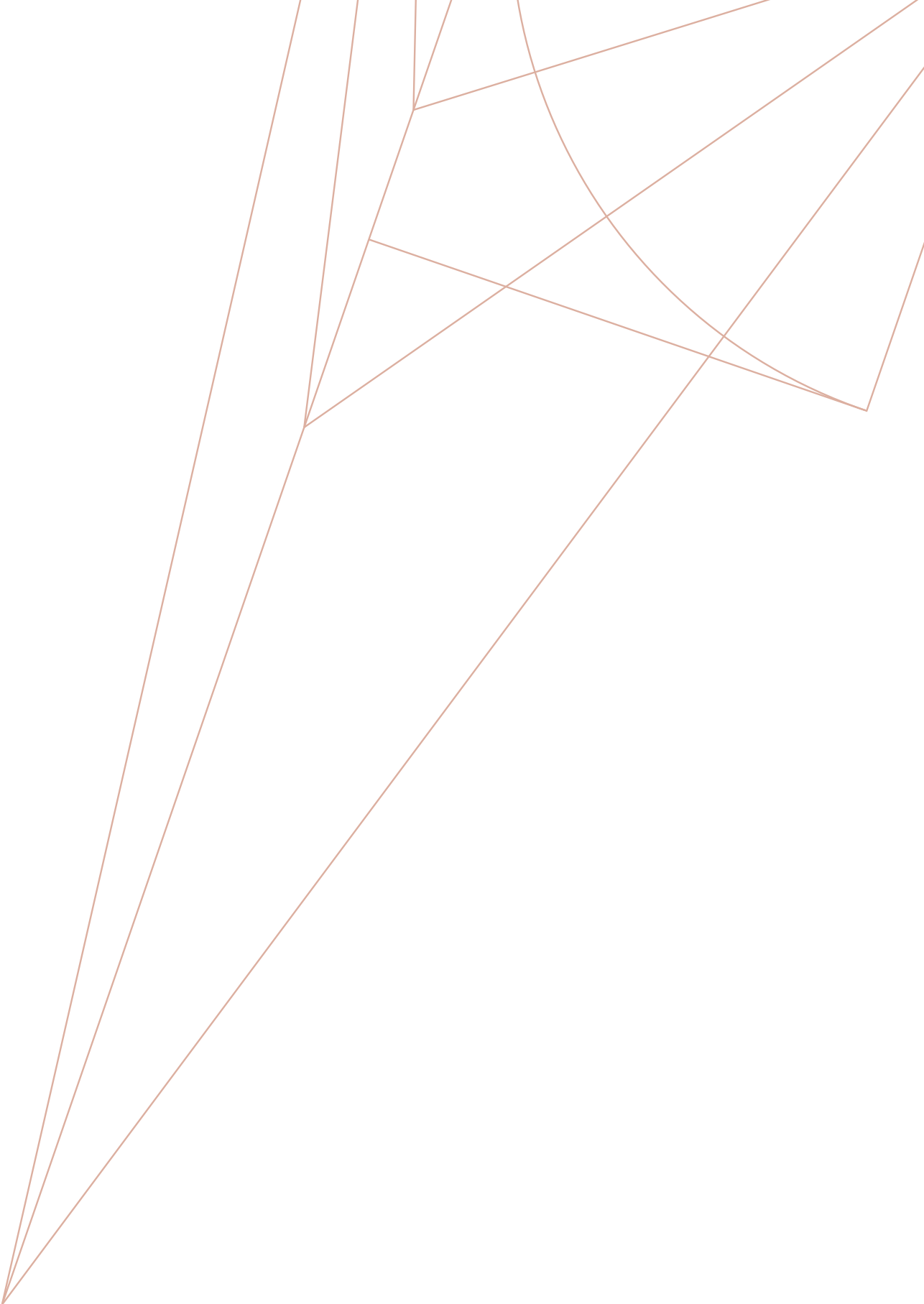
John Ruskin, Frederick Crawley, ***Chamonix. Mer de Glace, Mont Blanc Massif*** 1854 (detail)

Ruskin is more critical of scientific experimentation on clouds in his famous lecture 'The Storm-Cloud of the Nineteenth Century', delivered in 1884 at the London Institution. Ruskin describes 'an atmosphere through which a burning sun shines thwartedly' as a result of industrial pollution (*LE* 20 1905, 169). His arguments and careful documentation of what he described as the 'plague wind', accumulated over a lifetime's study of the skies, were dismissed by his contemporaries as 'imaginary or insane'. Meteorological records show, however, that Ruskin was correct. Today, 'The Storm-Cloud of the Nineteenth Century', is recognised as one of the earliest publications on anthropogenic climate change.

In his autobiography, *Praeterita* (1885), Ruskin wrote 'the interwoven temper of my mind … has always made foolish scientific readers doubt my books because there was love of beauty in them, and foolish aesthetic readers doubt my books because there was a love of science in them' (*LE* 35 1908, 56). The exhibition, 'The Skies are for All: Ruskin and Climate Change', explores this dialectic.

Director, The Ruskin – Museum and Research Centre

LE: John Ruskin, ***The Library Edition of John Ruskin's Works, 39 vols.***, ed. E. T. Cook and Alexander Wedderburn (London: George Allen, 1903-1912)



The Skies are for All: Ruskin and Climate Change

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Exhibition Catalogue

‘… attention to the real form of clouds, and careful drawing of effects of mist … becomes a subject of science with us …, under the name of aerial perspective.’

John Ruskin, *Modern Painters*, III

1. Architecture of the Sky

John Ruskin, ***Isola Madre and the Mountains above Laveno, from above Baveno on Lago Maggiore*** 1845 © The Ruskin, Lancaster University


Bavens. 20

Meteorology appealed to Ruskin as 'a science of the pure air, and the bright heaven' (*LE* 1 1903, 208).

Like the painters John Constable RA (1776 – 1837) and J.M.W. Turner (1775 – 1851) before him, Ruskin was familiar with the classification of cloud types by Luke Howard (1772 – 1864). Ruskin had been fascinated by clouds since childhood and often painted cloud formations using a cyanometer, a device for measuring the colour blue, created by Horace Bénédict de Saussure FRS (1740 – 1799).

Ruskin used meteorological imagery to counter his scientific adversaries and offered powerful critiques of the adverse effects of industrialisation: the experiment on atmospheric scattering (or why the sky is blue) by John Tyndall FRS (1820 – 1893) is satirised in *Modern Painters* (1843 – 1860) and both Tyndall and Thomas Henry Huxley FRS (1825 – 1895) came under fire in *The Queen of the Air* (1869).

John Ruskin, ***Isola Madre and the Mountains above Laveno, from above Baveno on Lago Maggiore*** 1845
Pencil, black ink, ink wash and bodycolour.
Inscription: 'Baveno 20th August'.
16.2 x 21.6 cm
1996P0870 (Verso)

By 1870, Ruskin had become convinced that the sky was being dimmed by a 'veil of pollution' from industry. This became the argument of his famous lecture 'The Storm-Cloud of the Nineteenth Century' at the Royal Institution in 1884.

He concluded that scientists may now be able to create 'within an experimental tube, a bit of more perfect sky than the sky itself'. At the same time, he argued that, for all their theories and experimentation, scientists still 'don't know much yet about either about rock-beds, or cloud-beds' (*LE* 34 1908, 17).

Arthur Severn [?], after Ruskin, ***Cloud Study: Ice Clouds over Coniston*** 1884
Bodycolour on buff paper. Inscription in ink by Arthur Severn: 'This may be published. Ruskin quite approves'
12.5 x 17 cm
1996P1216

2. Turner: Tone and Effect

John Ruskin , ***Glass Negative of J.M.W. Turner's Lancaster Sands (Farley)*** n.d.

This diary notebook pen and wash sketch made during a visit to Chamonix captures Ruskin's fascination with the effects of weather on light, portraying the nuanced shading of the clouds broken through by the sunshine during a brief pause in the storm.

The entry reads:

'… some lovely scenery of white cloud lying along the pines of the Tapia, showing the shadowy forms of the Blaitière and Plan above, and later, a most wonderful bit of effect to the north, which I have been trying to note, but cannot, because I find it impossible to give the effect of very white cloud in very dark twilight; (Think of this with respect to Turner's effects; they are perhaps intended for greater gloom that I have supposed) …'

Ruskin claimed that he first became aware of Turner's work through the engravings in Samuel Rogers' book of poems, *Italy* (1822), received from his father's business partner Henry Telford as a present on his thirteenth birthday in 1832.

Over his career, Ruskin made multiple copies of Turner's works. He reflected on Turner's skies in his private correspondence and published writings, and developed his own style in relation to Turner's.

In the 1840s, Ruskin was using Turner's *Liber Studiorum* (Book of Studies). Published in parts between 1807 – 1819, the *Liber Studiorum* was a series of landscape and seascape compositions published as prints in etching and mezzotint. Ruskin echoed Turner's palette in his drawings and paintings.

John Ruskin, ***Diary of John Ruskin*** 1844
Maroon leather, brass clasp
23.7cm x 20cm
MS 4

28

Ruskin and his father, John James, commissioned paintings by Turner and were avid collectors of his works.

Ruskin's copy of Turner's watercolour, *Goldau*, highlights the significance of perspective and curvature in capturing the sweeping movements and energies of Turnerian skies. Originally, the watercolour had been commissioned from Turner in 1843 and was later engraved by J. Cousen and used as an illustration in *Modern Painters*, V, Plate 50 (1860).

However, Ruskin found this copy to be more suitable as a teaching aid for his students, for 'pencil washed with neutral tint, will enable the student often to obtain memoranda of chiaroscuro for which pencil alone would be too weak, and sepia too coarse' (*LE* 21 1906, 227).

John Ruskin, ***Copy of Turner's 'Goldau'*** 1855
Pen and lamp-black. Inscription: 'J Ruskin, after J.M.W.T. 1855
Follow this for tone and effect. The other for outline and detail.'
29.8 x 32.7 cm
1996P1017

Ruskin assisted Ralph Nicolson Wornum, Keeper of the National Gallery, in the cataloguing and exhibition of the works bequeathed by Turner to the nation on his death in 1851. As part of his extensive documentation of Turner's pictures and drawings, Ruskin photographed many of them.

This glass slide is one of these documentary photographs. Turner's painting shows the potentially hazardous crossing of Morecambe Bay at low tide as a result of its quicksands and unpredictable tides. Turner crossed Lancaster Sands himself in 1816.

John Ruskin, ***Glass Negative of J.M.W. Turner's Lancaster Sands (Farley)*** n.d.
Glass Negative

3. Photography: Painting with Sunlight

Charles Piazzi Smyth, ***Cloud forms that have been*** (detail) 1893 © The Royal Society

Ruskin recreated scenes by Turner using early forms of photography, including daguerreotypes. These he claimed produced effects 'more beautiful than anything since done by light'.

Ruskin owned one of the world's largest collections of landscape photography, including the 125 daguerreotypes he made or commissioned, now housed at The Ruskin, Lancaster University. These comprise one of the most important surviving group of early photographs, or 'sun portraits', in the world, including what Ruskin would later describe as the earliest photo of the Alps, taken in 1849.

Ruskin proclaimed the daguerreotype 'the most marvellous invention of the nineteenth century' (*LE* 3 1903, 210). Despite photography's extraordinary precision of detail, Ruskin later criticised its mechanistic effects, due to the loss of a direct connection with what we see.

John Ruskin, Frederick Crawley, ***Chamonix. Mer de Glace, Mont Blanc Massif*** 1854
Daguerreotype. Half Plate; Hallmark: Gaudin Double /40
152 x 206 x 5 mm
1996D0075

Page 11.

CLOUD FORMS THAT HAVE BEEN;

AT CLOVA, RIPON; DURING **1892** & **93**. Continuous Number of this Plate = 22.

May 15 (1) 1892.

Page 10

CLOUD FORMS THAT HAVE BEEN,

AT CLOVA, RIPON; DURING **1892** & **93**.

Or Notes upon each successive, original, little glass negative Photograph in Box 2;
where its Plates are *locally* numbered from **1** to **12**; but *continuously* numbered from 13 to 24 and for dates, from April 17 to May 19; 1892

Heads of Explanations	*Of the one Special Plate out of said Box 2, alone treated of on this page.*
A	*Its Continuous-reference Number* 21 ; *but locally, Plate* 9, *of this Box* 2
B	*Its date of taking* = ♄ May 14, (2); 1892. At 10.30 A.M.
C	*From Station*, Library Ante-room window, *Looking* South. *Focus* = 10".717.
D	*Aperture employed* = $\frac{\text{Sol. Foc.}}{9}$. *Exposure made with* Drop shutter + 2 spring accelerators
E	*Dry plate used* = Edwd's "Iso" "Slow". *Holder* = . *Developed with* Iron
F	*Subject or Object to show* heavy clouds with change of wind and lower Barometer, after yesterday's gracious & benificent rain.
G	*Barometer for the day, in inches, Brit.* = 29.81. The air warm & damp.
H	*Out Thermometer ditto, in degrees Fah.* = 55.2. The Max. through 24 days.
I	*Spectroscopy of lower atmosphere Southward* } *Rain-band* = 5. The largest of the season. *Low Sun-band* = 1
J	*Wind* = 15 miles per hour, from S. West. *Earth surface* = wet. *Air* = clear.
K	*Cloud amount* = $\frac{9}{10}$ *of Hemisphere. General remarks*, The recent warm and soft rain peculiarly grateful & thankworthy to both plants & animals.
L	*Occasional particulars touching only the often long afterwards made, Positive paper enlargements from the above small Negatives; and deciding the size of the present page*

Over, for Continuous Number 22

Nineteenth-century astronomy was increasingly dependent on documentation of the skies through photography, as in the works of Scottish Astronomer Royal, Charles Piazzi Smyth, and others.

Piazzi Smyth closely observed the sky. Both his own, and the work of his wife Jessica ('Jessie'), contributed to the development of knowledge in astronomy, meteorology, spectrography (the composition of light emitted by stars) and photography.

This photograph of a winter sky, taken in February 1893, was part of a larger experimental project documenting meteorological information. Composed of manuscript notes and carefully captioned photographs, these ledgers form an extensive body of work on the study of clouds.

The first volume of the series is headed: 'Cloud-Forms that have been; to the glory of God their Creator, and the wonderment of learned people. Recorded by Instant Photographs, taken at Clova, Ripon, in 1892, 1893 and 1894'.

Charles Piazzi Smyth, ***Cloud forms that have been*** 1893
Photograph and notes. Inscribed: 'AT CLOVA, RIPON: During 1892 & 93 Continuous Number of this Plate = 111. Feb 15 1893'
Mounted Photograph: 27.9 x 28.0 cm
MS/698

To form lower half of Plate 3 of Phil. Trans.

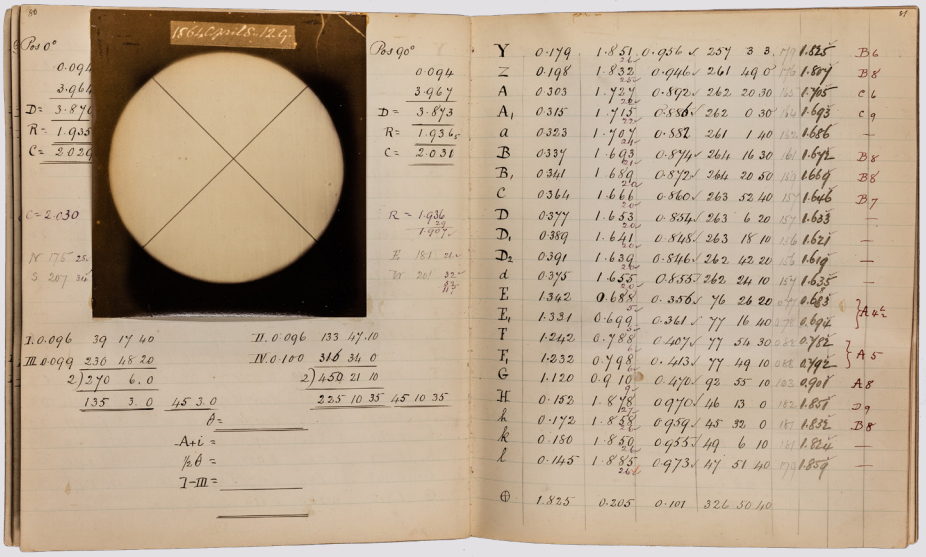
The cloud horizon at Guajara as seen ~~at night~~ by moonlight: showing the summit of Grand Canary above the clouds in the distance

However, as is evident in Smyth's watercolour topography depicting cloud horizons at Guajara, scientific research at this time used traditional forms of visual documentation alongside the new photographic technologies.

This watercolour, 'Night view of the clouds below Mount Guajara, Tenerife, Canary Islands', is from a scrapbook of watercolours and stereo plates documenting Charles Piazzi Smyth's 1856 astronomical expedition to a volcanic mountain range in Tenerife. It is inscribed in ink: 'The cloud horizon at Guajara as seen by moonlight: showing the summit of Grand Canary above the clouds in the distance.'

It also features as the bottom half of plate XXXII in Smyth's paper 'Astronomical experiment on the peak of Teneriffe [sic], carried out under the sanction of the Lords Commissioners of the Admiralty', published in the *Philosophical Transactions* of the Royal Society in 1858.

Charles Piazzi Smyth, ***Cloud Horizon*** 1856
MS/626
Colour Illustration, ***The Tenerife Papers of Charles Piazzi Smyth***
27.2 x 27.9 x 1.5 cm



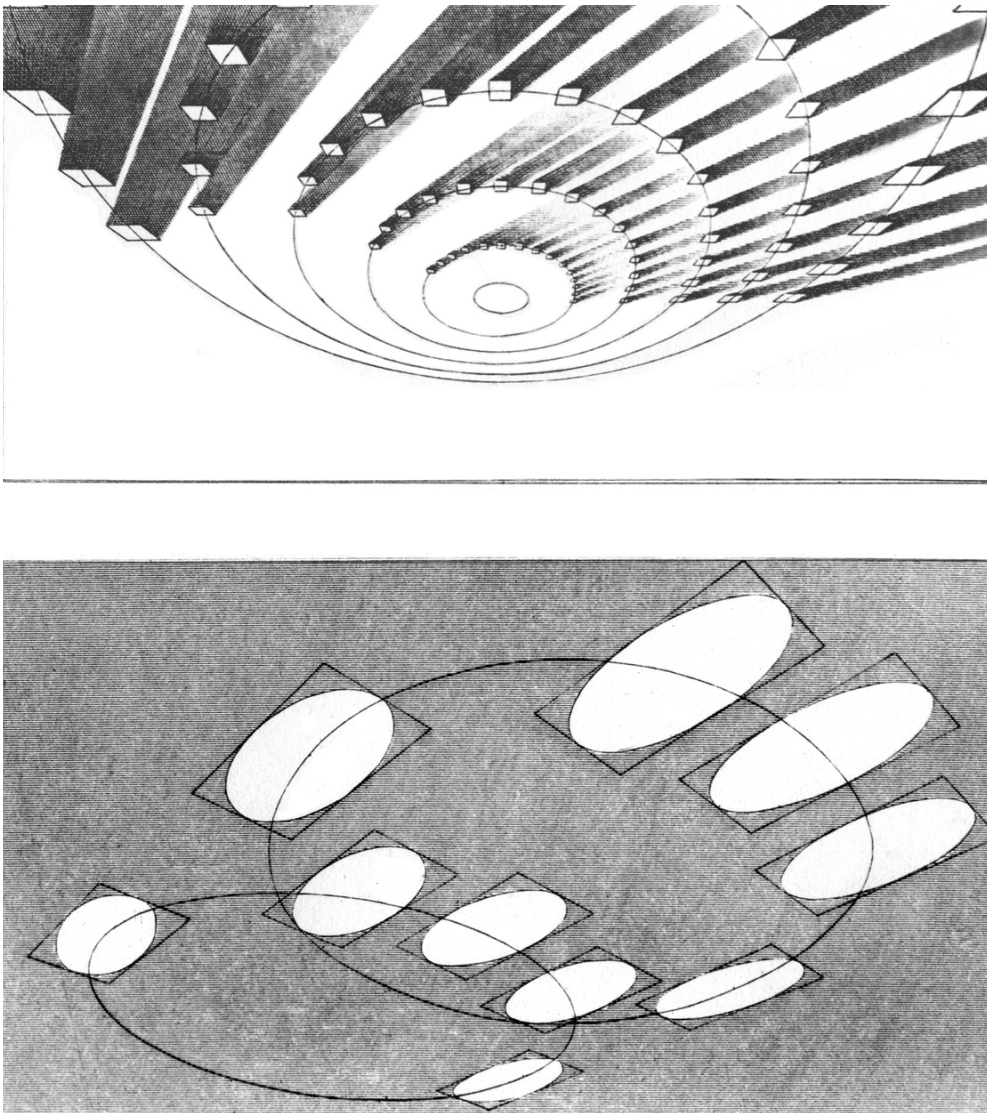
Ruskin's only known visit to the Royal Society was when he attended the lecture on the 1860 total solar eclipse in April 1862 by British astronomer Warren de la Rue. Ruskin was an early adopter of new technologies and it is possible that he was interested in de la Rue's projected photographs of the eclipse captured with the Kew photoheliograph – designed by de la Rue himself in 1854.

De la Rue used models and large-scale diagrams in his lecture. Ruskin was also an accomplished lecturer who used models and large-scale diagrams to particular effect in his lecture 'The Storm-Cloud of the Nineteenth Century' at the Royal Institution in 1884.

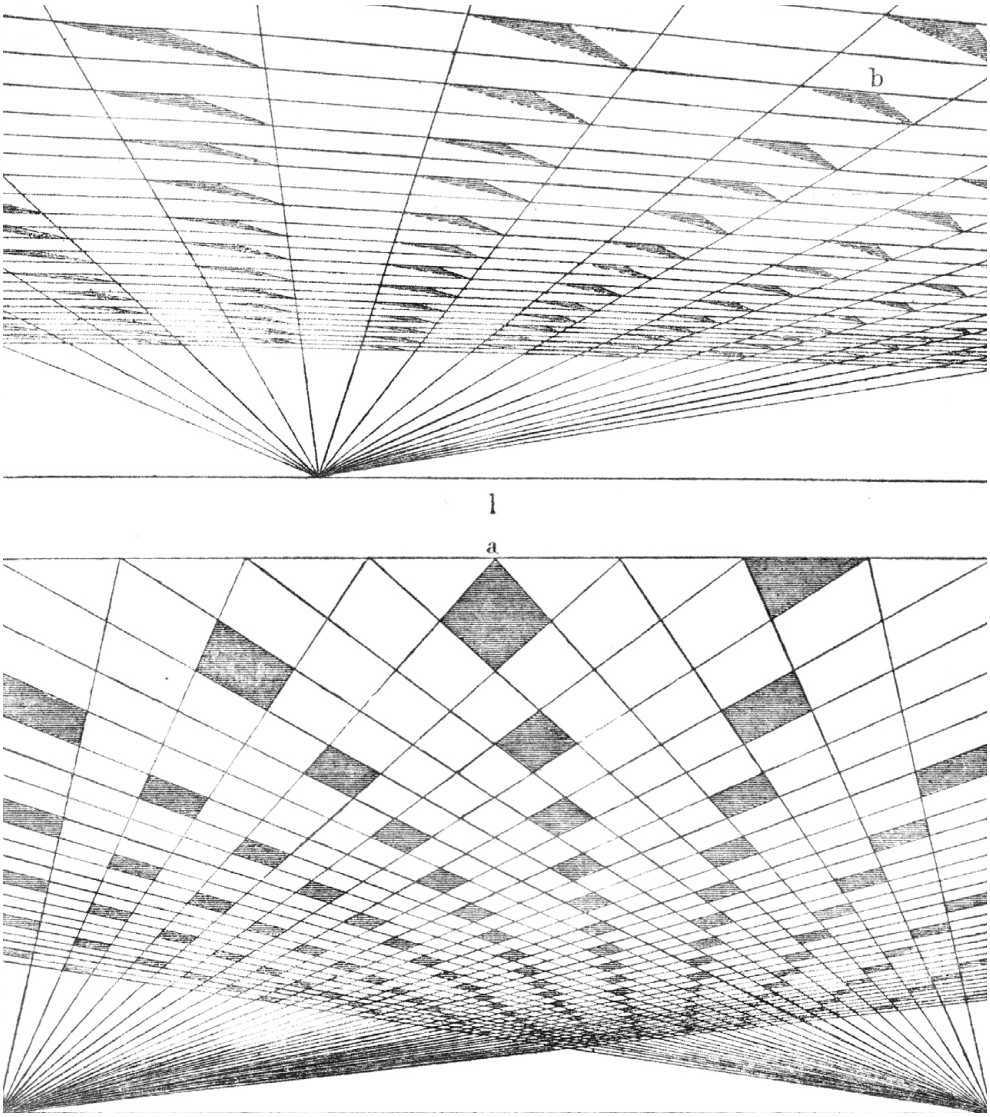
From his home in Coniston towards the end of his life, Ruskin wrote of a new kind of darkness in the skies: 'I am utterly horror-struck and hopeless about the weather … The plague wind is now constant and the sun virtually extinguished' (*Diary* 11 February 1881).

Warren de la Rue, ***Kew Observatory sunspot notebook*** 1860
PT/65/1

4. Drawing: Shorthand or Symbolic



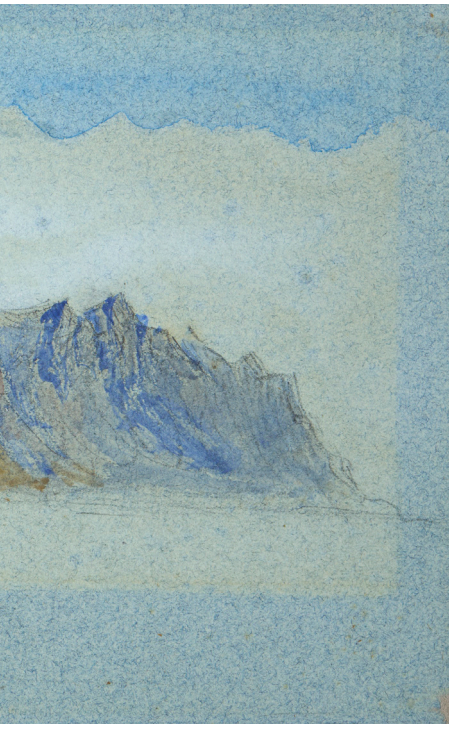
John Ruskin, ***'Cloud perspective: curvilinear'***, *LE*, VII, Plate 65 (London: George Allen, 1905)



John Ruskin, ***'Cloud perspective: rectilinear'***, *LE*, VII, Plate 64 (London: George Allen, 1905)

In 1856, Ruskin wrote that if a characteristic name were needed for modern landscape art, none better could be invented than 'the service of clouds' (*LE* 5 1904, 318).

At the same time, he noted that due to the interconnectedness of all clouds in a skyscape, and the fact that they are constantly moving, clouds are one of the most challenging things to draw. He recommends never being without a small memorandum book and a pencil,and sketching at speed 'the whole range of the clouds; marking, by any shorthand or symbolic work you can hit upon, the peculiar character of each.'



Ruskin's describes this 'peculiar character' as follows:

'But the clouds, though we can hide them with smoke, and mix them with poison, cannot be quarried nor built over, and they are always therefore gloriously arranged …[and] all move and burn together in a marvellous harmony. [so that] … if you are not able to recollect (which in the case of a complicated sky it is impossible you should) precisely the form and position of all the clouds at a given moment, you cannot draw the sky at all; for the clouds will not fit if you draw one part of them three or four minutes before another.'
(*LE* 15 1904, 318)

John Ruskin, ***Mount Pilatus*** n.d.
Pencil, watercolour and bodycolour
10.3 x 22.2 cm
1996P0971

Ruskin's drawings of mountains and clouds form part of his quest to understand 'the entire meaning and system of nature' (*LE* 3 1903, 367).

The sketch as a form of visual note-taking, both communicative and cognitive, was a key feature of nineteenth-century science. At this time, there was no standard format for recording observation and experiments in the field. Across the arts and sciences, drawing processes ranged from the optical and spatial to the temporal and instrumental.

Ruskin was a skilled draughtsman, but did not think of himself as an artist and his works were not produced for sale or exhibition. Writing to his contemporary Samuel Prout in 1846, Ruskin noted, 'I have considered all my sketches merely as memorandums' (*LE* 38 1912, 341).

In this sketch, against a grey wash, a pencil line traces the irregular ridge of the mountain massif, recalling Ruskin's description of 'action and united movement …, nearly resembling that of sea waves; … governed by some grand under-sweep like that of a tide running through the whole body of the mountain chain' (*LE* 6 1904, 242).

John Ruskin, ***Mount Pilatus, Lake of Lucerne*** 1846
Pencil and ink wash. Inscription in pencil: 'Bought of Mr Arthur Severn at Brantwood 1898 by his friend Mr C E Mathews'
17.8 x 47 cm (irregular)
1996P1436

48

This was one of the early examples of 'his own handiwork' included by Ruskin alongside Turner watercolours shown at the Fine Art Society, New Bond Street, in 1878.

Ruskin had copied an engraving after the watercolourist Henry Gastineau (1791 – 1876).

'My first attempt at "composition from Nature" Mr. Gastineau's sky with my own 'Dover Castle!' the latter done out of my head! All dark side and no shadow. This was literally my first attempt at picture-making, at twelve years old. Infinitely stupid, but showing steady power and will to work.'
(*LE* 13 1904, 504)

John Ruskin, ***Dover Castle From The West*** 1832
Pencil. Inscription: 'Dover Castle from the west' (reverse); 'JR' (front)
17.8 x 26 cm
1996P1234

This diary notebook documents Ruskin's first European trip without his parents. During this tour of Italy in 1845, Ruskin travelled through Genoa, Sestri, Lucca, Florence and Venice, where he encountered the work of Tintoretto for the first time.

The notebooks contain written and pictorial notes on landscape, art and architecture made in Genoa and Lucca, including clouds, aiguilles and precipices made in-situ in the Col de le Seigne – Courmayeur range. Ruskin's interest in architecture would culminate in the *The Seven Lamps of Architecture* (1849) and *The Stones of Venice* (1851 – 1853).

John Ruskin, ***Diary of John Ruskin*** 1845
Brown leather, gilt, brass clasp
MS 5a

52

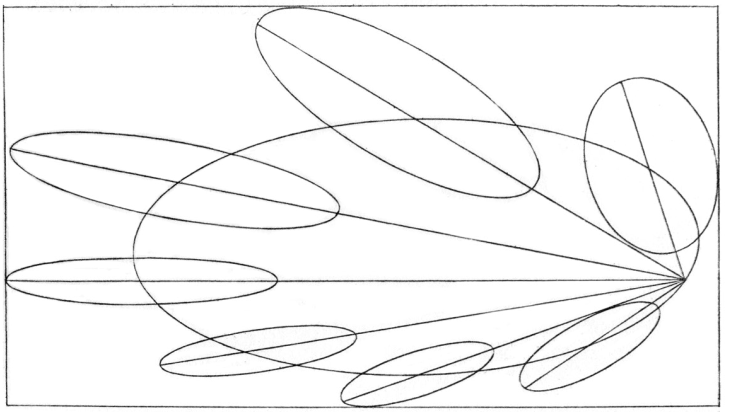
The centrality of clouds to Ruskin's understanding of painting as an artform is evident in the focus given to the subject in *Modern Painters*: the first volume (1843) included three chapters, 'Of Truth of Clouds'.

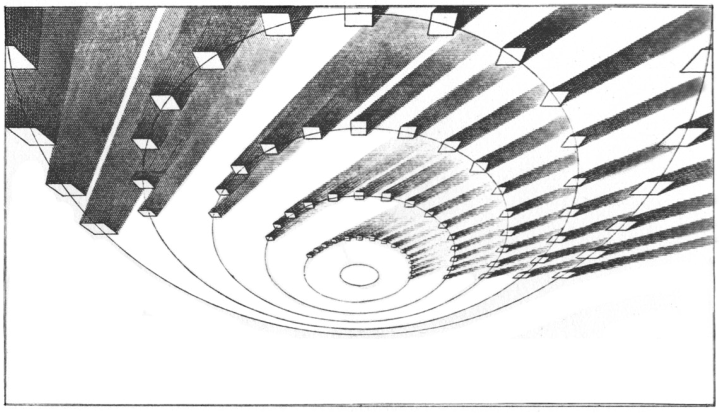
In 1860, the nature of clouds remained a primary concern: *Light in the West, Beauvais*, painted by Ruskin in 1845, was engraved by the printmaker James Charles Armytage (1802 – 1897) as Plate 66 of the volume of *Modern Painters* published that year.

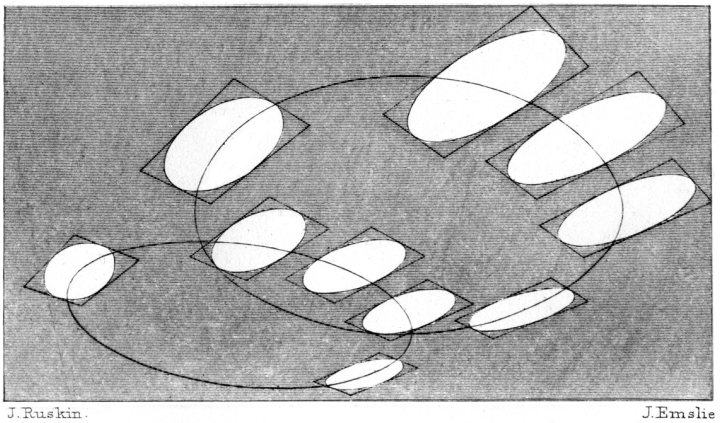
Discussed in Chapter II, 'The Cloud-Flocks,' Ruskin used the image to develop his argument on the laws of perspective for clouds. He writes,

'In [this] sketch of an actual sunset behind Beauvais cathedral (the point of the roof of the apse, a little to the left of the centre, shows it to be a summer sunset), the white cirri in the high light are all moving eastward, away from the sun, in perfectly parallel lines, curving a little round to the south.' (*LE* 7 1905, 154)

John Ruskin, ***Light in the West, Beauvais*** 1845
Pencil, ink, ink wash and bodycolour on blue-grey paper
13 x 17.8 cm
1996P1146







J. Ruskin.

J. Emslie
Allen & Co. Sc.

65. Cloud Perspective. (Curvilinear)

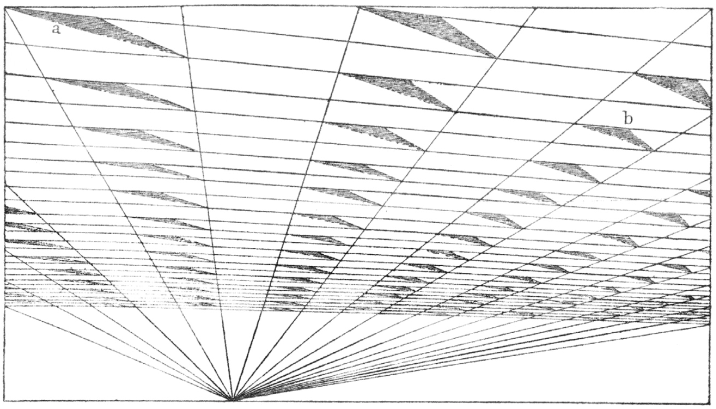
In order to think more closely about the relationship between parallel geometrical lines and curvature in the depiction of clouds, Ruskin created a series of drawings to illustrate the use of geometric compositional rulings in drawing curved shapes – in particular, the application of perspective to the depiction of clouds.

These drawings bring together Ruskin's core principles of empirical thought and expression in both science and art. He believed that a firm grasp of the rules of proportion and perspective was necessary to capture 'the expression of buoyancy and space in sky' (*LE* 7 1905, 156).

In his instruction manual *Elements of Drawing* (1857), Ruskin explained,

'All drawing depends, primarily, on your power of representing Roundness … For Nature is all made up of roundnesses; not the roundness of 25 perfect globes, but of variously curved surfaces. Boughs are rounded, leaves are rounded, stones are rounded, clouds are rounded, cheeks are rounded, and curls are rounded: there is no more flatness in the natural world than there is vacancy.'
(*LE* 15 1904, 50)

John Ruskin, 'Cloud perspective: curvilinear', 1860, ***Modern Painters*** V, Plate 65, *LE* VII, ed. by Cook and Wedderburn (London: George Allen, 1905)



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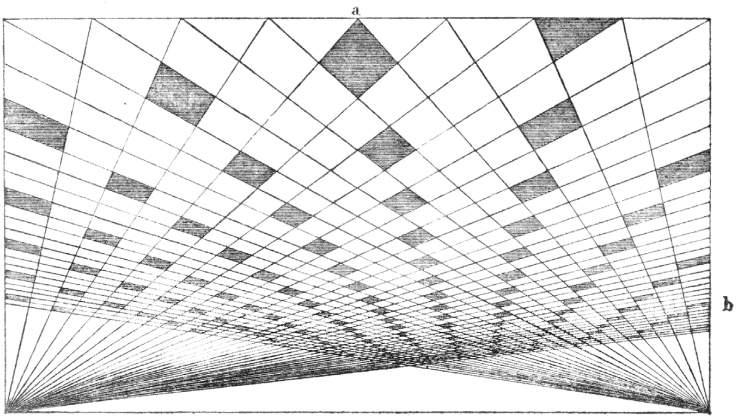

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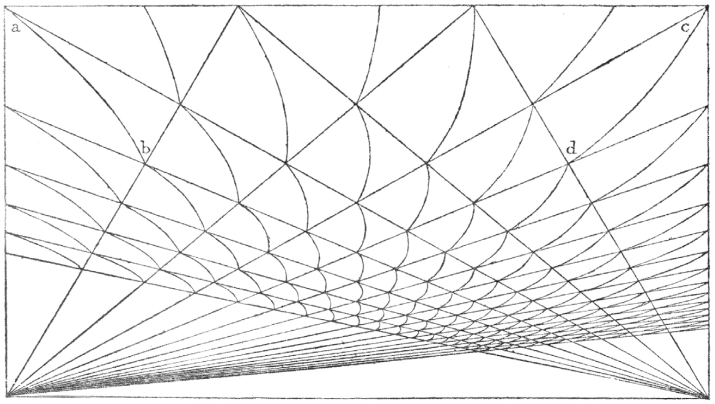


J. Ruskin. 3 J. Emslie.

André & Sleigh, Sc.

64. Cloud Perspective (Rectilinear).

Ruskin argued that the power of drawing to understand the clouds 'alters and renders clear our whole conception of the architecture of the sky' (*LE* 5 1904, 318).

'Cloud Perspective: Rectilinear' illustrates the application of architectural perspective to the representation of cloud forms.

In the three figures, the viewpoint is that of an observer facing the cloud formations, which – as in a conventional landscape painting – are delineated by a rectangular frame. Ruskin writes,

'Supposing that the breadth included was one-fourth of the horizon, the shaded portions … represent square fields of clouds, and those in the upper-most figure narrow triangles … In each figure, the shaded portions show the perspective limits of cloud-masses, which, in reality, are arranged in perfectly straight lines, are all similar, and are all equidistant from each other.'
(*LE* 7 1905, 153)

Ruskin acknowledges the limitations of the 'Rectilinear' perspective, because he understood the skies as a complex system impacted by a range of phenomena. In inviting his readers to pay attention to clouds, Ruskin's technical drawings insist on a mode of reading the skies that accounts for the flux of atmospheric elements.

John Ruskin, 'Cloud perspective: rectilinear', 1860, ***Modern Painters*** V, Plate 64, *LE* VII, ed. by Cook and Wedderburn (London: George Allen, 1905)

Philo. Mag. Pl. VI. Vol. XVII.

In formulating his compositional theories for the depiction of clouds, Ruskin drew on the classification of cloud types created by Luke Howard FRS (1772 – 1864) and Robert FitzRoy FRS (1805 – 1865).

Howard proposed the nomenclature system still used for clouds today in 1802; and in his 'Essay on the Modification of Clouds' (1803), he included detailed cloud drawings to supplement the written descriptions of his classifications, taken from the notes and watercolour sketches in his sketchbook. He classified clouds into four types based on a theory of how clouds form through altitude, temperature and air currents.

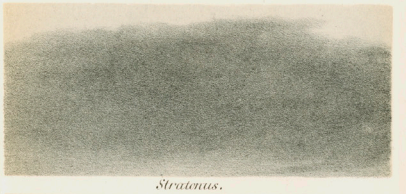
Inspired by Howard, the landscape painter, John Constable (1776 – 1837) made a series of cloud studies in the 1820s. He recorded the day, time, location and weather conditions on the back of each, and commented: 'I have done a great deal of skying … the sky is the source of light in nature, and governs everything.'

Howard also emphasized the importance of clouds in meteorology. Acutely aware of the tricks that changing weather may play on the eye, and of the eye's own inaccuracy when judging distance, height or perspective, Ruskin was involved with this new science from the start.

On the Modifications of Clouds / Luke Howard. Author: Howard, Luke / [S.l.]: Taylor, [1803] Source/Shelfmark: W36/9385 plate VII opposite page 10
Engraving
BL3303579

Cirro-cumulus.

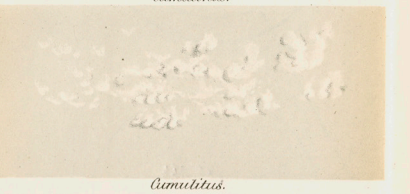
Cirrito-cumulus



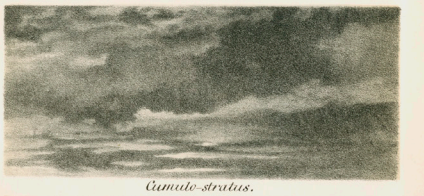
Stratonus.

Stratitus.

Cumulonus.



Cumulitus.



Cumulo-stratus.

Cumulito-stratus.

Martin & Hood, Lith. 8, Gt Newport St London, W.C.

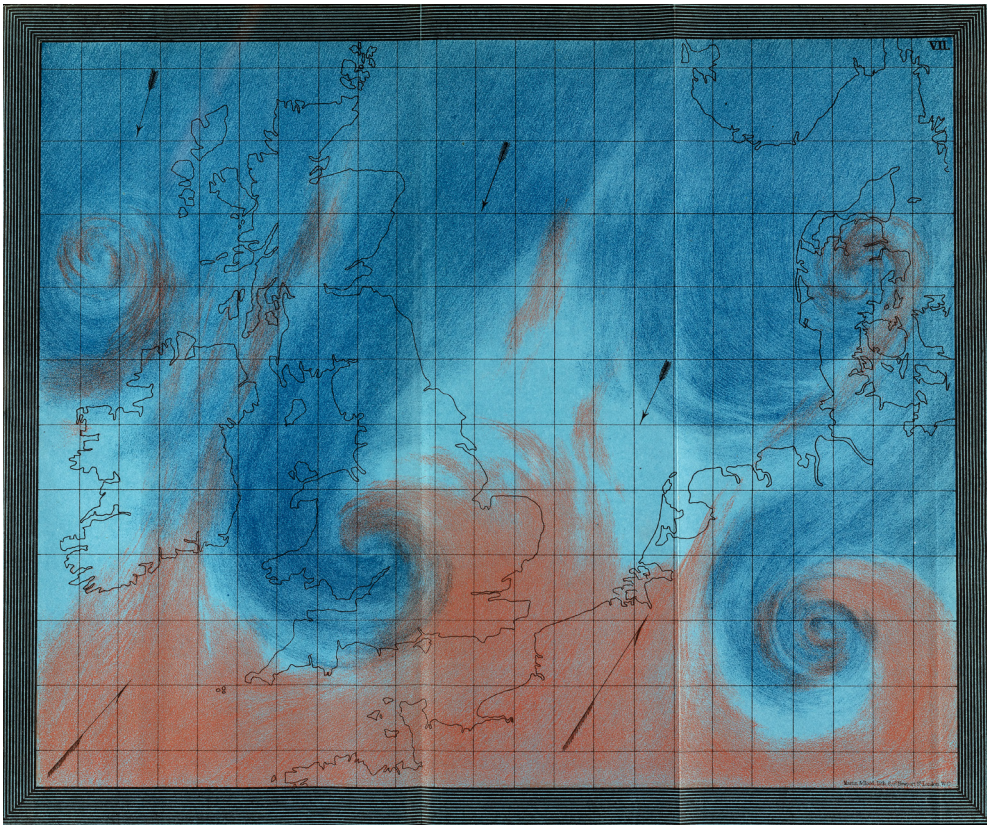
London, Longman & Co.

Taking the classification of clouds into Cirrus, Cumulus (or Nimbus), and Stratus developed by Howard as his starting point, FitzRoy introduced 'more minute distinctions'.

He added combinations, abbreviations and the 'augmentative termination -onus, or the diminutive, -itus' which he considered 'sufficient to convey distinct ideas of every variety of cloud'.

FitzRoy, the captain of HMS *Beagle*, was the forefather of weather forecasting based on the study and understanding of the elements, including the behaviour of winds and clouds.

Robert FitzRoy, 'Cloud classification', plate X, ***The Weather Book: A Manual of Practical Meteorology*** 1863
Greyscale Illustration
Volume: 22.9 x 16.0 x 5.0 cm
Ref: 35897


VII

This illustration is one of two diagrams by FitzRoy depicting the interaction between warm and cold air masses in the atmosphere.

The diagram shows a polar stream in 'violent collision' with a tropical current above the British Isles. FitzRoy used these diagrams to illustrate how 'the northerly currents of our atmosphere stream from arctic circles toward the south, and diverge or are deflected toward the west, while their entire mass, as a combination, or singly (as especially shown here) progress eastward, gradually and almost uniformly.'

According to FitzRoy, this was the atmospheric phenomenon that occurred during the Royal Charter Storm of 1859. The so-called 'Great storm of 1859' sunk the Royal Charter ship, with a loss of 400 lives.

Robert FitzRoy, 'Tropical air currents', plate VII, ***The Weather Book: A Manual of Practical Meteorology*** 1863
Colour Illustration
Fold-out plate: 22.2 x 27.0 cm
Ref: 35897

INTERFERENCE SPECTRA, PRODUCED BY DIFFRACTION.

FIG. 18.

To face p. 235.

Ruskin's claim that he engaged more closely with science than any other artist of his day was particularly evident in his work on the behaviour of light and optical phenomenon related to thermal radiation and varying moisture conditions.

The synergies of art and science are evident in this illustration of the synergies of intense light upon the eye in the physicist John Tyndall FRS's (1820 – 1893) illustration of interference spectra is from his book *The Glaciers of the Alps: Being a Narrative of Excursions and Ascents, an Account of the Origin and Phenomena of Glaciers and an Exposition of the Physical Principles to Which They Are Related*, originally published in 1860.

In *The Second Ascent to Mont Blanc*, 1858, Tyndall noted 'As the sun's disk came more into view, its rays however still grazing the summit of the mountain, interference-spectra darted from it on all sides, and surrounded it with a glory of richly-coloured bars' (*Glaciers*, 177–178).

Ruskin discusses Tyndall's theories that the blue of the sky is refracted by light, rather than water, in his works.

John Tyndall, 'Interference spectra produced by diffraction' 1860
Colour Illustration, ***The Glaciers of the Alps***
Volume: 20.4 x 13.5 x 3.9 cm
RCN 21895

The scientist William Scoresby FRS (1789 – 1857), was also experimenting with the chromatic effects of partial and varied screening of light on the optical spectrum by viewing an aperture in the clouds, when the sky was otherwise densely covered.

This series of six paintings is part of a scientific experiment on the study of colour 'in the images impressed on the retina, as derived simply from the influence of light', viewed by Scoresby from his veranda at Torquay, Dorset.

Although it was not published in the final text, the cloudscape illustrated the article 'An Inquiry into some of the circumstances and principles which regulate the production of Pictures on the Retina of the Human Eye, with their measure of endurance, their Colours and Changes.' – Part II, published in *Proceedings of the Royal Society of London* in 1854.

William Scoresby, ***Clouds used in Visual Perception Experiment*** 1854
From a series of 6 paintings
AP/35/1/1 – AP/35/1/6

5. Storm Cloud of the Nineteenth Century

Arthur Severn [?], after Ruskin, ***Thunderclouds, Val d'Aosta*** 1884

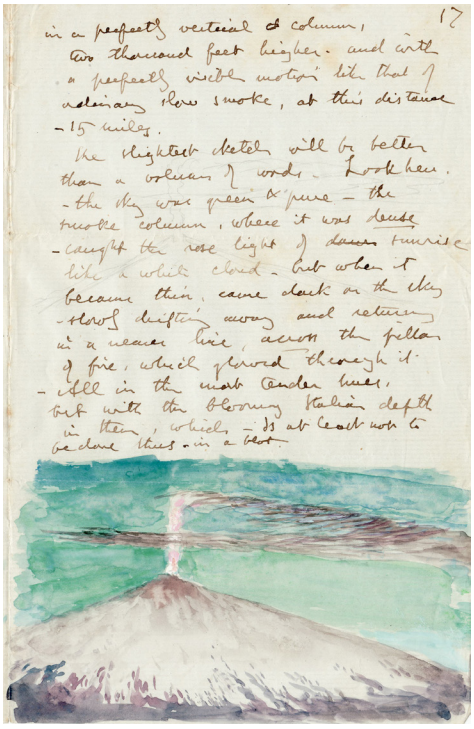
Ruskin recognised that he was living through a period of unprecedented scientific, environmental and technological change. His work was part of a growing awareness in the nineteenth century of the ways that human activity could directly affect the atmosphere and life on Earth.

Severn's *Thunderclouds, Val d'Aosta* reproduces Ruskin's watercolour of 1858, drawn near Turin, now in a private collection. Severn made a larger version for use as a diagram to accompany Ruskin's 1884 'Storm-Cloud' lecture, and this small copy to illustrate Alexander Wedderburn's abstract of the same lecture as a wood engraving, produced by J. D. Copper, published in *The Art Journal* of April 1884. Severn's drawing is inscribed in ink, 'This may be published – Ruskin quite approves'.

Ruskin's 'Storm-Cloud' lecture on modern weather was delivered in two parts on February 4 and February 11, 1884 at the London Institution. He aimed to describe 'a series of cloud phenomena, which, so far as I can weight existing evidence, are peculiar to our own times.' Ruskin notes: 'scientific men are busy as ants, examining the sun, and the moon, and the seven stars, and can tell me how they move, and what they are made of' (*LE* 34 1908, 33). By contrast, Ruskin wanted science to examine the new 'plague-clouds' he believed to be the result of industrial pollution, and to mitigate their effects.

Contemporary reports dismissed Ruskin's arguments for the existence of a 'plague wind', and his evidence, including this cloud study depicting the changing atmosphere resulting from increased industrialisation., assembled over a lifetime's study of the skies.

Arthur Severn [?], after Ruskin, ***Thunderclouds, Val d'Aosta*** 1884
Watercolour and bodycolour. Inscription in ink by Arthur Severn:
'This may be published. Ruskin quite approves'
12.7 x 17.8 cm
1996P1217



Volcanoes have fascinated artists and scientists for centuries as symbolic and natural phenomena. In the nineteenth century, volcanic cycles of destruction and renewel contributed to controversial new understanding of the earth's evolution within the emerging field of geology.

Following in the footsteps of others, including Charles Lyell and Turner, Ruskin visited Campagnia, noting in his diary on January 10th, 1841, 'there was no wind, and the air quite mild. Vesuvius lay under a pall of white clouds, its own smoke mixing with them in a magnificent changing volumes'.

Like Turner before him, Ruskin chose to use watercolour to capture the cloud columns of Vesevius. This image is one of the earliest examples of the freer, more expressive style adopted by Ruskin in drawings made quickly to capture effects of nature.

Ruskin's letter to his cousin, Joan Ruskin Agnew, combines a vivid watercolour sketch with short notes about the play of light on Vesuvius ('Look how - the sky was green & pure').

The sketch bears a striking resemblance to his watercolour drawing of the same year, 'Etna from Taormina: view of volcanic mountain with smoke issuing from summit' (now held in the British Museum).

However, in *Modern Painters*, Ruskin transforms the omnipresent threat of the volcano into a symbol for the fragility of civilisation itself:

'The soft silver cloud ... rests there without intermission; but the fury which lays cities in sepulchres of lava bursts forth only after intervals of centuries; ... recorded only in dim distances of history; so that it is not irrational to admit that there may yet be powers dormant... whose date of rest is the endurance of the human race, and whose date of action must be that of its doom.'
(*LE* 5 1905, 14-15)

John Ruskin, ***Letter to Joan Severn, April 26*** 1874
Watercolour and ink.
2003L03915

John Ruskin, ***Mount Vesuvius in Eruption*** 1840
Watercolour
31.2 x 26.8 cm
1996P1080

While increasingly out of step with his contemporaries, Ruskin's concern for environmental issues and the impact of new technologies on the health of the planet speak powerfully to our own era.

He used scientific techniques to refine artistic observation of the natural world and to bring to bear an artistic gaze on scientific understanding of the environment.

Ruskin became deeply disillusioned through his experience of modern industrial civilisation. 'Future ages will hate this age for its scientific accomplishments', he concluded: 'we have lost the art of painting on glass, and invented gun-cotton and nitro-glycerine' (*LE* 22 1906, 147).

Arthur Severn, ***Boat and Cloudy Sky*** n.d.
Ink and wash, on glass
8.6 x 10.2 cm
1996P0497

John Ruskin in the Age of Science
April – December 2022

A series of exhibitions in London and the Lakes showcasing works from the collections of the Royal Society, London and Lancaster University's Ruskin Whitehouse Collection.

The Skies are for All: Ruskin and Climate Change
22 April to 26 June 2022

Curated by Sandra Kemp (The Ruskin), with Keith Moore (the Royal Society) and Howard Hull (Brantwood), these exhibitions place Ruskin alongside his nineteenth-century scientific contemporaries, exploring his influence on science and society, in his time and our own.

Exhibition and graphic design by lombaert studio.

Installation by arciform.

With thanks to Harriet Hill Payne, Sandra Santos and colleagues at The Ruskin, Brantwood and the Royal Society.

The exhibited works are drawn from The Ruskin, Lancaster University and the Royal Society, London, a Fellowship of many of the world's most eminent scientists and the oldest scientific academy in continuous existence.

The Ruskin Whitehouse Collection was purchased by Lancaster University in 2019, with generous support from the National Heritage Memorial Fund and others. The Collection is on permanent display at both The Ruskin and Brantwood, John Ruskin's former house, garden and estate on the shore of Coniston Water.

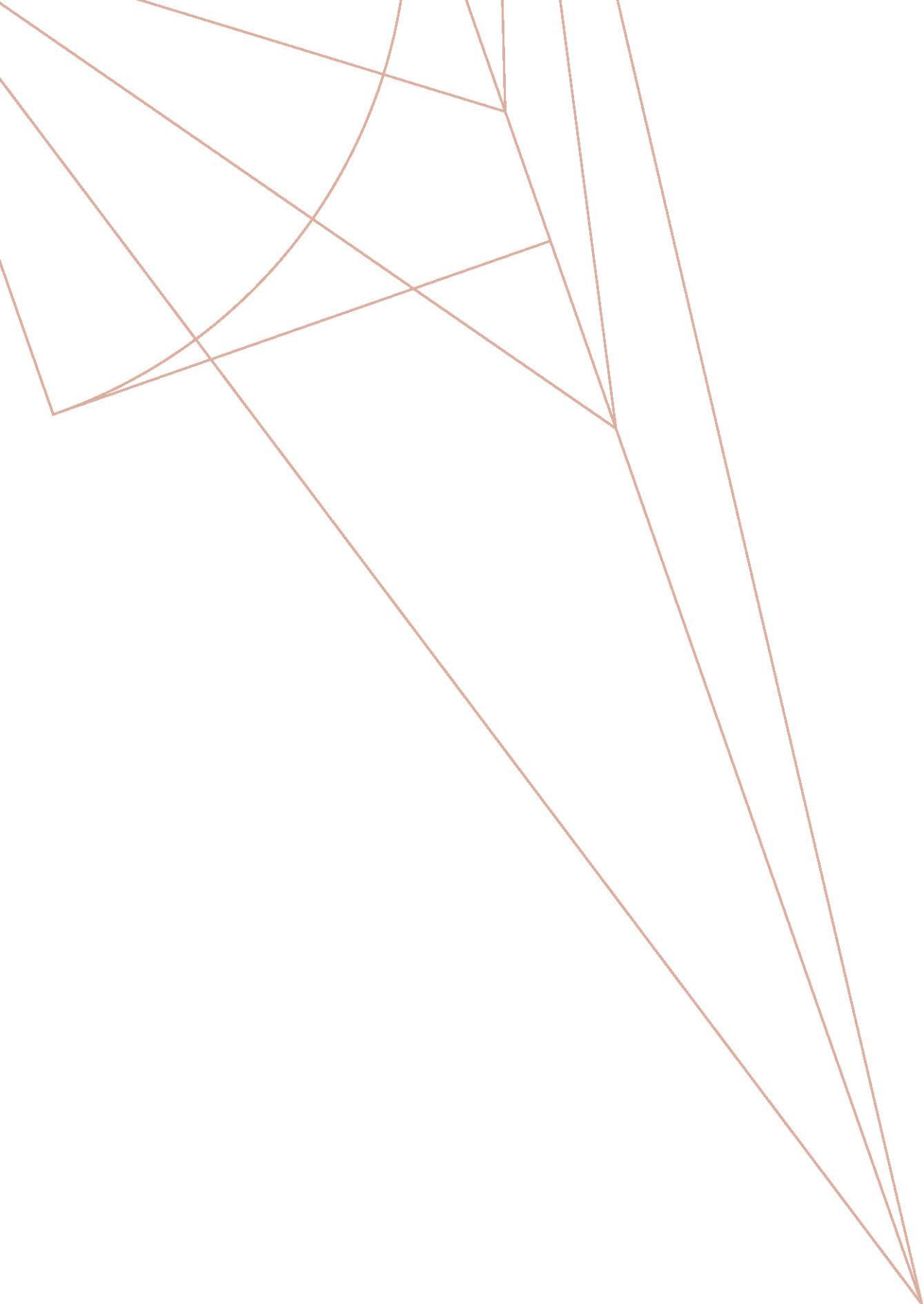
While The Ruskin is closed for major refurbishment, this series of exhibitions displays the Ruskin Whitehouse Collection in London and the Lake District. The Ruskin will reopen in 2024.

THE RUSKIN
MUSEUM & RESEARCH CENTRE

Lancaster University

THE ROYAL SOCIETY

John Ruskin's home
Brantwood



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