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'Eyes to the Blind': Telescopes, Theodolites and Failing Vision in William Wordsworth's Landscape Poetry

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In 1811, during or shortly after a holiday in the south Cumberland village of Bootle, William Wordsworth drafted a poem about the mountain of Black Combe, which loured over the village. The inscription 'Written with a Slate Pencil on a Stone, on the Side of the Mountain of Black Combe' posed as a carving on a rock, on the side of the mountain. It addressed passing climbers, and reminded them of a "geographic Labourer", a mapmaker, who had ascended to the summit before them. Upon pulling out his map and his topographic sketch-pad at the top of the mountain, darkness fell, and:

> The whole surface of the out-spread map,
> Became invisible: for all around
> Had darkness fallen – unthreatened, unproclaimed -
> As if the golden day itself had been
> Extinguished in a moment; total gloom,
> In which he sat alone, with unclosed eyes,
> Upon the blinded mountain's silent top![1]

I, Michael Wiley, John Wyatt, and Ron Broglio have all previously placed Wordsworth's Black Combe Inscription against the background of the Ordnance Survey's project to create the first complete, accurate map of the United Kingdom. We have independently suggested that this "geographic Labourer" was based upon the figure of William Mudge, who was the director of the Ordnance Survey mapping project between its inception in 1791 and his death in 1818.[2] Wordsworth referred to Mudge by name in his *Guide to the Lakes* as "that experienced surveyor", and in the unpublished *Tour* as "the best authority" on Lake District geography.[3]

There is much evidence that the cartographer of Wordsworth's inscription was based upon William Mudge. Three years prior to Wordsworth's visit to Bootle, a team of Ordnance surveyors led by Mudge had triangulated their way to Black Combe, via

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[1] William Wordsworth, 'Inscription: Written with a Slate Pencil on a Stone, on the Side of the Mountain of Black Comb', in *Poems by William Wordsworth.* London: Longman, Hurst et al, 1815, II, 285-6.

[2] Rachel Hewitt, *"Dreaming o'er the Map of Things": The Ordnance Survey and Literature of the British Isles, 1847-1842*. Unpublished doctoral thesis, University of London, 2007; Michael Wiley, *Romantic Geography: Wordsworth and Anglo-European Spaces.* Basingstoke and London: Macmillan, 1998, 1-17; 143-176; John Wyatt, "Wordsworth's Black Combe Poems: The Pastoral and the Geographer's Eye". *Signatures*, 3 (2001): 1-20; Ron Broglio, "Mapping British Earth and Sky", *Wordsworth Circle*. 33 (2002): 70-77.

[3] Wordsworth, *Guide to the Lakes: Fifth Edition (1835)*, ed. Ernest de Sélincourt. Oxford: Oxford University Press, 1977, 8; Wordsworth, *A Guide through the District of the Lakes:* Appendix II: [An Unpublished Tour], in *The Prose Works of William Wordsworth,* ed. W.J.B. Owen and J.W. Smyser. Oxford: Clarendon, 1974, II: 287-348 (302).

Ingleborough and The Calf, peaks in the westerly Yorkshire Dales.[4] The surveyors lodged in Bootle and the Fenwick note to the Black Combe inscription explained that the Rev. Dr. James Satterthwaite, the incumbent of the Bootle parish, "had the particulars" about the Ordnance Survey's project "from one of the engineers who was employed in making trigonometrical surveys of the region".[5] Wordsworth and Satterthwaite met during the Bootle holiday in 1811 and, Wyatt suggests, the latter was likely to have been Wordsworth's source of contextual information for the Black Combe inscription.[6] Wordsworth may also have gleaned information about the Ordnance surveyors who had climbed the peak three years earlier from their own published *Account* of the project, the third volume of which was published in the year Wordsworth visited Bootle.

This article will explore the blinding of the surveyor at the end of Wordsworth's Black Combe inscription in relation to the cartographic context described in the previous paragraph. In his inscription Wordsworth pathologised visual practice. He inverted the wide-ranging, comprehensive vision – which was described in the *Guide to the Lakes* as the ability to understand a "sublime and beautiful region, with all its hidden treasures and their bearings and relations to each other […] *at once*", and which, in the Black Combe inscription, initially granted the surveyor a "grand terraqueous spectacle, / From centre to circumference, unveiled!" – into its apparent opposite, blindness.[7] But, rather than diminishing the surveyor's capabilities, this article will explore how the pathological condition of blindness functioned for Wordsworth as a mark of the surveyor's distinction and privilege, his nationalist importance, and his aptness for political commentary.

The article's first section, 'Specialisation', will describe the early history of the Ordnance Survey's project to map the British Isles, before associating the geographic labourer's blindness with his reliance on his 'instruments of art | To measure height and distance', his telescope, theodolite, measuring chains and compass. The use of such instruments reflected how the Ordnance Survey was part of a specialisation of the act of landscape observation over the eighteenth and nineteenth centuries, and the construction of 'proper' vision as a sophisticated minority skill available to the privileged few. In this equation, blindness functioned as a paradigm for all unaided, failing human eyesight.

Blindness might also represent the opposite, however. Rather than signifying failed eyesight, blindness necessitates a retreat into the imagination and induces the emergence of 'insight', a form of vision that radically transcends the human faculty of sight into a quasi-divine equivalent. Section two, 'Magnification', will explore the shortcomings of telescopes and theodolites, and the fragmentary effect such telescopic vision could own. A retreat into the imagination was necessary to unify the discrete magnified scenes viewed through the telescope into a coherent, unified panorama.

'Unification', the article's third section, will describe the political applications and nationalist resonances of a theory of vision – or a theory of blindness – that was specifically designed to reveal such unity in diversity. The blind surveyor became a model of a political commentator. The article's final section, 'Abstraction', will

[4] William Mudge and Thomas Colby, *An Account of the Trigonometrical Survey, Carried on by Order of the Master-General of His Majesty's Ordnance, in the Years 1800, 1801, 1803, 1804, 1805, 1806, 1807, 1808 and 1809*. London: W. Bulmer, 1811, 50-51.
[5] J. Curtis ed., *The Fenwick Notes of William Wordsworth.* London: Classical Press, 1993, 29.
[6] Wyatt, 5.
[7] Wordsworth, *Guide*. 21; 'Inscription'. 285.

explore this construction of the surveyor-politician by considering the relationship between blindness and a physical abstraction from society, before finally considering how Wordsworth considered the very idea of abstraction to be inherently contained within the science of surveying. The surveyor's blindness in the Black Combe inscription, then, functioned in a far more complex manner than as it might first have appeared, as a simple encapsulation of the failure of cartographical science in the face of nature's enormity.

Specialisation

The Ordnance Survey was officially founded as a branch of the army's Board of Ordnance on 10 July 1791. The military threat posed by Revolutionary France in the early 1790s, and the very real menace of an invasion of England, necessitated the deployment of troops along England's south coast. Military strategy required an accurate map, and current maps were, in the words of the Ordnance Survey's founder, "extremely defective with respect to the topographical representation of the ground."[8] The Ordnance Survey was commissioned to rectify the situation, and it began triangulating and mapping the United Kingdom from the south coast upwards. The first map, of Kent, was published on 1 Jan 1801, and individual map-sheets were made available for public purchase from 18 April 1805 onwards.

The Ordnance Survey was important because it was the first complete, accurate map of the United Kingdom. Its founders' emphasis on accuracy was unprecedented. The Ordnance Survey evolved out of a Military Survey of Scotland, conducted in the wake of the 1745 Jacobite Rebellion. The Military Survey's directors had emphasised that Hanoverian military success entirely depended on "a just and thorough knowledge" of the Highlands, and that "the greatest care and exactness should be observed in Examining minutely the Face of that Country".[9] However, largely due to uncodified surveying methodology, variable instruments, and the liberties taken by the map's draughtsman, the Military Survey ultimately produced a map that was more "a magnificent military sketch, than a very accurate map of a country", in the words of its co-director William Roy.[10]

The Ordnance Survey sought to address the weaknesses of British cartography, and to materialise the aspirations to extreme accuracy that the Military Survey's directors had articulated. It instigated a comprehensive triangulation of the British Isles as an accurate backbone for the final detailed maps. A triangulation, or trigonometrical survey, is a network of measurements between the summits of mountains with good visibility, known as 'Trigonometrical Survey points', or 'trig points' for short. The surveyors' purpose was to select three such summits at a time, to form the three corners of a triangle. Each peak must be visible from the other two through a theodolite, a surveying instrument that combined a telescope with mechanisms for measuring the horizontal and vertical angles of observation. Observations from one mountain to another would discover the angles within the

[8] William Roy, Letter to George III: 'Considerations on the Propriety of Making a General Military Map', in *Correspondence of King George the Third from 1760 to December 1783,* ed. John Fortescue. London: Macmillan, 1927, I, 328-34 (330) (24 May 1766).

[9] David Watson, 'Orders and Instructions to be Observed by Col. Watson's Assistants in Reconoitring [*sic*], Examining, Describing, Representing and Reporting, any Country, District or Particular Spot of Ground'. National Archives, OS 3/5.

[10] William Roy, 'An Account of the Measurement of a Base on Hounslow Heath, in the Year 1784.' *Philosophical Transactions*, 75 (1785), 385-480 (386-7).

triangle they formed. Trigonometry – the branch of mathematics that deals with triangles – would allow the sides of the triangle, the distances between each peak, to be deduced. This process was repeated until every inch of the United Kingdom was covered in triangles of trig points joined together by the surveyors' sightlines, providing an accurate foundation for the final topographic map.

The impetus towards cartographic accuracy was particularly manifested in the Ordnance Survey's instruments, as well as its methodology. Chief among these was the "great theodolite", a three-foot two-hundred-pound surveying instrument, constructed by the master craftsman Jesse Ramsden.[11] Ramsden's three-foot theodolite was an improved version of an instrument used for a measurement conducted in the 1780s between the Greenwich and Paris Observatories. That earlier instrument had taken Ramsden three years to construct. The Ordnance Survey's theodolite was considered a vast improvement even on that meticulously-made original. It had originally been made for the East India Company, who wanted a theodolite to begin surveying India. The Company rejected Ramsden's three-foot theodolite on the basis that it was *too* accurate and therefore too expensive, and the Ordnance Survey acquired it instead.

The Ordnance Survey's activities, its hopes of accuracy and the strategies it implemented to achieve such cartographic precision, were prominent in the public eye. The surveyors themselves were highly visible, dressed in the blue coats of the army's Engineering Corps, crawling over every inch of the national landscape, hauling the theodolite up Britain's highest peaks. Their undertaking was closely monitored by national newspapers and journals. The Ordnance Survey's directors regularly published an account of their project in the *Philosophical Transactions of the Royal Society.*[12] Between 1799 and 1811, they published a three-volume collection of these accounts, entitled *An Account of the Trigonometrical Survey.*[13] *Blackwood's Edinburgh Magazine* devoted a large part of its 'Literary and Scientific Intelligence' column to the Ordnance Survey's early progress, and the *Edinburgh Review* gloated over England's overtaking of France as the nation of greatest cartographic achievement.[14] The geologist John Playfair attributed the Ordnance Survey's success to the unprecedented sophistication of its instruments and surveying methodology. "In no other survey", he wrote, "has the work in the field been conducted so much with a view to […] avoid all those causes of error, however minute".[15]

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[11] Joseph Portlock, *Memoir of the Life of Major-General Colby, together with a Sketch of the Origin and Progress of the Ordnance Survey of Great Britain and Ireland; a Work with which General Colby was Connected for Forty-Five Years.* London: Seeley, Jackson, & Halliday, 1869, 118.

[12] For example, cf Charles Lennox (third Duke of Richmond), Edward Williams, and William Mudge, 'An Account of the Trigonometrical Survey carried on in the Years 1791, 1792, 1793, and 1794.' *Philosophical Transactions*, 85 (1795), 414-591; Lennox, Williams, Mudge, and Isaac Dalby, 'An Account of the Trigonometrical Survey, carried on in the Years 1795, and 1796.' *Philosophical Transactions,* 87 (1797), 432-542; Lennox and Mudge, 'An Account of the Trigonometrical Survey, Carried on in the Years 1797, 1798, and 1799.' *Philosophical Transactions,* 90 (1800), 539-728.

[13] William Mudge, Isaac Dalby and Thomas Colby, *Account of the […] Trigonometrical Survey*. 3 vols London: Faden, 1799-1811.

[14] For example, cf 'Literary and Scientific Intelligence.' *Blackwood's Edinburgh Magazine*, 1 (1817), 85-87, 305; 2 (1817), 330-34; 3 (1818), 471-73; 4 (1818), 234-39. John Playfair, 'Review: *Base du Système Métrique Décimal, ou Mesure de l'Arc due Méridien entre les Paralleles de Dunkerque & Barcelone*, Par M.M. Méchain & Delambre.' *Edinburgh Review,* 9 (1807), 373-91.

[15] Playfair, 386.

Playfair drew attention to the pronounced rivalry between French and English cartographers, which centred on each nations' choice of instrument. The French preferred to employ a highly portable repeating circle for the measurement of angles, an instrument which took multiple observations and removed error by discerning an average. The English staunchly defended their "great theodolite", which took only one, incredibly accurate observation, but, weighing in at two-hundred pounds, was far from portable.

Wordsworth's Black Combe inscription had its origins in 1808, was conceived in 1811, completed in 1813, and published in the two volume *Poems by William Wordsworth* in 1815. Durng its seven-year gestation period, the Ordnance Survey's measurement of the United Kingdom accelerated; at least fifteen more maps of southern England were published; all maps were temporarily withdrawn from public access and classified during a period of English anxiety regarding French intelligence; and commentaries were published on the Ordnance Survey's undertaking in the forums described above. Following those accounts of the surveyors' activities, Wordsworth's inscription described how, on the summit of Black Combe:

> a geographic Labourer pitched his tent,
> With books supplied and instruments of art,
> To measure height and distance.

Wordsworth went on to describe how:

> - To him was given
> Full many a glimpse (but *sparingly bestowed*
> On timid man) of Nature's processes
> Upon the exalted hills.[16]

The Black Combe inscription explicitly associated the sophistication of the Ordnance Survey's cartographical techniques with the privileged position of its surveyor. Wordsworth had to modify the published accounts of the Ordnance Survey's activities to exaggerate that privileged, minority status of the inscription's "geographic Labourer". The first directors of the Ordnance Survey, William Mudge, Isaac Dalby, and Thomas Colby, had in fact described the teamwork involved in the measurements. A memoir composed by a surveyor who worked under Colby fondly remembered the convivial bonhomie of the exercise, and he recalled recreations and feasts that were held in the encampment to celebrate the end of each "season in the hills" and to wish "*Success to the Trig*".[17] Wordsworth's inscription, however, recast mapmaking as a "lonely task", a "studious work" conducted by the single geographic labourer "alone" at the mountain's summit.

Wordsworth's modifications of the Ordnance Survey's own accounts of its work, ensured his inscription conformed more closely to an eighteenth-century tradition of landscape representation in poetry, than to reality. John Barrell has described how the landscape poetry of James Thomson, John Dyer, and William Cowper, among others, emphasised the "moral significance" of "describing landscape from a high viewpoint", evoking the phrase "a "commanding height", a phrase

[16] Wordsworth, 'Inscription.' 285 (*my emphasis*).
[17] Portlock, 153-54.

borrowed of course from the language of military tactics, and by no means used, by eighteenth-century poets, without a sense of embattled hostility to what is being commanded, the landscape below."[18] Elsewhere Barrell has argued that this eighteenth-century tradition identified landscape poetry's elevated observer with the political commentator "by dividing men into those qualified to observe and those qualified only to be the objects of others' observation."[19]

Wordsworth's inscription, then, evoked an earlier tradition of landscape representation in poetry in which physical elevation above sea-level was openly equated with social privilege and command. The elevated observer's relationship to the landscape below became paradigmatic of the observer's social position and relationship with the masses, "the boisterous visitants", as Wordsworth's Black Combe inscription called them. Within the context of Wordsworth's later political conservatism, the surveyor's role, identified with such privilege and command, was a minority role. The few were elevated above the many. Wordsworth's fabrication of the geographic labourer's solitude at the mountain summit, and the rare glimpses of "Nature's processes" that he alone was granted, exaggerated the conservative resonances of his minority status, to this end. Furthermore, in Wordsworth's Black Combe inscription, the surveyor's notional solitude combined with the very real sophistication of his surveying "instruments of art" to reinvent the act of landscape observation as a minority skill.

This reinvention carried out what had been begun by the codification of visual practices in the eighteenth century, that Peter de Bolla has termed "the education of the eye".[20] These codifications ranged from the publication of George Berkeley's *An Essay Towards a New Theory of Vision* in 1709 to William Gilpin's 1789 *Observations on the River Wye* and his 1792 essays on the picturesque. They had emphasised that 'proper' vision was far from an innate, spontaneous faculty, but that it was a sophisticated "object of pursuit" to be acquired through rigorous education.[21] Like the possession of taste, the ability to see 'properly' was not ubiquitous, but was associated with refinement, gentility, leisure and wealth. However, the very publication of the eighteenth-century codifications of vision had the contradictory effect of rendering them theoretically accessible and egalitarian. Gilpin himself explicitly offered his "little work to the public", counteracting the implied specialisation of observation contained in the visual theories themselves.[22] Similarly, in Wordsworth's inscription, the surveyor's mere placement at the top of a mountain summit was not, in itself, enough to construct his position as one of rare and extraordinary ability.

In Wordsworth's Black Combe inscription, it was the dependence of the surveyor on his 'instruments of art', on his telescopes, theodolites and compasses, which definitively effected that removal of the elevated landscape observer from those beneath him; and it was that dependence which defined the practice of landscape observation as an entirely specialised operation. In this respect, surveying

[18] John Barrell, *The Idea of Landscape and the Sense of Place, 1730-1840: An Approach to the Poetry of John Clare*. Cambridge: Cambridge University Press, 1972, 24-25.
[19] John Barrell, *English Literature in History 1730-80: An Equal, Wide Survey*. London: Hutchinson, 1983, 35.
[20] Peter de Bolla, *The Education of the Eye: Painting, Landscape, and Architecture in Eighteenth-Century Britain*. Stanford: Stanford University Press, 2003.
[21] William Gilpin, *Observations on the River Wye*. 2nd edn. London: Blamire, 1789, 1.
[22] Gilpin, vii.

instruments functioned like picturesque observers' educated manipulation of the Claude glass, which separated them from their entirely amateur counterparts. Contemporary commentaries upon the Ordnance Survey bolstered Wordsworth's feeling that the type of landscape observation it encouraged was a highly specialised, almost unique faculty. Superlatives abounded in these commentaries. They described the Ordnance Survey as a great "national work" "infinitely to the credit of the country", and identified Mudge as "a skilful observer" whose "talents and skill" brought out "the beauty and perfection of the instruments employed".[23] Together they created "a more accurate topographical and geographical examination of this island, than either it or any other country has hitherto undergone", producing maps "*of unprecedented accuracy*".[24] The Ordnance surveyors rendered visual practice extraordinary and unusual, far removed from the mundane faculty of sight utilised by the amateur observer of landscape.

In this context, the blinding of the surveyor at the end of the Black Combe poem, the descent of "total gloom, / In which he sate alone, with unclosed eyes", could be read as a paradigm for the insufficiency of all unaided, untutored human eyesight. It was only through the Ordnance Survey's theodolite that "a glimpse […] of Nature's processes" might be "sparingly bestowed / On timid man". And, as there was only one "great theodolite", which belonged to the Ordnance Survey, such a glimpse was available to an absolute minority. Without that theodolite, even the Ordnance Survey's director suffered from blindness, a return to feeble, unimpressive, merely human powers of sight. The Ordnance Survey's "instruments of art", then, functioned similarly to the staff carried by blind Herbert in Wordsworth's play *The Borderers.* Herbert's staff was inscribed with the words "I am eyes to the blind, saith the Lord". This granted Herbert a tool that offered a supernatural visual faculty, a quasi-divine power of observation. Telescopes, theodolites, and Herbert's staff all remedied the defects of human "eyes in fault".[25] But these tools were few and far between, and that supernatural faculty of observation belonged only to the minority. Glimpses of nature's processes were a privilege, extremely sparingly bestowed.

Magnification

In the wrong hands, telescopes and theodolites were disastrous and potentially dangerous. Mere ownership of such tools was not enough to grant the amateur observer a celestial power of sight. An education of the eye was essential. This was because the glimpses that telescopes and theodolites offered were single magnified fragments of a complete panorama. Like microscopes, telescopic observation divided and analysed the object, reducing it to a series of small, disconnected units. The resulting overview was a mish-mash of discrete large-scale and small-scale scenes. Like microscopes, again, the magnified visions that telescopes presented to the eye were so unlike any scenes it had witnessed previously that the authenticity of those scenes could be called into question. Rather than offering a magnified insight into

[23] Stamford Raffles Flint ed., *Mudge Memoirs*. Truro: Netherton and Worth, 1883, 129; 'Review: *Attraction des Montagnes, et ses Effects sur les Fils à Plomb, déterminés par des Observations Astronomiques et Geodesiques.* Par le Baron de Zach.' *Edinburgh Review*, 26 (1816), 36-51 (51); Olinthus Gregory, *Dissertations and Letters […] Tending Either to Impugn or to Defend the Trigonometrical Survey of England and Wales*. London: Law and Gilbert, 1815, 7, 96, 7.
[24] Gregory, 96.
[25] William Wordsworth, 'Star-Gazers', in *Poems, in Two Volumes, and Other Poems, 1800-1807,* ed. Jared Curtis. Ithaca: Cornell University Press, 1993, 234-35.

truth, improperly manipulated telescopes might be tainted with suspicions of deception. In 'Star-Gazers' Wordsworth described a "Showman" astronomer who allowed a crowd to look through his telescope for a fee. The experience was a depressing and uncertain one. The poem's narrator distrusted the reality of the sight of "the silver Moon with all her Vales, and Hills of mightiest fame", and pointed out that the spectators "seem to meet with little gain, [and] seem less happy than before", walking away "as if dissatisfied".[26] Magnified vision alone, then, was not necessarily a mark of privilege or elevation. Untutored telescopic vision was problematic. The privilege it potentially afforded depended entirely upon the appropriate manipulation of such magnified observation.

The quasi-divine observational skill that *The Borderers* described derived from the alternation of telescopic vision with a retreat into the imagination. George Berkeley described how 'we do not see the same object that we feel' when looking through a microscope, and that 'neither is the same object perceived by the microscope, which was by the naked eye". Through the lens of microscopes or telescopes, the complete object was fragmented into magnified and unmagnified portions, into small-scale and large-scale versions of itself. A retreat into the imagination was necessary to reconnect these portions, locating the grounds on which they shared "some connexion in Nature, either with respect to co-existence or succession".[27] The astronomer John Herschel equated this alternation between magnified observation and imagination with the alternation between the philosophical practices of analysis and synthesis, deduction and induction, practice and theory, detail and generalisation. "The successful process of scientific enquiry demands continually the alternate use of both the *inductive* and *deductive* method", he wrote, and he used the metaphor of an ascent to a mountain summit in illustration of his point: "The path by which we rise to knowledge must be made smooth and beaten in its lower steps, and often ascended and descended, before we can scale our way to any eminence, much less climb to the summit."[28]

The surveyor's blindness in the Black Combe inscription, then, compelled a retreat from the magnified vision presented by the "instruments of art" into the imagination. This allowed the fragmented magnified scenes to be reunited. The state of blindness counteracted the primacy of the material, observable world, temporarily replacing the real mountain upon which the surveyor stood with a "mountain of the mind".[29] This enabled the individual scenes framed within the telescope to be contextualised within a vast panorama. Minute observation must be accompanied by abstracted imagination, in order to render the former practically and philosophically relevant. The surveyor's eye must be accompanied by the poet's imagination, and, in *The Prelude*, Wordsworth emphasised exactly this the mutual dependence of "poetry and geometric truth".[30] In his Black Combe inscription, the poet blinded the surveyor to this end, compelling him to retreat from the observation point at the mountain's summit into his own imagination. The next section of this article will explore the

[26] Wordsworth, 'Star-Gazers.' 234-5.
[27] George Berkeley, *An Essay Towards a New Theory of Vision*. Dublin: Pepyat, 1709, 127.
[28] John Herschel, *A Preliminary Discourse on the Study of Natural Philosophy*. Chicago: University of Chicago Press, 1987, 174-5.
[29] Robert MacFarlane, *Mountains of the Mind: A History of a Fascination*. London: Granta, 2003.
[30] William Wordsworth, *The Fourteen-Book Prelude*, ed. W.J.B. Owen. Ithaca, NY: Cornell University Press, 1985, v, 65 (95).

nature of the panorama revealed through this alternation of magnification with blinded thought.

Unification

The scene available to the geographic Labourer was described in the Black Combe inscription as a "grand terraqueous spectacle, / From centre to circumference, unveiled!" The footnote which accompanied the poem in its first published form elaborated that Black Combe's "summit commands a more extensive view than any other point in Britain".[31] A second poem on the same subject, also published in the two volume *Poems* of 1815, described how "from the summit of Black Comb […] the amplest range / Of unobstructed prospect may be seen / That British ground commands". The 'View from the Top of Black Comb' described that unobstructed prospect further:

> - low dusky tracts,
> Where Trent is nursed, far southward! Cambrian hills
> To the south-west, a multitudinous show;
> And, in a line of eye-sight linked with these,
> The hoary peaks of Scotland that give birth
> To Tiviot's stream, to Annan, Tweed, and Clyde: -
> […] beneath,
> Right at the imperial station's western base,
> Main ocean, breaking audibly, and stretched
> Far into silent regions blue and pale; -
> And visibly engirding Mona's Isla
> […] - Yon azure ridge,
> Is it a perishable cloud? Or there
> Do we behold the line of Erin's coast? […]
> A revelation infinite it seems;
> Display august of man's inheritance,
> Of Britain's calm felicity and power! [32]

Black Combe's summit granted the surveyor a vision of a vast national panorama, the sight of southern Scotland, northern and central England, north Wales, and the eastern coast of Ireland. This was not fantasy on Wordsworth's part. William Mudge's *Account* of the Ordnance Survey's activities for the years between 1800 and 1809 listed the staggering number and extent of the observation stations visible from Black Combe's summit. These included Helvellyn, Scafell and The Pillar in the Lake District, Bleasdale Forest in Lancashire, Ingleborough and The Calf in the Yorkshire Dales, Snea Fell and North Berule on the Isle of Man, and Bengairn and Criffel in Dumfries-shire, in southern Scotland. Wordsworth's poem wondered "do we behold the line of Erin's coast?", and, on a rare and preternaturally clear day, Ireland was indeed visible from Black Combe. Wordsworth's *Guide to the Lakes* described how Mudge had viewed Ireland "more than once" from the mountain, "but not when the

[31] Wordsworth, 'Inscription.' II, 285 (fn 1).
[32] William Wordsworth, 'View from the Top of Black Comb', in *Poems by William Wordsworth*. I, 305-6.

sun was above the horizon".[33] An Ordnance surveyor's own account described an attempt to conduct the longest observation ever conducted, between the mountain of Slieve Donard in Ireland and Scafell in the Lake District.[34]

The view from the top of Black Combe presented an emphatically united kingdom to the eye, a kingdom whose disparate elements might be brought together through the alternation of telescopic magnification and abstracted imagination. The blinding of the surveyor at the end of the Black Combe inscription allowed him to perceive the grounds upon which each region of the nation shared "some connexion in Nature, either with respect to co-existence or succession", as Berkeley had written. This led to an ensuing revelation of "Britain's calm felicity and power!", a revelation which was then etched onto the Ordnance Survey map. By the time that Wordsworth was composing his Black Combe poems, the Ordnance Survey had acquired a function as propaganda for such a harmoniously united kingdom. The Ordnance Survey was the first cartographic project that had sought to accurately map England, Wales, Scotland *and* Ireland, although the Irish section wouldn't be started until 1824. Its maps created images of the unified and inherently ordered state of Britain's landscape, and illustrated the capacity of such landscape to be represented through the harmonious geometry of triangulation and the longitudinal-latitudinal grid. In an period in which, under the pressure of the Napoleonic wars, continental geography had become so fragmentary and changeable, the capacity of the Ordnance Survey to serve as conservative, pro-union propaganda was powerful.

The geographic Labourer of Wordsworth's Black Combe poems thus acquired a political function: to bolster the historical and recent unions between England and Wales, England and Scotland, and England and Ireland. The elevated, abstracted nature of the surveyor was important. It chimed with Wordsworth's growing sense that the political commentator should be above and apart from the masses. This continued the eighteenth-century tradition of landscape poetry that I referred to earlier, in which elevation above sea-level functioned as a marker of social privilege. John Barrell described how such elevation was the preserve of the gentleman: "it was the happy man as country gentleman who, having retired from the conflicts of the world, could "see" the relations among those still blindly engaged in conflict."[35] This type of abstraction from the world was described by Wordsworth in his political pamphlet *The Convention of Cintra*, published in 1809. Wordsworth characterised political commentary as:

> within the reach of him who – taking no part in public measures, and having no concern in the changes of things but as they affect what is most precious in his country and humanity – will doubtless be alive to those genuine sensations which are the materials of sound judgment. Nor is it to be overlooked that such a man may have more leisure (and probably will have a stronger inclination) to communicate with the records of past ages.[36]

[33] Wordsworth, 'Introduction.' 8.
[34] Portlock, 5.
[35] Barrell, *English Literature in History*. 35.
[36] William Wordsworth, *The Convention of Cintra, Concerning the Relations of Great Britain, Spain, and Portugal, to Each Other, and to the Common Enemy, at this Crisis*. London: Longman, Hurst, Rees, and Orme, 1809, 129-30.

Wordsworth's Black Combe poems, and *The Convention of Cintra*, implied that abstraction from a ground-level, hands-on contact with the populace was a prerequisite for a political philosophy that favoured union over independence, and "metaphysic principles" over utilitarian democracy, in Edmund Burke's words.[37] "Who does not rejoice that former partitions have disappeared," Wordsworth wrote in the pamphlet, "and that England, Scotland, and Wales, are under one legislative and executive authority; and that Ireland (would that she had been more justly dealt with!) follows the same destiny?"[38]

The figure of William Mudge, the Ordnance Survey's first director, encapsulated these elements entirely, rendering him an ideal model for the associations Wordsworth constructed in the Black Combe poems. When surveying, he was physically elevated above the landscape; he was treated on rare occasions to the sight of the vast national panorama described in the Black Combe inscription; and he benefitted from technology of such rare sophistication that it set his visual faculty far apart and above that of the amateur observer. All these facets of Mudge's surveying career combined with a very real political role, in which Mudge's map served as propaganda for a United Kingdom whose "calm felicity and power" depended upon the fixed, conservative nature of its landscape; and in which such political power was granted to the minority, who upheld metaphysical political philosophy above the "numerical principle" of Reform, "the scheme of regulating representation by arbitrary lines of property or numbers", in Wordsworth's sneering words.[39] Wordsworth's blinding of the surveyor at the end of the Black Combe inscription served to emphasise and enforce his abstraction from the material, utilitarian world beneath him, the "boisterous visitants" who traversed the "far-travelled storms of sea and land, / A favourite spot of tournament and war".[40]

The association of abstraction with a faculty of vision that seeks unity had a philosophical foundation. The onset of the surveyor's blindness compelled the inversion of his outward observation into insight. This evoked a landscape of the imagination in place of the external scene. Immanuel Kant described the landscape of the imagination, the nature of a pure space that existed "absolutely independent of all experience". For Kant, such pure spaces always tended towards unification. "Space is essentially one", he wrote in the *Critique of Pure Reason*, and, similarly, "time has only one dimension; different times are not successive but simultaneous."[41] William Mudge's blindness in the Black Combe inscription, then, not only confirmed his aptness for political commentary, but it also articulated the nature of his political bent: towards constitutional union. The panorama afforded from the mountain's summit, a panorama partially constructed from the imagination and partially from magnified fragments of landscape, materialised Wordsworth's utopian vision of a United Kingdom in which "former partitions have disappeared", and England, Scotland, Wales and Ireland "are under one legislative and executive assembly".

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[37] Edmund Burke, *Reflections on the Revolutions in France*, ed. J.C.D. Clark. Stanford: Stanford University Press, 2001, 346.
[38] Wordsworth, *Cintra.* 152.
[39] William Wordsworth, Letter to Lord Lonsdale, in *The Letters of William and Dorothy Wordsworth*, 2nd edn, *V: The Later Years, Part 2: 1829-34*, ed. Alan Hill. Oxford: Clarendon Press, 1979, 468 (9 November 1831 and [?] December 1831).
[40] Wordsworth, 'Inscription.' 286.
[41] Immanuel Kant, *Critique of Pure Reason.* trans. Norman Kemp Smith. Basingstoke & New York: Palgrave Macmillan, 2003, 3, 69, 75.

The surveyor's role and significance in the Black Combe inscription, published in 1815, marked a radical departure from Wordsworth's description of an observer of landscape seventeen years previously, in 'The Thorn'. In the last third of 'The Thorn' the narrator "climbed the mountain's height" "with my telescope, / To view the ocean wide and bright". Just as in the Black Combe inscription, the observer's telescopic aspirations were thwarted by the weather: "A storm came on, and I could see / No object higher than my knee".[42] In the later inscription, the blinding of the surveyor allowed him to ascend from contemplation of a magnified, detailed scene into the large-scale abstract generalisations afforded by the imagination. However, in 'The Thorn', the opposite occurred. The telescope had presented a generic scene of 'the ocean wide and bright'. Its sudden redundancy upon the storm's descent compelled the observer to turn around, and to see the minutiae of human life that stood, previously unseen, beside him:

> 'Twas mist and rain, and storm and rain,
> No screen, no fence could I discover,
> And then the wind! in faith, it was
> A wind full ten times over.
> I looked around, I thought I saw
> A jutting crag, […]
> Instead of jutting crag, I found
> A Woman seated on the ground.
>
> I did not speak – I saw her face,
> Her face it was enough for me;
> I turned about and heard her cry,
> "O misery! O misery!" […][43]

In both the Black Combe inscription, and in 'The Thorn', telescopic imagery and landscape observation were overwritten with political implications. In the earlier poem telescopic vision was associated with a fixation with distance. It represented an unhealthy social abstraction, which was abandoned for a utilitarian compassion for the 'common man'. By 1815, however, telescopic vision had come to stand for the opposite of distance for Wordsworth. It was associated with magnification, with the far-away brought into proximity, with detail. It was associated with precisely such attention to the utilitarian 'nitty-gritty' of material life that 'The Thorn' had celebrated, but that it had set up in *opposition* to telescopic vision. The 1815 Inscription did not celebrate such a utilitarian form of vision, however. It emphasised that telescopic vision must be accompanied, and ultimately superceded, by a retreat into the imagination, a physical, psychological and social abstraction from the "boisterous visitants" of the plains beneath, and a celebrated, elevated state of blindness. Practice was overtaken by theory, and utilitarian democracy was overtaken by abstract "metaphysic principles" of political philosophy.

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[42] William Wordsworth, 'The Thorn', in *Lyrical Ballads, and Other Poems, 1797-1800*, ed. James Butler and Karen Green. Ithaca: Cornell University Press, 1992, 77-85 (83).
[43] Wordsworth, 'The Thorn.' 83.

Abstraction

In the final section of this article, it will be important to note how the mapmaker of Wordsworth's Black Combe inscription departed from the elevated, abstracted observers of eighteenth-century landscape poetry. I have already referred to John Barrell's identification of the retired country gentleman as the figure most suited to such observation and its political implications. This aptness was largely attributed to the gentleman's abstraction from all forms of work, his consequent impartiality, and his ability to provide an overview of the labour division of eighteenth-century England; and to the opportunities for literal elevation afforded by the gentleman's landscaped estate.

Wordsworth's inscription consciously contradicted this tradition. He designated his landscape observer as a "geographic *Labourer*" [my emphasis]. The surveyor was not a gentleman at all, but a worker. He was elevated above a landscape to which he was connected, not through deeds of ownership and not even necessarily through electoral enfranchisement, but through his power to represent that landscape to the public. In this respect, the Ordnance Survey mapmaker was aligned with the landscape poet in Wordsworth's eyes. Both were workers, engaged in a lonely, ardous task. Both poetry and mapmaking sought to read, interpret and translate the landscape into a different language: into lines of verse, or into the lines of a map. Both roles were hard graft as Wordsworth represented them, and, in his poem 'Resolution and Independence', both the surveyor and the landscape poet shared much with the hardworking leech-gatherer.

The leech-gatherer was conjured up as Wordsworth reflected upon the hard life of Thomas Chatterton, and how "Poets in our youth begin in gladness; | But thereof come in the end despondency and madness". The sight of the old man, whose body told the story of his life of hardship and exposure, prompted the narrator of 'Resolution and Independence' to discourse upon "cold, pain, and labour, and all fleshly ills; / And mighty Poets in their misery dead". Wordsworth described how the poet, leech-gatherer, and mapmaker all paced "about the weary moors continually, / Wandering about alone and silently". All three fed off the landscape, collecting leeches, or images for poetry, or measurements for maps. All three were aided by "instruments of art": in the poet's case, a pen; for the mapmaker, a theodolite; for the leech-gatherer, "a long grey staff of shaven wood" with which he stirred a pond "which he conned / As if he had been reading in a book".

But, despite the sympathy that Wordsworth identified between the "geographic Labourer" and the landscape poet, the Ordnance Survey's director William Mudge, the inspiration for the mapmaker of Wordsworth's Black Combe inscription, was not a working-class labourer. He was a former member of the army's Artillery Corps, who would rise to the rank of Major-General, and who was also an acclaimed Fellow of the Royal Society. This final section of the article will describe how Mudge's scientific affiliations proposed an alternative social identity for the abstracted observer, an alternative to the retired gentlemen of eighteenth-century landscape poetry.

The surveyor was associated with abstraction on a level that exceeded the metaphorical. The Ordnance Survey's project to map the United Kingdom began with a triangulation, a trigonometrical survey, and for the first thirty years of its existence it was generally referred to as the 'Trigonometrical Survey of England and Wales', or the 'General Survey', rather than the 'Ordnance Survey', by which it is now

designated. Trigonometry and triangles occupied an important place within abstract philosophy. Immanuel Kant described how the isoceles triangle exemplified the practice of pure reasoning:

> A new light flashed upon the mind of the first man (be he Thales or some other) who demonstrated the properties of the isosceles triangle. The true method, so he found, was not to inspect what he discerned either in the figure, or in the bare concept of it, and from this, as it were, to read off its properties; but to bring out what was necessarily implied in the concepts that he had himself formed *a priori*.[44]

In this abstract philosophical context, to designate a landscape through a language of triangles was to reinvent it as a landscape of the imagination, an abstracted world "absolutely independent of all experience".[45] And, in *The Prelude*, Wordsworth did apply geometrical images to dream-worlds. Book Five described a dream vision of an "Arabian waste" over which a Bedouin carried Euclid's *Elements*, the foremost treatise of ancient geometry.[46] The figure of the mapmaker, then, who dealt in triangles and trigonometry, was theoretically implicated with the type of abstraction that Wordsworth associated him with physically and politically in the Black Combe poems.

In September 1827, Wordsworth met a man who embodied this tentative association of trigonometrical mapmaking with abstract philosophy, scientific kudos, and a physical and political removal from the "boisterous" masses. This was William Rowan Hamilton, a highly precocious young man who became Irish Astronomer Royal and Professor of Astronomy at Trinity College, Dublin, whilst still an undergraduate. Wordsworth was introduced to Hamilton when the latter came to the Lake District to climb Helvellyn, and Wordsworth commented that he was "a young man of extraordinary genius" and "singularly like Coleridge": high praise indeed![47] William Rowan Hamilton's interests lay in pure science, and his friend Aubrey de Vere recalled his consequent unsuitability as Professor of Astronomy. Hamilton "did not look through his telescopes more than once or twice a year!" de Vere exclaimed. "He was so much occupied with the purely abstract part of science that its material phenomena interested him only so far as they revealed laws."[48] Hamilton was particularly intrigued by the function of geometry and algebra as the two languages of, respectively, pure space and pure time. Following Kant, Hamilton posited geometry as an articulation of abstract scientific thought. In this equation, the mapping of a landscape through trigonometry appropriated that landscape for the imagination. Importantly, Hamilton became close friends with the men who were directing the Ordnance Survey's activities in Ireland between 1824 and 1842, and his

[44] Kant, 19.
[45] Kant, 43.
[46] Wordsworth, *Prelude (1805)*, in *The Prelude 1799, 1805, 1850*, ed. Jonathan Wordsworth, M.H. Abrams, and Stephen Gill. New York and London: Norton, 1979, V, 87-88 (156).
[47] Wordsworth, Letter to Christopher Wordsworth, in *Letters*. V, 120 (5 September 1829); Aubrey de Vere, *Recollections of Aubrey de Vere*. New York and London: Edward Arnold, 1897, 41.
[48] de Vere, *Recollections*. 47.

notebooks revealed how he began to interpret mapmaking, and trigonometrical surveys, in association with philosophies of abstract space.[49]

Hamilton considered his scientific interests to possess clear correlations in political and social action. During the potato famine, Aubrey de Vere criticised Hamilton's refusal to provide practical aid. "My time is all taken up with details which would be insignificant, if they were not just now so nearly connected with some of the humblest yet some of the closest ties of our humanity", de Vere wrote to Hamilton. However, "you", he accused, "are ranging beyond the visible bounds of the universe in mathematical poetry, or "sounding on a dim and perilous way" in regions where few can follow you".[50] Hamilton defended himself. His "best hope of being useful to Ireland", he retorted to de Vere, was "to be found in the pursuit of those abstract and seemingly unpractical contemplations to which my nature has a strong bent".[51] Hamilton's behaviour materialised an equation that Terry Eagleton has made between the abstract scientists of the protestant ascendancy in Ireland, and their conscious political abstraction from working-class culture. He argued this is because:

> those who do little labour can afford to imagine that ideas are autonomous of reality, while those like the industrial middle-class who work closer to the ground value experience and experiment, what they can see, taste and handle […] The upper class cannot descend to a practicality, while the middle class cannot rise to an abstraction.[52]

William Rowan Hamilton was unknown to Wordsworth when he was composing the Black Combe poems. Indeed, Hamilton would have been only a child. But twelve years after their publication, Wordsworth would have seen in Hamilton, in his scientific philosophy, in his Ordnance Survey connections, and in his politics, a living encapsulation of the surveyor-commentator he had described in those Black Combe poems. Wordsworth's enthusiastic embrace of Hamilton's friendship confirmed his delight at locating one who provided an alternative model to the eighteenth-century gentlemanly landscape observer. The privileged, elevated position of this alternative model might be interpreted as deriving from an immersion in abstract science rather than the possession of a remote, appropriately landscaped estate. Immersion in abstract science similarly provided a context for the manifestation of the retired political commentator described in *The Convention of Cintra*, who, "taking no part in public measures, and having no concern in the changes of things […] may have more leisure (and probably will have a stronger inclination) to communicate with the records of past ages." Hamilton's real disinclination for hands-on political action combined with his interest in geometry as the language of pure space, his close connections with the Ordnance Survey, and his unionist politics, to render him an embodiment of the disparate strands articulated by Wordsworth's formulation of the "geographic Labourer" in the Black Combe poems.

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[49] I have more extensively described Hamilton's interpretations of the Ordnance Survey's activities in Ireland, and his mediation of such information, in the context of the scientific philosophy of pure space, to Wordsworth, in 'Wordsworth and the Ordnance Survey in Ireland: "Dreaming o'er the Map of Things"', published in the *Wordsworth Circle*, 38 (Spring 2006), 80-85.

[50] De Vere, Letter to Hamilton, in *Life of Sir William Rowan Hamilton*. Robert Perceval Graves. Dublin: Hodges, Figgis, 1882, III, 556.

[51] Hamilton, Letter to de Vere, in *Ibid.* III, 558.

[52] Terry Eagleton, *Scholars and Rebels in Nineteenth-Century Ireland*. Oxford: Blackwell, 1999, 86-87.

In this reading, blindness in the Black Combe poems functioned as a positive pathology, symptomatic of the turning inwards of vision, away from the tangible scene into the imagination. Such a renunciation of the fallible human visual faculty made way for the emergence of a quasi-celestial power of observation, which established the observer of landscape as a figure of minority skill and privilege who, guided by abstract philosophy, sought unity in diversity and subscribed to the ensuing political implications. However, the inscription remained ambiguous. The mountain was described as "blinded"; the surveyor remained "sate alone, with unclosed eyes". I have chosen to interpret the surveyor's continued attempt to see through his blindness as symptomatic of the turning inwards of that power of vision, with all the effects described throughout this article. However, the mapmaker's futile struggle against the blinding effect of the cloud's descent could equally be understood as the thwarting of science by nature. Such an interpretation might be supported by the resemblance to a map shown by *The Prelude*'s description of the mundane intellect "parcel[led] out […] by geometric rules, / Split like a province into round and square".[53] The 1805 edition of *The Prelude* explicitly associated the Infant Prodigy's freakish opposition to the natural, spontaneous generation of knowledge, his "rational education", with cartography. The Prodigy's "massy and ponderous" discourse was accompanied by

> the ensigns of empire which he holds,
> The globe and sceptre of his royalties [which]
> Are telescopes, and crucibles, and maps.[54]

Mapmaking was opposed to the wide-ranging abstracted imagination, not a way into it. Coleridge claimed such thinkers as the Infant Prodigy "were marked by a microscopic acuteness; but when they looked at great things, all became a blank and they saw nothing – and denied (very illogically) that any thing could be seen […They] called the want of imagination Judgment, and the never being moved to Rapture Philosophy!"[55] Blindness here is stupidity, not insight.

This context certainly provides material to justify a negative reading of mapmaking in the Black Combe inscriptions, a negativity which found its articulation in the blinding of the surveyor. However, Wordsworth's understanding of cartography and its philosophical implications radically altered over time. In the 1850 *Prelude* the passage in which the dull Infant Prodigy clutched his cartographic ensign of empire was struck out.[56] *The Excursion* described cartography as the intellectual realm in which "Fancy" dreamed "o'er the map of things".[57] Map metaphors dominated Wordsworth's imaginary utopias. This later re-evaluation of cartography's significance and its relation to pure science and abstract space was, no doubt, partially attributable to his conversations with William Rowan Hamilton. The Black Combe poems were written prior to the men's first acquaintance, and they accordingly

[53] Wordsworth, *The Prelude, 1798-1799*, ed. Stephen Parrish. Ithaca, NY: Cornell University Press, 1977, II, 242-44 (60).
[54] *Prelude (1805)*, V, 320, 321, 328-30 (168).
[55] Coleridge, Letter to Thomas Poole, in *Collected Letters of Samuel Taylor Coleridge*, ed. E.L. Griggs. Oxford: Clarendon Press, 1956-71, I: *1785-1800* (1956), 354-55 (16 October 1797).
[56] *Fourteen-Book Prelude*. V, 316-29 (102).
[57] Wordsworth, *The Excursion*, in *The Poetical Works of William Wordsworth*, ed. Ernest de Sélincourt and Helen Darbishire. Oxford: Clarendon Press, 1949-54, V: *The Excursion and The Recluse* (1949). 1-312 (III, 218 (81)).

articulated an unresolved interpretation of the mapmaking impulse and the function of the surveyor's eye, an interpretation that was suspended between approval and condemnation. Wordsworth's uncertainty would eventually resolve into wholehearted approval, in which mapmaking was considered to reflect the minds of the minority population of gentlemen, poets, philosophers, surveyors, all those who exhibited what Coleridge defined as "*surview*", that "prospectiveness of mind […] which enables a man to foresee the whole of what he is to convey […] as an organized whole".[58] The Black Combe poems attached such a philosophy of vision to the patriotic ability to perceive a harmoniously, naturally United Kingdom. Blindness functioned, not as a disability, but as the purest incarnation of such patriotic abstraction.

[58] Samuel Taylor Coleridge, *Biographia Literaria; or Biographical Sketches of My Literary Life and Opinions*, ed. James Engell and W. Jackson Bate. Princeton: Princeton University Press, 1983, II, 58.

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