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DEVIL'S DARKNESS: MAPPING SMOKE ACROSS INDUSTRIAL MANCHESTER

In his 1882 portrait, W. G. Collingwood, Ruskin's dutiful assistant, captures little of the famously driven, painstaking intelligence of his employer (fig. 1). On the contrary. At the centre of the picture, Ruskin is a psychological void, little more than a cipher for the industrious scholar, as if the painting has inadvertently captured the sitter's final guttering years of lucidity. But what is evident everywhere are the products of his intellectual labour, even its waste. 'Slips of proof and sheets of paged revise', Collingwood explained, 'are laying on the floor, and the spent copy is in the waste-paper basket'[1]. And through these means, by concentrating on the room's minutiae and its assembled objects as an image of a lifetime's passions, the painter does achieve something suitably reverent. This is the art critic as St Jerome, seated in his study at Brantwood, portfolio at the ready, books to hand, tabby asleep, globe at bay, and, on the chest of drawers, a row of mineral specimens and a Turner watercolour of Florence from Fiesole. Below these, 'on the velvet cushioned top of the case for framed Dürers', Collingwood tells us, 'is a favourite MS bible of the fourteenth century which he used to read as a beginning to his day's work'[2]. The early morning sun, which enters the orderly, well-dusted room, also lights the slopes of the mountain (known as the Old Man of Coniston) beyond[3]. A fender in the corner assures us of the warmth of a coal fire in the grate; the arm of the trusty 'Ruskin shovel', made to the sage's design by a local blacksmith, is just visible. And yet, as Ruskin himself felt, all this comfort, this harmony with nature, this steady glow of the mind long projected onto its surroundings, could suddenly be put at risk by its inferred opposite: soot, staining, smoke poisoning, darkness. Geological time cut across by the newly catastrophic time of industry.

The threat was persistent, and its source was clear. This is Ruskin writing in his diary as he looked out from the same study window six years before, on 22 May 1876 – 'dark on the Old Man. Since morning however the

[1] Quoted in Dearden 1999, 166.

[2] Dearden 1999, 167.

[3] The scene was not so idyllic: two steam yachts were operated on the lake and a steam train, owned by the same company, served the copper mines on the Old Man.

clouds have been natural in their old white wreaths – now it is getting Manchestery'[4]. And again on 7 August 1877 – 'Terribly hot, dark, moist, thunderous cloud, ending in mere Manchester blackness'[5]. Or this nightmarishly industrial and Gothick scene noted on 13 August 1879 – 'The most terrific and horrible thunderstorm... rolling incessantly, like railway luggage trains – quite ghastly in its mockery of them – the air one loathsome mass of sultry and foul fog like smoke – scarcely raining at all, - increasing to heavier rolling with flashes quivering vaguely through all the air, and at last terrific double streams of reddish-violet fire, not forked or zigzag, but rippled rivulets... with grand artillery-peals following; not rattling crashes, or irregular cracklings, but delivered volleys... and now half past seven seems settling down into Manchester devil's darkness'[6]. Finally, an entry from 8 January 1880 – 'Deadly fog-rain these three days, without a gleam – today – Manchester smoke – with the usual deviltry of cloud moving fast in rags, with no wind'[7]. With every precise observation, and every shudder of panicky fear – as if a fatal future were gathering in the very sky above – the notes in the diary, which had started by simply separating clouds from smoky pollution, so often end by identifying the whole infernal scene with Manchester. Much of this observation was carried over into one of Ruskin's last books, *The Storm-Cloud of the Nineteenth Century* (1884), where the 'plague-cloud', a 'sulking' lowering presence, was named again as 'Manchester devil's darkness'[8]. What Ruskin saw out of the study window was not just the scree on the sunny slopes of the Old Man of Coniston, in harmony with the mineral specimens and painted landscapes around him, but also the smoky pall of the archetypal industrial city nearly seventy miles to the south and west.

What will follow is a kind of rudimentary pursuit of Ruskin's smoke from one of its sources outside Manchester then into the city, following its material and symbolic effects. But first, a few things must be said about this pursuit or tracking, about the artifice required, and about method as a kind of structure. It is in one sense simply a smutty tale of small flakes of soot, and

[4] Viljoen 1971, 11. I find talk of Ruskin's madness in relation to these observations beside the point – they are as little or as much indicative of mental illness as any of Ruskin's fears about industry, and the theme of apocalypse was one much mined by him long before this date (see, for instance, *The Queen of the Air – Greek Myths of Cloud and Storm*, 1869). Besides, the final onset of the mental illness that terminated his writing was not until 1889.

[5] Viljoen 1971, 38.

[6] Viljoen 1971, 191-192.

[7] Viljoen 1971, 216-217.

[8] Ruskin 1884, 1, 3, 56.

like all smutty tales it has to have a moral. In this tale, environmental history, architectural history, and history of technology all play a part; they must all play a part as each individually would only present a fragmentary or partial account. The necessary trans-disciplinary or a-disciplinary nature of this, however, is less important than its attempt to make sense of architecture's position relative to a chain of production and waste, not just from a mine to a pithead, along rail tracks, to a mill and its consumption of coal, but further into the very buildings that were paid for by the textile industry's profits and that found ways to minimize the effects of its byproducts. As a method this is less a system than a persistence, insisting on the pathway of links made by fossil fuel consumption. One effect is to put stone carved into ornament back into some meaningful cultural relationship with coal carved into fuel.

This approach has something in common with the so-called 'it-narrative' or novel of circulation, a literary subgenre common in the eighteenth and nineteenth centuries. In these works – *The Secret History of an Old Shoe*, for instance, *The History and Adventures of an Atom*, or novels about a watch, a doll or a teacup, many of them stories of money (a golden guinea, a rupee, a shilling, a bank-note) – an object is followed, in fact it often narrates its own story, as if it were a character passing as much through layers of society as through physical locations, high and low and often far-flung. These objects are therefore curious spy-avatars whose mobility, but apparent lack of agency, is used to cut through propriety, hierarchy and convention, often mimicking the values of circulation and exchange, and seeming to explain them by putting them under different lights. Recently, it-narratives have received revived attention from literary critics, for whom the portability of these objects – often animistic and satiric – and their allegorization of a range of anxieties about an emerging world of consumerism, are seen to resonate with recent critical trends for thing theory, affect, and the non-human as actant[9]. But here I am not interested in an exercise in new materialism; smoke is not imagined as having agency[10]. Instead the pursuit of smoke across spaces reveals the human complexities of the desire to exploit, as well as the exculpation of this desire in the realm of culture.

This essay cannot mimic an it-narrative, it cannot quite provide the life and adventures of a smut. And anyway, it's clear that the authors of it-narratives chose simple artefacts, wares, objects that represent exchange-value,

[9] Blackwell 2007; Lamb 2012.

[10] For just such an account see Trexler 2013, 226-235. For an excellent critique of this and other new materialist theory as it bears on climate change see Malm 2016, 78-118.

rather than waste products like smoke (even if, like Tobias Smollett's atom, they may pass through various waste processes). But the literary form does parallel and have something to say about Ruskin's fear that what he traced back to Manchester was something that would destroy what he most valued – that his St Jerome's study, beside the lake and mountain, would be infested by the personified substance, 'devil's darkness', of industrial capitalism. And it does help us to develop another way of connecting industry and culture through the products of Rylands & Sons and the library created in the heart of Manchester by Enriqueta Rylands.

Smoke travels in ways that are threatening; its unruly character puts at risk any notion of proper place. It was often used by Victorian writers as a substance that represented as much the depravity of working-class environments as the precarity of middle-class circumstance; it was both metonym and medium. There is a chapter in Elizabeth Gaskell's *North and South* (1854-5) when, newly ensconced in a rented house in the industrial city of Milton (a fictionalized Manchester) having been expelled from the pure air of her father's idyllic country parsonage, Margaret Hale's attempts to impose order - repapering the rooms, unpacking and arranging - are undermined: 'a thick fog crept up to the very windows, and was driven in to every open door in choking white wreaths of unwholesome mist... the heavy smoky air [even] hung about her bedroom'. This is 'as thick a fog of circumstance', Gaskell suggests, as it is of pollution. The invasive substance breaches the house's skin as much as it breaches the weaker distinctions; it is irrepressible evidence of the lowering of class status (or the ever-present threat of it), but it also pervades and obscures, undermining the signs and codes of social stability[11]. The 'barrier to hope' is a trap that does not allow the 'intercourse' between classes that was Gaskell's great concern: 'intercourse is the very breath of life' she writes in *North and South*[12]. There is also Gaskell's complementary use of smoke in *Mary Barton* (1848), where it stands for the constraints of class as conveyed by the determinations of environment. Mary Barton herself is 'bound to Manchester' and cannot 'quit the old smokejack'; when she attempts to she finds herself '[looking] towards the factory-chimneys, and the cloud of smoke which hovers over Manchester, with a feeling akin to the

[11] Gaskell 1970a, 104-105. A century later Richard Hoggart wrote of a working-class mother's constant battle to keep the home clean in the face of this pollution: 'Everywhere the smoke and soot from the nearby factories and railway lines creep in, and most women "can't abide the thought of dirt getting a hold".': Hoggart 1957, 39.

[12] Quoted in Moretti 2013, 123.

"Heimweh".[13]. Although it was not always as negatively construed as we may now assume, smoke is represented in such novels as one of the most insidious elements of the trap that is environmental determinism; it is familiar and even linked to homeliness, but because it is noxious and never quite comes to rest, it can drift and de-stabilise both place and substance. Less often depicted, however, is the fact that its release in the form of effluent from more solid material forms means also that it evades possession (or, as lawyers found, is very hard to attribute to one owner), and this is where the it-narrative form, more than the Victorian novels it prepared the way for (with Gaskell's smoke, or dust in Dickens' *Our Mutual Friend* or fog in *Bleak House*), is useful here.

Although they are fictional stories, it-narratives describe mobile forms of sociability or connectedness between things, people and places, different cuts or sections through the norms and forms of social and economic structure. Their objects make unfamiliar what they pass through or make familiar what is exotic, rendering the world differently legible.[14] Similarly, the spaces and architecture of things in constant motion, - especially a substance like smoke that infests what it is contained by, floating into and out of it - causes spaces to be drawn together by new or newly revealing connections, 'changing the cartography of the sensible and thinkable'[15], bypassing the antitheses essential to the maintenance of the very idea of the city (town and country, near and far, traditional and modern, high and low, centre and suburb[16]. This drawing together offers something of an alternative also to the delimitations of disciplinary, professional or sociological notions of architectural and urban space, a 'partitioning of times and spaces, sites and functions'[17].

To track the spaces traversed by smoke is to engage in what Fredric Jameson has called a 'cognitive mapping'[18]. One response, for instance, to this engraving of Manchester is to see it as a collection of buildings, a collection of streets, warehouses and mills, cultural buildings, buildings for local government, and for leisure, all built at different times, for different purposes

[13] Gaskell 1970b, 351, 333. See also Gallagher 1985, 62-87.

[14] It-narratives seem to fade in the nineteenth century, becoming a genre more suitable to children's stories about bubbles and snowflakes, and where they survive their objects become more adhesive with others and more evidently educational. Coal is one such subject: Plotz 2007, 336.

[15] Rancière 2010, 143.

[16] Martin 2016, 9-14, 36-37.

[17] Rancière 2010, 119.

[18] On the prescriptive potentials of cognitive mapping see Jameson 1992, 188-189.

and clients (fig. 2). And if we study them individually or in groups, by typology or morphology, as civic boosterism or urban dystopia, we still end up with a collection, the *musée imaginaire* of our own projection – something with too partial a grasp of the historical forces actually at work. And yet the image also makes unavoidable a different connective tissue – the environmental conditions of smoke pollution, smoke as both medium and effluent. Properly understood this gives a different angle or narrative. We map a different set of connections, that make a different sense, an architectural history that includes the coal mine and the smokestack and the cotton plantation, as well as the philanthropically endowed library made possible by their exploitation. Fossil capitalism is the rationale or the link that binds all these together, connecting different kinds of space, energy systems, and human labour, with the cultural forms of architecture. To follow smoke is to follow that rationale. It is also not to take the logic of fossil capitalism on its own terms. The denial and disavowal of the drives behind the fossil economy were largely a product of its long historical moment and the way the interests of capital were placed above those of the worker and the earth itself; but they were also a product of the disciplinary separations and professional territorialization that arose out of this moment and that continue to obscure accounts of Victorian culture and its relation to industrial change.

By cognitive mapping Jameson wanted to indicate the necessary work of revealing and plotting the links, relationships, co-productions, and routes of the complexity that is capitalism; a guide, to put it simply, to knowing it and to thinking differently about it[19]. Ruskin's *Storm Cloud* itself has some of these mapping elements - drawing together subjective experience, precise climatic observation, and vast global changes – but it is far from offering a navigational aid. Linking it-narratives and cognitive mapping, as Toscano and Kinkle have recently done, is to allow for orientations or tracks that intersect with the circularity of the commodity chains of production and consumption, but that also acknowledge or intercut what those chains disassociate or differentiate (in this case that would obviously be high art as much as waste)[20]. Of course, it-narratives also have highly conventionalized sentimental elements – a moral or apotheosis – but again these are of use here, for one thing because their imaginative and satirical aspects question the conventions of mimeticism associated with historical analysis. Although it does have a more general period temporality about it, the route traced across a

[19] Jameson 2000, 228-231.

[20] Toscano – Kinkle 2015, 191-192.

world of spaces is not temporally specific – this is not an actual smut traversing spaces at a particular moment; instead the smut narrative necessitates a breaking with the idea of the fixed coordinates of the abstract space and time of capitalism.[21] While it has a connecting logic in terms of production and its effluent - the carbon trail that links the making of energy and its waste - in what follows I also attempt to register the 'phenomenological richness' of a tracking that involves a spatio-temporal drifting and merging with other objects and other routes.[22] The map thus created is of a set of itineraries, both literal and metaphorical, from a mine to a library, a cotton mill to a book, a boiler to a bookcase. The new simplifications, and the unexpected forms they take, are inherent to the model – as in the fabular forms of the it-narrative or indeed in the diagrams that the urban theorist Kevin Lynch (from whom Jameson took the term 'cognitive mapping') encouraged his subjects to draw in order to represent their memory (or mental maps) of moving across familiar places in what Lynch understood as otherwise a city largely alienated from them because its logic was obscure[23]. But the simplicity also brings out coordinates and significances which are not registered, which are not mappable in more formalized or institutionalized models of space and its geographies.

The likely ultimate source of Ruskin's devil's darkness was the south Lancashire coalfield and its seams[24]. The 'architecture' of these subterranean workings is where our story starts, at the beginning of the carbon trail. The mines around Wigan were worked by leaving pillars of coal to hold up the roof with stalls or compartments between them – this was known as the pillar-and-stall system (as opposed to the longwall system which brought in stone walls or wooden supports).[25] This first architecture of coal was tunneled into the

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[21] Castree 2009, 26-61. Alberto Toscano has argued that cognitive mapping has tended to be used as a spatializing of capital without heed of its temporalities: Alberto Toscano, talk on 'The Quantities of the Past: Photography on the Aftermath of Capital', Centre for the History and Theory of Photography (Birkbeck), 13 December 2019.

[22] Hardt – Weeks 2000, 22.

[23] Lynch 1960.

[24] Daniel Defoe (*A tour thro' the whole island of Great Britain, divided into circuits or journies*, as quoted in Davies 2010) described the so-called 'Canell or Candle Coal' found around Wigan as 'smooth and slick when the pieces part from one another… a lady may take them up in a cambric handkerchief and they will not soil it, though they are black as the deepest jet. They are the most pleasant agreeable fuel that can be found'.

[25] The longwall system was becoming increasingly used in Lancashire from the 1860s though pillar-and-stall layouts still prevailed: Church 1986, 336.

ground and, after underground service roads had been dug, its apparently ordered spaces were made by productive extraction from the coal seams, the 'stores of past photosynthesis'[26]. The size of the pillars was a matter of controversy: the larger were generally the more safe, the smaller generally the more productive[27]. Their extractive removal was a matter of experience and luck. The troglodytic passages (usually called roads or galleries) were shaped as a grid iron or, in a variation often found in Lancashire mines (and known as the 'Lancashire System'), in the form of paired passages differentiated between a 'dip-level' (or a lower, horse road) and a 'rise' or higher level, each enabling haulage and the ventilation of the complex[28]. From the rise level the tunnels for the working places were driven, again in the form of paired passages.

The mine may be 'a master site of capitalism', but representation is clearly a problem when it comes to underground workings, and the effects are felt in more ways than a simple scarcity of images[29]. The less vernacular vocabulary used to describe mines – of galleries, chambers, roads, pillars, passages, and circulation – indicates the struggle to reconcile the precarious danger of the conditions with the reassurances of familiar forms of stability and order. And, likewise, in the few images available we see ideal layouts, spatialized systems of extraction and movement that take as little account of local variations and modifications as they do of the conditions of work within these mines. More like marketing brochures than blueprints – and owing much to the sections through mines in Diderot's *Encyclopédie*[30] – mine layout diagrams imagine mole-eye subterranean cities without dwellings or sunlight, through whose schematic spaces pass the substances of coal, bodies, and air[31].

The diagrammatic mode of mining engineers often pointed to the causes of disaster, if more for economic purposes than out of human empathy. The Lancashire coalfield was notorious for its gassy seams that caused frequent

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[26] Malm 2016, 21.

[27] Dunn 1848, 117; Farrimond 1860, 89-94. I've used Dunn and Farrimond as sources for much of what follows, but the account might just as well have come from a book published decades later: see, for instance, Tonge 1906, 119-125.

[28] Dunn 1848, pl. XII, fig. 1. Church 1986, 333. However, 'there were as many variations as there were seam characteristics': Church 1986, 328.

[29] Clark 2018, 199. The classic account of the representation of mines and the coal industries is Sekula 1983, 193-268.

[30] Sekula 1983, 217.

[31] See for instance, Westwood 1806 [reproduced in Fox 2009, 485].

explosions. The pillars of these passages were also likely (as figures 2 and 3 in fig. 3 show) either to disjoint (to be 'deranged by creep', as one mining expert put it) and the floor to fill up and be joined with crumbling coal from the roof, or the pillars to collapse because they were too weak (a phenomenon known as 'thurst').[32] One inspector calculated the death rate in Lancashire and Cheshire mines for the years 1851 to 1853 as 215 lives per annum out of a total mining workforce of 38,000[33].

Despite the reassurances of the grid and its thick crossing points or doubled passages, then, a ruinous instability - the environmental danger to labouring bodies subordinated to the primacy of the movement of coal - marks smut's life from its beginning[34]. To prevent thurst and creep destroying the whole mine a further architectural form was devised, the barrier made of coal, often twenty or thirty yards thick[35]. Drifts (cc) and levels (aa) (in fig. 4) were defended by these barriers, leaving the working spaces (b) undefended but allowing the principal communication routes to be impervious to any collapse. The specification of passages was key to the operation of the whole: circulation (of air) was designed into the system, interconnecting with the larger operation of collecting and transporting coal. At the micro level the individual hewer was given his or her own coal face at the head of the smaller passages. Mine ventilation plans take this to a further level of abstraction, near topologies of flows and circuits[36]. Levels of abstraction, then, but also creep' and 'thurst'. This was the collier's world – its architecture, its space – and, despite mining's technological advances in the previous century, little of it (unlike textile manufacture) changed across the nineteenth century; it was barely a site of technological innovation.[37] Steam-driven pumps and fans may well have been present by the mid-nineteenth century, but the miners still hacked at the coalface with picks and shovels.[38]

If the mine was a kind of grid 'found' and tunneled out of the earth, and whose extractive productivity depended on an eating away not just at its

[32] Dunn's creep is A in fig. 2, pl. XI: Dunn 1848, 124-125.

[33] Dickenson 1855, 75.

[34] The *Manchester Guardian* was full of reports on fires and fatal accidents in the mines around Wigan. To take just one year: see *Manchester Guardian*, 6 January 1859, 24 August 1859, 24 September 1859, and 28 September 1859.

[35] Dunn 1848, 134.

[36] Dunn 1848, pl. XIX, fig 1.

[37] Mokyr calls it 'one of the high-tech sectors of the British economy [in the eighteenth century]': Mokyr 2009, 105; Sekula 1983, 204.

[38] Samuel 1977, 21.

edges but at its own nodes and passages, it was also a colonial city exploiting subterranean resources, part of larger industrial and commercial empires. Comparisons with towns were common: as one mining manual put it, '[the mine workings] might remind one of a town having long streets reaching from boundary to boundary in one direction, and these crossed by other streets at right angles to them. In this case the streets and back streets would be in reality the parallel and cross roads, and the blocks of buildings the pillars of solid coal'[39]. In other words, and taking into account that this is another form of reassurance (now of governance by design), the subterranean mine mirrored the form of the company towns or the by-law streets of the industrial towns above[40].

One such town was Wigan, in the heart of the Lancashire coalfield and increasingly important as one of the ring of satellite towns around Manchester. Since the 1830s the three Gidlow pits, just north of Wigan, had been owned by the textile company Rylands & Sons to provide coal for its Gidlow Mill[41]. They belonged to one of the most successful Victorian commercial enterprises, from 1860 onwards the single largest textile firm in the world, whose founder, John Rylands, was Manchester's first multi-millionaire, the 'Wellington of commerce'[42]. The key to Rylands & Sons' success was not based on managerial style or any particular technological innovation, but instead in its marketing skills, its accounting systems, its portfolio built up through constant acquisitions and prudent diversification while grounding itself on the domestic market, and its 'vertical integration' of the disparate elements of cotton textile manufacture and its ancillaries in a company system[43]. Indubitably large in its combined capacity, Rylands & Sons was also

[39] Tonge 1906, 121. A more fanciful comparison was made with the city of London: Leifchild 1968, 131-132.

[40] The association was quite direct in some drawings, where the layout of seams was superimposed onto the pattern of fields: see 'A Plan of Land belonging to Mrs Margaret Garrick situate at Birtley in the County of Durham' (1759), reproduced as fig. 27 in Fox 2009.

[41] John Rylands Library Special Collections RYL/1/3/1.

[42] A 'leviathan house': John Rylands Library Special Collections RYL/1/3/1 – this is from a brochure published by Rylands & Sons; Farnie 1998, 96.

[43] Farnie 1993, 14-17, 45; Farnie 1998, 90-95. This prudent diversification is also shown at Gidlow by the co-existence of 'two identical, yet entirely separate, half-mill installations so that the failure of one would not interfere with the other, or completely stop production': John Rylands Library Special Collections, JRLCM 52/1/8/1-11. Rylands & Sons was also known for acquiring already-built mills and warehouses, often on the cheap during trade depressions: John Rylands Library Special Collections, RYL/1/5/9; Farnie 1993, 1973, 109. The nearest to favoured architects were Clegg & Knowles, who worked for Rylands & Sons in Portland Street from the 1870s.

remarkably differentiated in its operations even within one industry. Securing the supply of cheap local fuel by the owning of mines in Wigan, as well as their railway spurs and their onward connections to the main line, was typical[44]. But the Gidlow collieries were as liable to the dangers of subterranean construction as any, Rylands' prudency not extending that far. In 1859 an older lower level of working collapsed under the weight of those above, flattening the buildings on the surface. The collapse was blamed on misjudging the size of the pillars[45]. (Architecture, therefore, has both an ideal and a markedly precarious existence at the start of this narrative.)

Coal was essential to cotton's steam-powered manufacture – and likewise, the Gidlow pits would not have existed without cotton. We get back, then, to our story of smoke and its previous life as coal travelling through, indeed actually forming these different spaces. After it was hewn and brought to the surface, the coal was loaded onto wagons and pulled by steam engines from the mine to the Gidlow Mill nearby. This mill, much celebrated in manufacturing circles when finished in 1865, and designed by the specialist mill architect George Woodhouse, succeeded the mill that Rylands had bought with the land and was unusual for the company in that it was its only purpose-built mill (the company's other sixteen mills were acquired secondhand).[46] It was remarkable partly for its size, partly for its state of the art machinery, and partly for its fireproofing throughout, but mainly for the single-storeyed sheds, learnt from recent Indian mills designed by William Fairbairn, and giving the structure a very different profile from those like McConnel & Kennedy's earlier in the century (fig. 5)[47]. The curtailing of cotton imports from the slave plantations of the American South due to the American Civil Wat had led to Britain's sudden reliance on greater cotton production in India. What we see in the Gidlow sheds is direct evidence of the travelling back and forth between Britain and India of the technologies and architectural forms rapidly developed to service these new arrangements[48]. Ironically, it was in these sheds, and their 1500 looms, that Rylands & Sons' famous 'Dacca' calico was woven. In fig. 5, drawn for a history of cotton manufacture rather

[44] Rylands had previously rented mines near Bolton: Farnie 1993, 11. Combining cotton with coal was not unusual for textile manufacturers: see Howe 1984, 39. On the cheapness of coal relative to its proximity see Malm 2016, 160. See also 'A Captain of Industry', *Manchester Guardian*, 25 December 1886, 497-498.

[45] Farrimond 1860, 91.

[46] Leigh 1873; *Manchester City News*, 15 April 1865; Williams – Farnie 1992, 98.

[47] Fairbairn 1863, vol. 2, 172.

[48] Beckert 2014, Chapters 9 and 10; Harnetty 1972.

than for the clients, the perspective should be understood as propositional (only a little over half of what is shown was actually built). And it is opaque and provisional in another, critical sense, because, like Bertolt Brecht's famous lament about photographs of the Krupp factory, it tells us next to nothing about the social realities that it shapes and presides over.

Although essential, coal was treated as spatially marginal to the mill. The objective was to get it into the building as quickly as possible, combust it, and then convey its waste out rapidly. Its route in was the railway track; its exit, in the form of the carbonaceous matter of smoke, was via the lofty but primly Italianate chimney that dominated the area.

Gidlow's coal fed eight boilers and it was in the boiler room, marked on the mill's exterior by a tower, that the vital energy transfer occurred. Together with steam engines, the boilers formed what Marx called the 'motor mechanism' of the industrial system[49]. The process is described in a diagram of a rectangular steam boiler, plate 2 of Thomas Tredgold's then still standard *The Steam Engine: Its invention and progressive development* (1827)[50]. Tredgold's plate shows movements across bodies and through passages. Coal is shoveled through a fire door onto a grate above an ash pit. Set ablaze, the inflamed coal's current of fumes passes around the boiler, heating its water before passing up a chimney. (Gidlow's boilers may well have used 'economisers', clusters of pipes located in the flue which made the heating more efficient.) Water has entered the boiler itself by pipes and steam – the product of this part of the process – leaves the boiler via a pipe which takes it to the steam engines. That is the end of the coal: it has created steam which will impel the engines as the prime movers of industrial process; it has been transformed into ashes and smoke; and, its thermal energy exhausted, its waste is now expelled from the mill in one architectural flourish and returned, apparently, to nature.

One inference here, at this point in the narrative of smoke, is that engineering, even the mechanical engineering of steam boilers, is never far from architecture (though it may be from architects)[51]. So if smoke is given an honorific exit here through a part of the mill's exterior defined as architec-

[49] Marx 1976, 494.

[50] This description is partly based on Tredgold's own: Tredgold 1838, vol. 1, 328.

[51] Accounts of the relation between architecture and engineering tend to be accounts of the relation between architects and engineers, including their training and professional bodies, rather than of the things (structures, buildings) that both define the professions and blur their edges. See for instance, Saint 2008.

tural, then its production and movement might already be described as spatial, especially via the flues that made it circulate under and around the suspended body of the boiler. (Perhaps architecture might even be defined here as the barrier around which, and sometimes within which, air and gas circulates.) Coal and smoke were thus done with as far as Rylands & Sons were concerned, the power they released coursed through the mill, energizing what Marx called that 'vast automaton'[52]. And this elaborates further the point about boilers, that to make distinctions between architecture and machine or architecture and engineering in the mill is almost entirely spurious – as indeed the idea that circulation is something only humans do in human-sized spaces. Coal, steam, labouring bodies, and mechanical power all circulate, all are geared or attuned to the same end in the mill. At least that is the theory or 'philosophy of manufactures' as Andrew Ure conceived it, with the 'benignant power of steam' at the centre, summoning 'myriads of willing menials… [assigning] the regulated task'[53]. Having left the complex architectural organism that gave it birth, the waste continues on, barely regulated.

The unusually high chimney at Gidlow, of 204 feet and separated from the main building, released smoke far away from possible local litigants and simultaneously made a point about the company's sense of social obligation. Such an architectural grandiosity, with its elements of base and capital and its pronounced lip just below its summit, was not uncommon by this time. Tredgold's first plate provided tops for similar chimneys: an obelisk form, an octagon top for a square shaft, an octagon chimney in both shaft and top, and a columnar chimney. In 1858, the engineer Robert Rawlinson had devoted a whole book to various designs for free-standing chimneys, ventilating shafts, and water towers, openly espousing the lessons of minarets and campaniles in promoting towers as distinctive markers in their landscapes - 'the 'infusion of design', as he termed it, into the utilitarian[54]. To adopt such designs might help make a point about the mill's and thus the mill-owner's civic-mindedness and modernity, his projection of an understanding that what the mill was doing was not just a matter of profit but of culture even at the moment of the expelling of waste. But tall chimneys had another purpose, more technical and thus less often remarked; they increased the draught to the boilers, so

[52] Marx 1976, 502.

[53] Ure 1835, 18.

[54] Rawlinson 1858, 8.

improving the intensity of combustion and making the whole operation more efficient[55].

Up until this point in this smutty tale, coal and smoke have been extracted, refined and transformed within a sequence of tight, shaped passages, vessels and vehicles. But on leaving Gidlow's chimney, smoke was released to the prevailing winds, wafting eastwards and northwards, mingling with the smoke from the many domestic fires of Wigan and Manchester and settling in the city's saucer-like topography. In the words of one Ruskinian witness, 'air currents meet the gaseous products of combustion, mixed with minute material particles, and are hindered or directed in their course thereby, and move forward, dirty, irregular, and scattered'[56]. Industrial chimneys alone in Manchester numbered well over 500 by 1843, and would double by 1890, while domestic consumption of coal was more than double that of London per capita[57]. The subject of smoke became almost obsessive to speakers at the Manchester Literary and Philosophical Society as well as at the Statistical Society. As smoke left Gidlow and other mills, its particles and sulphur dioxide gas dropped and draped and encrusted in a kind of industrial melanism, blackening trees, acidifying soil, and destroying plants. (Famously, it even made moths adapt their camouflage.)[58]. This was the 'deep, lead-coloured cloud' that Elizabeth Gaskell's character Margaret Hale saw from far off, fed by the 'unparliamentary smoke' that avoided regulation[59]. Yet, if we are to believe Reuben Spencer, chairman of Rylands & Sons, the same smoke was the 'incense of industry'; his fictional counterpart, Dickens's Josiah Bounderby, described smoke as 'the healthiest thing in the world in all respects, and particularly for the lungs'[60]. Later in the century the Ruskinian T. C. Horsfall remarked that although legislation existed in the 1840s to limit

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[55] Mosley 2008, 128.

[56] Graham 1907, quoted in Cook – Wedderburn 1903-1912, xxxvi.

[57] Mosley 2008, 18-19.

[58] Nicholas Cooke claimed to observe the phenomenon of melanism in lepidoptera - or, moths turning black – in the late 1840s in Pettypool Wood, Cheshire. *Tephrosia biundularia* had been creamy white but now 'all are dark, smoky brown, approaching black': Cooke 1877, 94. Similarly, *Amphidasis betularia*. This surely disproved natural selection. Manchester and its outlying towns, including Wigan, 'all pouring forth from their tall chimneys chemical fumes and coal smoke' had scattered their deposits on leaves where they had been 'swallowed by the larvae along with their food': Ibid.

[59] Gaskell 1970a, 96. On smoke abatement societies see Mosley 2008. For working class opposition to environmental pollution see Malm 2016, 244.

[60] Both as quoted in Mosley 2008, 88.

smoke pollution, it was circumvented by 'magistrates who believed that the emission of black smoke was the inevitable and innocuous accompaniment of the meritorious act of manufacturing'[61].

Certainly, then, there was no dominantly negative view of smoke[62]. In many of the images that viewed Manchester from outside the city, the range of smoking chimneys is a trope, not for a degraded Godless modernity, not even for pollution, but instead for productivity, a city at work. And in the case of one of the most canonical of Manchester images, William Wyld's 'Manchester from Kersal Moor' (1851), smoky chimneys are part of an almost divinely ordained scene, with its golden light, easeful river, and figures resting as if in flight from Egypt (fig. 6). Here, unlike Ruskin's later *Storm Cloud*, the observation of natural atmospheric conditions is brought into a desired compatibility (harmony would be a step too far) with the observation of the man-made atmosphere. Industry is put in its place, contained by a world-view that has not abolished differences or recognized capital's all-encompassing nature[63].

The design of one Manchester building, in particular, was marked by a high level of obsession with the exclusion of smoke. It is, in several ways, complementary with the mill and mines at Gidlow, and not just because all were built by the same family (fig. 7). This was the library endowed by John Rylands' widow, Enriqueta Rylands, as a memorial to her husband who died in 1888, and it was filled with the precious book and manuscript collections she added to her husband's largely theological collections.[64] Just west of Deansgate, its site was in a slum-ridden and semi-industrial area often described as one of the most insalubrious in Manchester, 'with narrow and loathsome streets, and close courts defiled with refuse' and little changed from what Engels and James Kay had seen forty years before[65]. The area was often infused with the 'murky mass [of smoke hanging] like a shroud' over

[61] Horsfall 1895-1896, 19. Industrial concerns seem to have largely won out in disputes over smoke pollution across the century, but there are interesting examples at the beginning of the century of the Court Leet and Police Commissioners successfully prosecuting factory owners: Bowler – Brimblecombe 2000a, 77-83.

[62] Mosley 2008, 185.

[63] The painting was commissioned by Queen Victoria from the artist soon after her trip to the city in 1851: https://www.rct.uk/collection/920223/manchester-from-kersal-moor (downloaded 17 October 2020).

[64] There are three accounts of the architecture of the library and its relation to environmental issues: Maddison 1985, 230-249; Hodgson 2012-2013, 19-81; and Bowler – Brimblecombe 2000b, 175-191.

[65] Kay 1832, 36; Engels 1987, 99.

the city[66]; in 1890 life expectancy for men in Deansgate was estimated at 28.78 years[67]. It was a survival of shock city and Charity was the middle-class means of engaging with it - the Wood Street mission, a private charity for the poor and indigenous, was close by (and indeed John Rylands was a trustee)[68].

Locating the Rylands Library here was an act understood as philanthropic in at least two ways. First it was a cleansing and purging of dirt and poverty from the immediate environs, and second it was the arrival of a gift that if paid for from the world of polluting industry would nevertheless be redolent of a different world altogether – quiet and clean, pre-industrial, religious, scholastic[69]. The potential axial link to the nearby Manchester Town Hall must also have been important to this choice of site, offering the possibility of re-making a slice of the central city, spatially linking Rylands' civilised philanthropic largesse to the new seat of the city's governance by its industrialist class.

Ventilation was central to the design of the library, just as it had been to the Gidlow mines and even the Gidlow mill's boilers and chimney. And we might even think of the library as a kind of inversion or antithesis of a mine. Its rockface to be picked at are the bookcases, either added to the walls (rather than extracted to form walls) or freestanding within rooms like the pillars of coal and stalls or compartments between them[70]. The deposit of past mental labour accumulates here, we might say, in this site of addition, while physical labour is expended or consumed in that other site of extraction. To juxtapose the ground floor plan of the Rylands library with a diagram of a coalfield with paired passages and a pillar and stall grid is absurd to a certain kind of architectural history, a pseudo-isomorphism at best. But if there is anything forced about this coming together then that is only the product of a certain interest, a need to keep them separate (the promiscuity of such relationships can certainly be found in Victorian periodicals)[71]. Library and mine are both products, after all, of the same industrial complex; the beginning and the end

[66] Some associated this with a perceived 'deterioration of the race': Morgan 1866, 29.

[67] Graham 1907, 5.

[68] Kidd 1993, 152.

[69] There was some comment on the suitability of the site given the source of Rylands & Son's wealth: *World*, 29 October 1907.

[70] A link between clerks using pens and hewers using picks is made in Leifchild 1968, 132.

[71] See, for instance, the illustration of a high pressure boiler that is placed opposite plans and views of buildings in Lincoln's Inn: *Civil Engineer and Architect's Journal*, 7, 20 January 1844, 30-31. The journal is full of such juxtapositions.

of it. (Indeed, Francis Bacon had metaphorically linked the speculative aspects of natural philosophy with the work of mining)[72]. Together, they stand for the birth and after-life – or really, half-life – of our smut; its entering into productive life as coal, its transmutation into waste, and its exclusion, or attempted exclusion, from another kind of life dependent upon it but disowning, even disavowing, it. There will be closer connections and analogies to discuss in the library, but smoke remains the unavoidable medium, tying the byproduct of library to the production of cotton. 'The entire proposal', Rylands' architect Basil Champneys wrote, 'has originated in the desire to preserve the valuable works from injury.'[73]. This 'injury' was the threat from the very smoke that had helped create the wealth expended on the library's books.

Smoke thus had to be kept out of the library, and Champneys and his various consultants wrestled with this practical problem on a number of levels, while also using the idea of the pollution-free building to charge the library's remarkable spatial drama. It was the library's ventilation that took most time to resolve in the design, and the solution was eventually a belt-and-braces combination of measures arrived at over several years. Drawn in by electric fans low down on the building, air would be sprayed with water, pass over hot water pipes and be drawn through jute or hessian screens, while foul or 'vitiated' air was taken out via extract flues connected with two exhaust chambers in the roof. Air circulation was vital if mildew and mould were not to damage the books[74]. Inevitably, the weakness was that the building could never be kept sealed even if windows were airtight (delivery entrances, for instance, were only partially protected by screen doors), and this may be one reason for the elaborate spatial sequences between the main entrance and the reading room itself. The ineffectiveness of even these methods was all-too-quickly demonstrated when, as early as 1907, barely eight years after completion, the beautiful stone vaulting over the reading room was reported as blackened[75]. The precious books themselves, however, were provided with some of the most hermetically sealed containers in the history of bookcase design, precision-made glass caskets with seals between doors and frames made airtight by rolls of velvet packed with wool[76]. If the building

[72] Sekula 1983, 204.

[73] John Rylands Library Special Collections, JRL/5/2/5/13.

[74] Bowler – Brimblecombe 2000b, 185.

[75] Bowler – Brimblecombe 2000b, 185.

[76] John Rylands Library Special Collections, JRL/5/2/1/1/2-3.

science was arcane, the use of electric lighting to avoid the fumes of gas certainly was not[77].

But there was something more than matters of convenience and conservation in this attempt to exclude smoke. The nuisance of smoke, which was actually the politics of smoke, was here, it might be suggested, re-made into the poetics of smoke through the ornament and the sequence of spaces that make the library's entrance route so extraordinary. This started with the placement of the entrance right on the street, where it was guarded by two short towers stepping back from the street line. The library thus sat implacable within a hostile world; both castellated and intricate, defensive and precious. On entering, the progress of visitors was shaped around a sequence of experiences, symbolically discarding the smutty city before entering the purified library precinct. Visitors pass through the relatively narrow doors into an entrance space, a kind of decompression or detoxifying chamber which expands suddenly upwards like a lofty forest, with the forest ceiling held above by tall slender columns yet still compressed into small vaulting bays (fig. 8). A set of reception spaces follow, through which visitors are compelled to turn and turn about, seeing and passing various screens, trellises and traceries; they create an ambience – more symbolic than functional – of being screened and even filtered, of levels of admittance. The visitor turns left and left again, up stairs and under stone canopies, fan vaults and an otherworldly stone lantern high above. The movement spirals upwards and then turns into the sudden tall volume of the south tower, with the Manchester street a world now long abandoned. And finally the visitor arrives in the reading-room nave of the library, a space suspended above street level and held within a containing cocoon or layered casket of corridors on all sides (fig. 9)[78].

The religiosity of many elements of the library is not so much my concern here, though the fact that this terminal space is so like a nave and that books are so nearly invisible within it, needs some comment. Some of the correspondence written between Champneys and Enriqueta Rylands was much exercised with where the line might be drawn between the religious and the secular, or rather between the High Church and the Nonconformist. Enriqueta tended towards the second term in these pairings ('[I want to] avoid anything that gives an ecclesiastical appearance'), though she only seems to

[77] Although electricity did cause pollution because of being generated by gas engines. At the library these were situated outside the main building so that their pollution was directed into the surrounding streets: Bowler – Brimblecombe 2000b, 187.

[78] It was also intended to have many more screening devices of carved stone in its decoration: Maddison 1985, 241.

have realized the problem late in the design, by which time only minor modifications could be made.[79] She was concerned that, despite her husband's considerable collection of theological texts, the library should not be seen narrowly as an evangelical foundation or even a kind of missionary establishment (contra- its surroundings), but instead that it should stand for the cultural in Matthew Arnold's sense of 'sweetness and light' (and thus also deny Arnold's charge of philistinism thrown at the industrial bourgeoisie). Her choice of figurative sculpture comes from the literary tradition, the heritage of the classics, the idea of history as a canon of figures of authority, and a more abstract or generalized realm of the spiritual, even if it had more than a hint of Protestant Nonconformity about it[80]. That the library might be a transition from the industrial into the cultural so that the cultural transcends the realm of the commodity, the factory, the working day, the office and its ledgers, the 'faith in machinery'[81], the mine and the mill, and their various surpluses and wastes – in short everything that Rylands & Sons had created and mastered – is, of necessity, at a different level from the overt iconography with which Enriqueta was concerned, such as her insistence on matters like the stained glass having secular subjects or the niches for her historical figures having semi-domes rather than Gothic tabernacles. And this – reaching this other level – is exactly why the library's architecture as a way of rendering the experience of the transition into the cultural is so important; it is both more spectacular and more subliminal.

Along the way to the reading-room, extensive sandstone surfaces flaunt their exposure to air. This sandstone, known as shawk, was quarried near Dalston in Cumbria, and was paler than the dark red Barbary sandstone, quarried from Penrith, that was used for the exterior and that was believed by Enriqueta Rylands to be sufficiently durable to stand up to the city's pollution[82]. A repeated motif carved into this interior stone is of wind rustling organic forms, a motif that is as much wave-like as leaf-like (fig. 10). Plants were often taken as the measure of smoke's bad effects, their stunted 'blanched and sickly' forms used as an analogy with the blighted physiques,

[79] John Rylands Library Special Collections, JRL/5/2/1/4-5; Maddison 1985, 241-243.

[80] She 'imbued the library with a liberal but decidedly Nonconformist approach to written culture': Gow – Simpson 2017, 115.

[81] Arnold 1932, 49.

[82] Bowler – Brimblecombe 2000b, 181.

life expectancy and 'deterioration of race' of urban slum dwellers[83]. By contrast, we can observe that in Collingwood's painting of Ruskin a tumbler of water holding Grass-of-Parnassus, a wildflower, is placed on the window sill as another emblem of purity. 'Lovely architecture', Ruskin had written in 1865, was only possible in 'cloudless air', by contrast with the 'black air' that 'renders all ornament invisible in distance, and then chokes its interstices with soot.'[84]. The very existence of ornament – its legibility, its articulation of the free or 'savage' expression of the craftsman, in Ruskin's terms – was testament to a continuing non-modernity, to a resistance against all that industrial modernity stood for and produced. The library's leaf ornaments, furthermore, also thematize air as free and 'purified', circulating the building with the ascending visitor. (This, it needs saying, is neither a programmatic figuring of the symbolic attributes of smoke and purification, nor is it a jump into the purified spaces of a health-obsessed modernism). Gothic Revivalists were always concerned with sourcing such motifs, and Champneys no doubt meant his readers to be reminded of the crockets on the gables of St Mark's Venice – that city which was a type for Britain's imperial state, of course, but also the Venice which was medievally-distant from the disturbing newness of industrial forms. But that was only a temporal distance. In Ruskin's words, those Venetian crockets had a pre-industrial vitality about them: '[they] appear to consider themselves at greater liberty even than the finials, and fling themselves, hither and thither, in the wildest contortions'[85]. They were part of those crests of arches on the upper part of St Mark's that, in one of his most famous lines, Ruskin had described as crests that 'break into marble foam, and toss themselves far into the blue sky in flashes and wreaths of sculptured spray'[86].

We are far here from the Gidlow pits and mill, or so Champneys and Enriqueta Rylands would have it, and as the Ruskinian motifs would appear to testify. (As such, this is part of a series of disavowals in Enriqueta's life that might reward a more directly socio-psychological study)[87]. If Ruskin

[83] Mosley 2008, 103.

[84] Ruskin 1885, 378.

[85] Ruskin (1851-1853), vol. III, Chapter 1, paragraph 14.

[86] Ruskin (1851-1853), vol. II, Chapter 4, paragraph 14.

[87] This might include her upbringing in Havana, Cuba, the daughter of a marriage between a Yorkshire merchant and a French-Cuban woman, whose family wealth was based on slave-owning and trading in sugar. After her Catholic upbringing, Enriqueta became a Congregationalist under the influence of the Liverpool-based Rev. Thomas Raffles. Sometime in the

himself regarded St Mark's crockets as a little too 'intemperate' perhaps even morbidly excited ('the fatal weakness of decay… the infallible indication of decline'),[88] then a Ruskinian like Champneys was not to be dissuaded from them – they would have had the generic Ruskinian stamp, regardless of Ruskin's own quibbles. But perhaps the crafted-ness of the Rylands ornament, its breezy organicism, might better be understood as bearing a false testimony; that, despite the deskilling of industry and the replacement of human energy with fossil fuel energy, the product of craft would still survive - those who caused its demise were also those who would safely preserve it. The ornament also reminds us of that Victorian idea that culture, the library itself, was a 'stream of fresh and free thought', a 'pursuit of perfection', a place completely apart from the world of coal and cotton and machinery that belonged, so Matthew Arnold had said, to that non-cultural zone of the 'vast residuum'[89]. (If Arnold's arguments – very much a product of the 1860s and his attempts to move beyond the Condition of England Debate – here seem renewed, or rather reincarnated, then that had much to do with the formation of a new set of interests at the fin-de-siècle)[90]. Smoke has been banished from this other world of the library, where a purer air flutters its stone plants, much as industry has been confined to the world of the utilitarian, the quotidian, the unfeeling and unthinking. Meanwhile, of course, beyond the library, smoke continued on its prevailing drift northwards to the Lake District and Ruskin's house at Coniston.

For Ruskin, lecturing in 1865, Manchester was the site of a transformation of people into things (or into, we might say, the ingredients of it-narratives): '[a city which is] mere crowded masses of store, and warehouse, and counter… all chief magnitude of edifice is to enclose machinery; [a city] in which the streets are not the avenues for the passing and procession of a happy people, but the drains for the discharge of a tormented mob, in which the only object in reaching any spot is to be transferred to another; in which existence becomes mere transition, and every creature is only one atom in a

1860s she became a companion to John Rylands's first wife Martha, before marrying the 74 year-old millionaire eight months after Martha's death, when Enriqueta was 32. The Cuban background seems to have been little mentioned by her. See Ruiz 2003, 121-126; Farnie 1989, 3-38.

[88] Ruskin (1851-1853), vol. III, Chapter 1, paragraph 14.

[89] Arnold 1932, 105. Many of the fortunes and philanthropic works of Victorians might be looked at in this way. One adjacent example is the library that Lord Lindsay built up from the profits accrued by his Wigan coalmines: Milner 2013, 74-75.

[90] Much needs to be done here since Girouard 1977.

drift of human dust, and current of interchanging particles, circulating here by tunnels underground, and there by tubes in the air; for a city, or cities, such as this no architecture is possible.'[91] Smoke was a product of 'mental vileness... loathsome insanity'; it manifested 'total carelessness' of the beauty of nature.[92] In fact the 'happy people' of Ruskin's desire have themselves become like smoke, drifting and transiting and circulating to no purpose, with no value, a 'current of interchanging particles'. 'The Empire of England,' as Ruskin declared at the close of his first *Storm Cloud* lecture, 'on which formerly the sun never set, has become one on which he never rises.' 'Blanched Sun, - blighted grass, - blinded man' – what is the meaning of these things', he asks? Is the poisonous smoke actually 'dead men's souls', the traces of industrial culture's victims?[93] The remains, perhaps, of the crushed or asphyxiated Gidlow miners?

The ironies at the Rylands library are barely implicit; the hypocrisies of this attempt to accumulate cultural capital in plain sight. Enriqueta Rylands was certainly a Ruskinian. Although she did not meet Ruskin himself, she was a close friend of that prominent Ruskinian, Canon Rawnsley, a co-initiator of the National Trust, whose founding motivation was to preserve the Lake District from the despoliations of industrialism.[94] Enriqueta also collected Ruskiniana, including Ruskin's letters (some on vellum) and special editions of his writings.[95] And she owned several sets of Cook and Wedderburn's collected *Works of John Ruskin*. To open one of her copies of Volume 34, which contains *The Storm-Cloud*, is to find pages of hand-made, linen rag paper in a state of beautifully soft, virginal whiteness. This and the other

[91] Ruskin 1885, 378. Manchester is not explicitly mentioned here but it is likely from other details of this passage that it is the city being referred to.

[92] John Ruskin, *Fors Clavigera*, Letter 66. It was the effluent of wealth, and when wealth was understood in the narrowly economic terms of exchange value it had better be called 'illth', according to Ruskin's neologism (*Fors Clavigera*, letter 12) As Raymond E. Fitch has shown, this was a running theme and concern in Ruskin's thought across his writing: Raymond E. Fitch, *The Poison Sky: Myth and Apocalypse in Ruskin*, Athens and London: Ohio University Press, 1982.

[93] Ruskin 1884, 62, 61, 48.

[94] They travelled together in the 1890s and he dedicated poetry to her. She supported his campaigns for the preservation of the Lake District and for setting up the National Trust. I am grateful for this information to Elizabeth Gow, curator at the John Rylands Library. A graduate of Ruskin's project for over-indulged Oxford students, the Hinksey road-mending scheme, Rawnsley represents what has been called 'Romantic ecology', deriving from Wordworth and Ruskin: Bate 1991. He often repeated his master's view of smoke as devil's darkness, the product of an unconstrained industrial world: Rawnsley 1890, 512-513. See also Rawnsley 1902.

[95] I am grateful to Elizabeth Gow for this information.

volumes and sets were kept in one of Champneys' hermetically-sealed bookcases where they were airlessly preserved from the effects of smoke, a precious treasure within a casket set within the larger casket of the building. Whatever the moral here, to trace this smutty story – the cognitive map by which smoke crosses and contaminates the city, but also the library that seeks to deny it – is to reconnect the psychic to the social and the economic. There is not some separable typological convenience we could call the 'architecture of smoke (or coal)', nor a simple correspondence. The architecture is, instead, as much the subterranean grid as the carved crocket, the bookcase sealed with velvet and wool as the belching chimney or the damp coalface. In fact, isn't there more than an analogical relation between the boiler suspended in flues being heated by currents of smoke and the library sealed from the industrial pollution that also sustains it? This is, of course, not only to reveal the marks of labour, of conflict and violence, within the library, but to show something of the library as a complex of disavowal.

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ΠΕΡΙΛΗΨΗ

MARK CRINSON

ΤΟ ΣΚΟΤΟΣ ΤΟΥ ΔΙΑΒΟΛΟΥ
ΡΥΠΑΝΣΗ ΚΑΙ ΑΡΧΙΤΕΚΤΟΝΙΚΗ
ΣΤΗΝ «ΠΡΩΤΗ ΒΙΟΜΗΧΑΝΙΚΗ ΠΟΛΗ» (MANCHESTER)

Αυτό που έχει ονομαστεί «οικονομία των ορυκτών καυσίμων» έχει μία βαθιά και συνεχή σύνδεση με τον πολιτισμό και την ιστορία του. Είναι ομολογουμένως αλήθεια ότι οι 'εσωτερικές' ιστορίες της οικονομίας των ορυκτών καυσίμων έχουν σήμερα πια να επιδείξουν μια πιεστική και κατεπείγουσα παρουσία, ειδικά καθώς προσπαθούμε να βρούμε τα μέσα για να κατανοήσουμε και να τιθασεύσουμε τις σωρευτικές κλιματικές αλλαγές που επήλθαν με δραματικό τρόπο μετά τον θρίαμβο της Βιομηχανικής Επανάστασης. Παρ' όλα αυτά, η πολιτισμική λογική αυτής της οικονομίας –η συντήρησή της, οι ήρωες της και η λατρεία τους, οι επιτήδειες μεθοδεύσεις και οι εξαπατήσεις της, οι αναγκαίες αιτιολογήσεις και οι αποκηρύξεις της– απαιτεί μια ισότιμη προσοχή. Σε αυτό το δοκίμιο, ενδιαφέρομαι να παρακολουθήσω αυτή την πολιτισμική λογική για να κατανοήσω πώς λειτούργησε σε διάφορα επίπεδα της βιομηχανικής πόλης και των δορυφόρων της διαμέσου ενός δικτύου συνδέσεων που συνένωσαν διαφορετικά είδη χώρων, ενεργειακών συστημάτων και ανθρώπινης εργασίας με διαφορετικές πολιτισμικές μορφές αρχιτεκτονικής, λογοτεχνίας και τέχνης. Αυτή η λογική δεν είναι βαθιά κρυμμένη, όμως χρειάζεται μία διαφορετική μορφή ερμηνευτικής γωνίας ώστε να μην πέσουμε στην παγίδα να επαναλάβουμε τις διαπιστώσεις που η ίδια αντλεί και διατυμπανίζει για τον εαυτό της. Κατά μία έννοια, το συγκεκριμένο δοκίμιο ασχολείται με τον καπνό, την αιθάλη και την ατμοσφαιρική ρύπανση και τη σχέση τους με την αρχιτεκτονική στην «πρώτη βιομηχανική πόλη», το Μάντσεστερ. Κατά μία άλλη έννοια, ασχολείται με τον τρόπο που γράφουμε την ιστορία του δομημένου περιβάλλοντος ως μία ιστορία που είναι μια πραγματική ιστορία του περιβάλλοντος.

Fig. 1. W.G. Collingwood, 'Ruskin in his Study at Brantwood' (1882). Watercolour. Reproduction courtesy of the Ruskin Museum, Coniston.

Fig. 2. Artist unknown, 'Manchester Illustrated – Bird's-Eye View of the City from the New Town Hall Tower' (1876). Hand tinted engraving. Collection of the author.

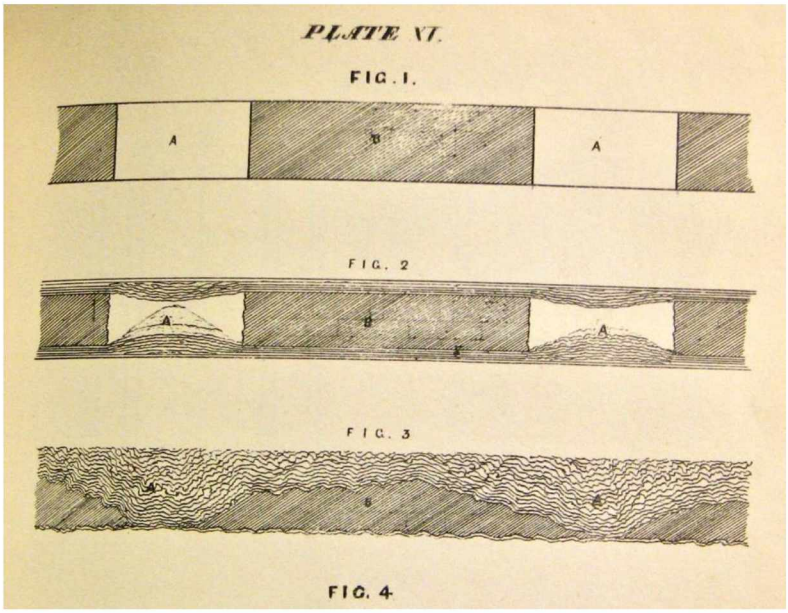

Fig. 3. Matthias Dunn, *A Treatise on the Winning and Working of Collieries*, 1848.

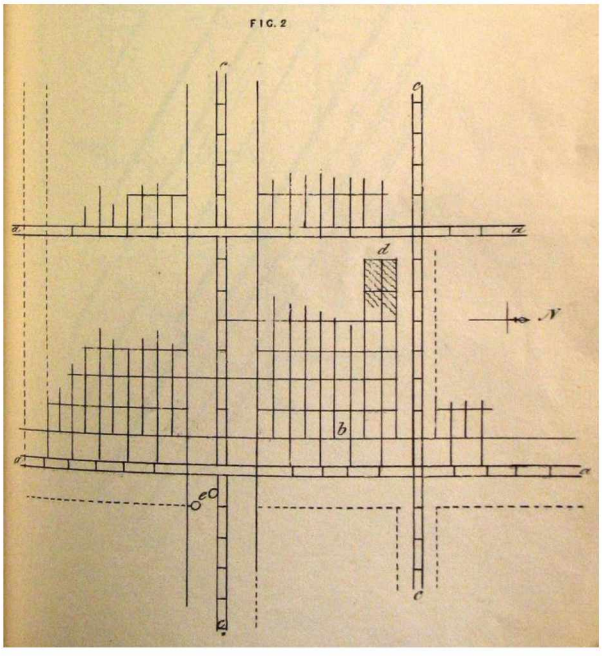

Fig. 4. Matthias Dunn, *A Treatise on the Winning and Working of Collieries*, 1848.

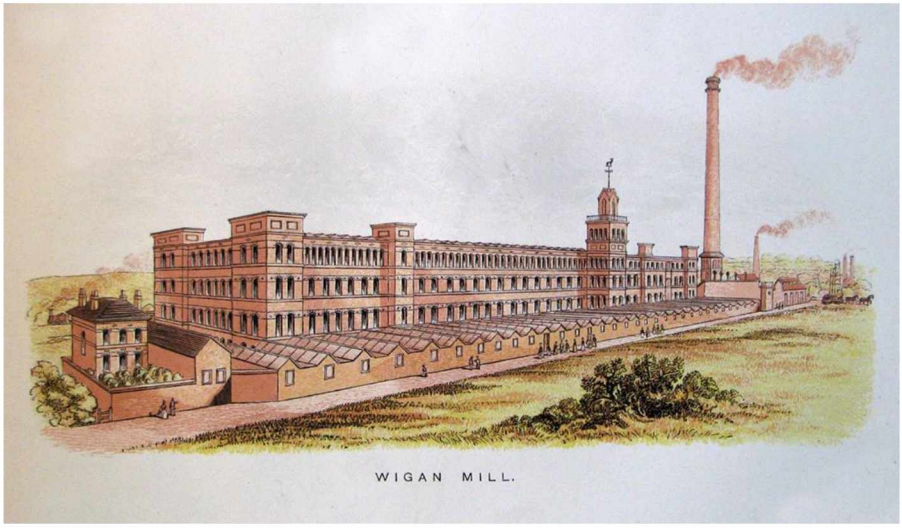

Fig. 5. Gidlow Mill, Wigan (1865), architect George Woodhouse. From Evan Leigh, *The Science of Modern Cotton Spinning*, vol 1, 1873.

Fig. 6. William Wyld, 'Manchester from Kersal Moor' (1852). Watercolour. Royal Collection. Work in the public domain, image from Commons Wikimedia.

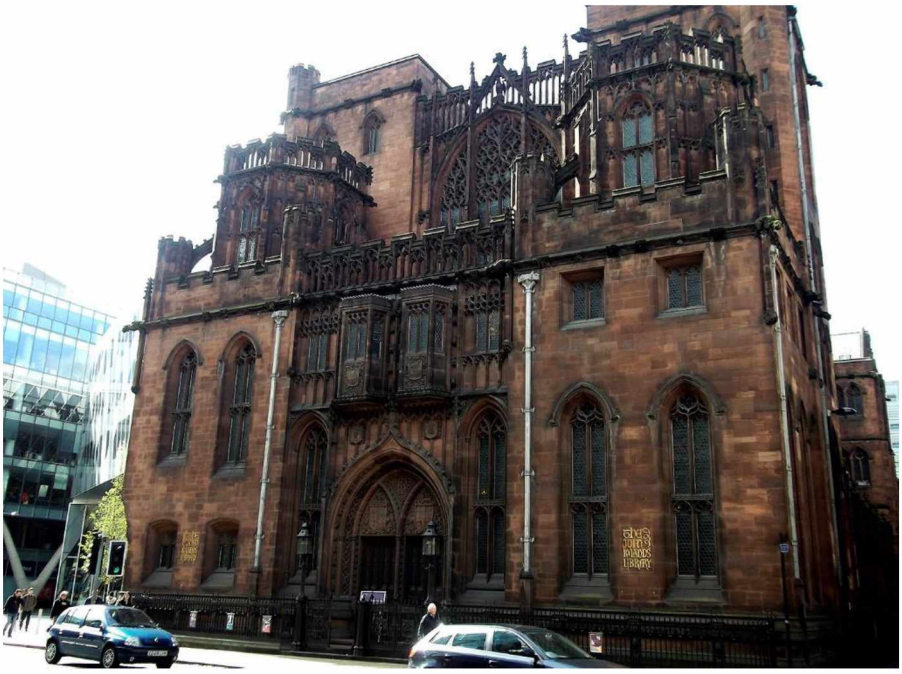

Fig. 7. John Rylands Library, Manchester (1890-99), architect Basil Champneys. Bernard Randall, CC BY-SA 3.0, via Wikimedia Commons.

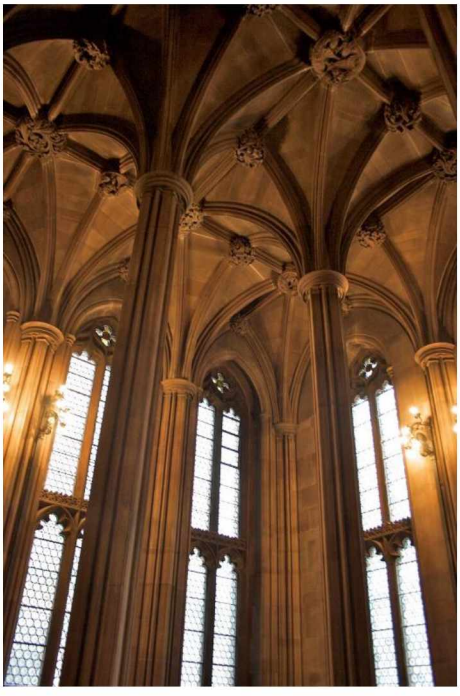

Fig. 8. John Rylands Library, Manchester (1890-99), architect Basil Champneys. Photographer Mike Peel, Wikimedia Commons.

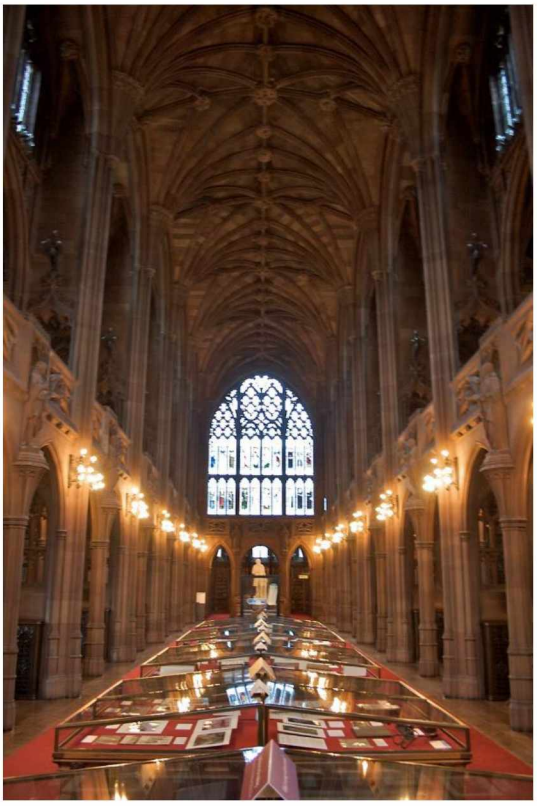

Fig. 9. John Rylands Library, Manchester (1890-99), architect Basil Champneys. Photographer Mike Peel, Wikimedia Commons.

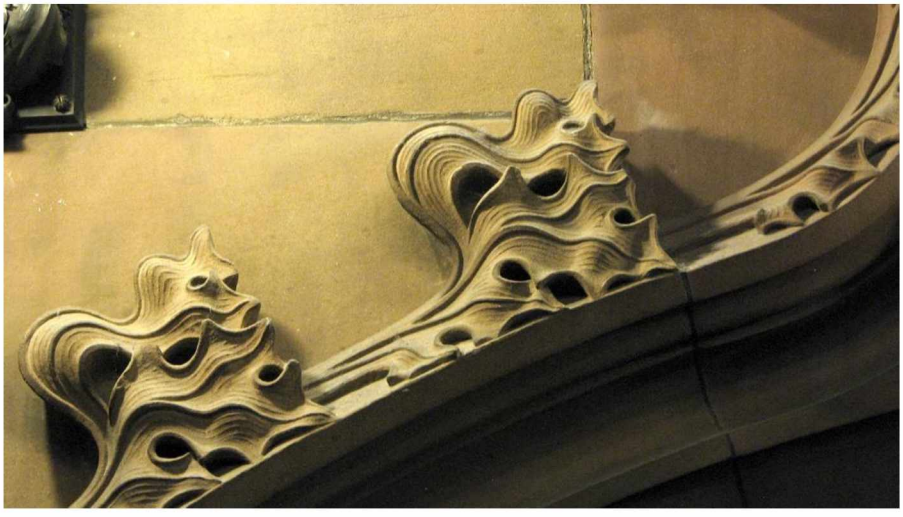

Fig.10. John Rylands Library, Manchester (1890-99), architect Basil Champneys. Photographer Mark Crinson.