Working with Glass: Strategies of Representation in Mid-Nineteenth Century Glass Factory Tourist Narratives

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Today, glass is omnipresent, yet also almost invisible. Windows, windscreens, mirrors, optical lenses – glass is employed everywhere, yet seldom attracts the gaze. It fades into the foreground, enabling and supplementing vision, but rarely attracts observation itself. In the 1850s however, glass – the substance and the process of its manufacture – attracted a great deal of attention. There are obvious historical reasons for the interest in glass at this time. Glass production was increasing and the quality of glass was improving.[1] The price of plate glass had been falling steadily since the 1770s, the consequence being, Charles Babbage noted in 1832, that 'almost all the better order of shop fronts are now glazed with it'.[2] However, the most significant motivation for the interest in glass at this time was almost certainly the prominent use of glass at the Crystal Palace. Glass was highly visible in the aftermath of the Great Exhibition. It was made to be seen, to be a spectacle in itself. Glass was endowed with cultural value, signifying British achievement in design and production techniques. It drew the gaze of journalists who wrote accounts of their visits to glass factories and published them in periodicals such as *Household Words* and the *Leisure Hour*.

Descriptions of glass, in all its forms, abound in these narratives. Yet vision is not straightforward in these accounts, which are not written, as a modern reader might expect, entirely within a 'realist' mode. The narratives reflect their subject matter in evading classification. Glass exceeds the narrow definitions of disciplinary boundaries. It is both a decorative and practical substance, used to make works of art and scientific instruments. It was produced at this time in factories, but skilled artisans played a fundamental role in aspects of glass manufacture that could not yet be replicated mechanically, the most crucial being the infusion of human breath. Glass manufacture was a public spectacle, which could be enjoyed by tourists, yet it was also associated with secrecy and the protection of knowledge; the master glassworkers of Murano punished artisans severely who attempted to sell their expertise outside Venice. One of

the first instances of industrial espionage was the French attempt to recruit Venetian workers in the 1660s to bolster the nascent Royal Company of Glass and Mirrors. In turn, the French later protected the secret of their revolutionary casting process jealously.[3] In the nineteenth century, French and Belgian artisans maintained a hegemony in the British factories by concealing the secrets of their trade from their co-workers, and indeed, from the authors of the visit narratives. These antithetical qualities of glass inform the antithetical nature of glass factory tourist narratives, which, like their subject, also exceed disciplinary boundaries. Glass factory tourist narratives cannot be read solely in the context of art history, nor as literary exercises, nor as journalism, but this should not be regarded as a problem. Reading these excessive narratives opens up new aspects on the history of an enigmatic substance, the history of work, and the way in which nineteenth-century observers literally *looked* at glass and work.

Delegates at Birkbeck's conference on *The Verbal and the Visual in Nineteenth-Century Culture* had the opportunity to study a selection of glass factory tourist narratives at a workshop on 'Working with Glass' led by Isobel Armstrong. The articles were made available online in the weeks prior to the conference. They included pieces from *Household Words*, the *Illustrated Exhibitor and Magazine of Art*, and the *Leisure Hour*. All were published between 1851 and 1853, in the immediate aftermath of the Great Exhibition. The workshop focused on the relationship between the verbal and the visual in these texts, but was also interested in what proved to be the related problem of the internal contradictions in the narratives. Tension arises from the irreconcilable projects of the glass factory tourist narrative – the need to describe accurately versus the requirement to celebrate glass and glass manufacture. The narrative has to represent the body of the worker, given that the worker is central to glass manufacture, but as the reality of the worker's experience complicates the celebration of industry and invention, the suffering body is only partially visible in the narrative and the ecological impact of industrialisation is naturalised. Glass factory tourist narratives are, as Armstrong pointed out, exercises in the 'art of describing', yet they regularly turn away from or appear unable to look at that which is most apparent.[4] The workshop was therefore as

interested in visual disturbances and disruptions of visual description as it was with instances of ekphrasis.

The idea of ekphrasis was itself complicated by glass's evasion of categorisation. When the narrator of a glass factory tourist account describes a process, a worker's body, a globule of molten glass, and a finished commodity with the same intensity and using the same mode of description, which is the work of art? What is ekphrasis, when a worker and an artefact are appraised with the same aestheticizing gaze, and what is the significance of the disruption of ekphrasis at critical junctures in the narrative? Is the uneven deployment of ekphrasis related to the enigmatic quality of glass, as a substance whose method of production is both universally known (evidenced by the narratives' rehearsal of Pliny and Samuel Johnson's anecdotes of the discovery of glass-making), and shrouded in secrecy (evidenced in the omission of significant aspects of glass manufacture from the narratives)? Glass is a sense-enhancing medium; it supplements vision by making interiors lighter and magnifying that which is minute or distant, yet it defies description in glass factory tourist narratives. This serves to make glass, in its textual incarnation, strangely invisible, despite being the object of scrutiny. How can today's readers of Victorian glass factory tourist narratives approach accounts which occlude and efface as much as they reveal?

In the first chapter of her forthcoming book, *Victorian Glassworlds: Glass Culture and the Imagination 1830-1880,* Isobel Armstrong cautions against reading mid-Victorian glass factory tourist narratives within today's narrow definitions of journalism and disciplinary boundaries.[5] Reading these narratives in this way can only be frustrating for the contemporary historian or literary critic. These accounts are early examples of 'journalistic attempts at an ethnography of work' in which 'the art of describing' plays a critical role. Their broad deployment of description (of the prehistory of glass, of the manufacturing process, and what the tourist *saw*) is not confined by the generic limitations of ekphrasis, as the description of an extant artefact. The manufacturing process, the workers, the unfinished glass and the finished commodity are all approached with an aesthetic gaze and described as if they were equivalent works of art. Armstrong shows that this apparently excessive, eccentric

deployment of description is connected to the accounts' narrative projects. They exceeded their remit – to *describe* work – and actively 'constructed work and the factory for the culture'. This is not realistic journalism, neutral reportage. The accounts are affective and actively engaged with glass and an ideal of manufacture. A more useful and appropriate way of thinking about these narratives, Armstrong suggests, is as 'myths of glasswork'; texts which sought 'both to document and mythologise' the industrial landscape and the process of manufacture. Her approach opens up new possibilities for reading across disciplinary boundaries, for combining techniques derived from literary criticism, art history, and social history to analyse these antithetical texts.

It is interesting to think about the tensions in glass factory tourist narratives as products of these two variant projects – the drive to document, which requires visual and verbal accuracy, versus the drive to craft an industrial myth, which requires exaggeration, the imposition or creation of a mythic morphology, and frequently turning a blind eye to the abject and objectionable consequences of the industrial process. The narrative is pulled in two directions, towards vision and ekphrasis, and towards imagination and myth-making. The workshop noted this tension in the discrepancy between the narratives' fascination with the minutiae of the manufacturing process, which results in a dizzying compilation of facts and statistics, and the effacement of the troubling human presence, the body of the worker. The narratives strive to recreate an extraordinary sensory experience for the reader, but cannot describe the worker with equivalent clarity, for to do so would necessitate the asking of awkward, unspeakable questions regarding the worker's experience. In the context of the workshop, such turnings away and transformations were discussed as refusals to look, the disruption of sight, and the interruption of ekphrasis.

The continual interruption of ekphrasis is indicative of the unwritten narratives that the myth-making tourists could not, or would not, produce. These refusals and interruptions of sight and narration gesture towards stories of sight-seeing that were never told. Armstrong provides a useful summary in her chapter of what glass factory tourist narratives were *not* concerned with:

> Factory size (the relation of the large factory to the small enterprise), the vertical hierarchical organisation of the factory or otherwise, and power structures within it, the division of labour and its relation to machinery, the place of the artisan in an 'aristocracy' of skilled labour, and the definition of skilled and unskilled, the existence of a 'deference' culture that created consensus rather than conflict, factory legislation, the politics and economics of wage structures, trade unionism, strikes, these questions do not have a place in factory narratives. There is little to affirm or deconstruct contemporary twentieth- and twenty-first century positions on these issues.

This suggests that glass factory tourist narratives were effectively blind to any aspect of glass manufacture that was not immediately apparent to the gaze of the tourist. Glass factory tourist narratives were principally concerned with visual spectacle – with sensation, performance, and observing an environment and a process. This focus on surfaces and spectacle renders them (superficially) of little use to the modern historian interested in 'empirical and theoretical issues'. Understandably, delegates were interested in these unwritten narratives –the social and economic issues that the glass factory narratives did not address, such as the labour hierarchy, the relationship between the factory owners and the workers, the hegemony of French and Belgian workers in the Chance factory, and so on – but the myths of glasswork continually frustrate inquiry into such unspectacular aspects of work. Today's historians and critics must look elsewhere to understand the context of these narratives. It is more productive to accept their imaginative component and read them eccentrically, as Armstrong does, using structuralist tools, reading these narratives as fact-filled myths or industrial fairytales rather than purely realistic texts.

Glass factory tourist narratives have a distinct morphology. Armstrong identifies eight phases, which lead up to and away from the central moment of the narrative, the 'crisis' at the furnace:

> These eight phases were: induction, the entry into unfamiliar industrial territory by the stranger narrator; the journey through factory space and the unfolding discovery of technological process; a short history of glass (three reports quote Johnson on glass) and its modern day constituents; the journey into darkness and the central drama or crisis of the furnace heat – this was the climax of the narrative, and figured as a passion, as I have observed – the infernal choreography of workers round the furnace; the magical skill of

> the glassworker; the emergence of a final glass artifact as commodity; the movement of safe return to familiar territory.

These phases recall the medieval quester's ordeal in the wasteland, or the classical hero's voyage into and out of the underworld. The eight phases construct a mythic structure, a journalistic account mapped onto the terrible journey, ordeal, and triumphant emergence of the 'stranger narrator' from the industrial wasteland. The crisis at the furnace is the point at which visual experience is most intense and where the reader would expect the most vivid description of the factory, yet it is at the furnace that narration fails and the most dramatic disruption of ekphrasis occurs. The furnace is the heart of the factory and the heart of the narrative, and as such demands to be described, but its physical impact on the suffering bodies of the workers and the narrator is too terrible to be accommodated within a triumphant myth of glasswork. The documentary and mythological projects cannot be reconciled, and the narrative collapses, retreats or evades the terrible intensity of the furnace. The furnace crisis produces, Armstrong notes, fascinating strategies for 'deferring the moment of confrontation with the furnace. Syncopations, displacements and hesitancy occur'. Visual description is deferred, or at best translated through the 'iconographical language' of fiction (Dante's inferno, *The Arabian Nights*, the Biblical furnace, the hero's quest) so that the experience of physical discomfort at the furnace mouth and the worker's ordeal is either left unspoken or re-imagined figuratively.

The workshop was particularly interested in the discrepancy between the accounts' profusion of description, both visual and statistical (Armstrong characterises them as 'prodigiously fact-loaded' in her chapter), and the interruption of this mode of description at the furnace. As Armstrong pointed out in the workshop, the portrayal of the furnace is dominated by chiaroscuro effects. Far from being a place of blazing light and clarity, it is a place of shadow and darkness, where vision is obscured and even impossible. In her chapter, Armstrong positions a selection of quotes from different accounts together, each of which speaks in some way of the narrator's sensorial (and affective) disturbance or the disorienting effect of the furnace. George Dodd, in 'A day at a Flint-Glass Factory', published in *The Penny Magazine* in 1841 portrays a 'dimly

lighted' furnace room wherein an artist could detect 'some striking effects of light and shade'.[6] Dickens and Wills are confronted by 'a fearful row of roaring furnaces, white hot'; the anonymous contributor to the *Exhibitor* is 'lost in wonder' and 'cannot reconcile the dimness of the place with the bright glow'.[7]

In this space of impossible, indescribable vision, the body of the worker disappears from view. Armstrong juxtaposes three extracts in which narrators seem to sympathise and to be about to describe the suffering body of the worker, but stop short. This is a sight that cannot, or must not, be described. It remains abstract.

> The temperature to which the men are exposed in this operation (which sometimes takes several hours) may be imperfectly imagined when we remember that the other pots in the furnace may at that time be at a perfectly white heat. (*Penny Magazine,* 84)
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> They [...] are exposed for a considerable time to the whole force of the furnace heat, and it is frightful to witness the sufferings of the workmen exposed to the radiation of the flames. (*Exhibitor*, 55)
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> We find ourselves on a sort of platform, in front of six furnace mouths, which disclose such a fire within as throws us into a secret despair, despair for ourselves, lest we should lose our senses, and for the men, because it seems impossible to live through the day in such a heat. (Martineau, 34) [8]

The workshop noted this strategy of displacement, where the spectacle of the worker's ordeal is glimpsed tangentially then abandoned. In its place, the narrative turns to a comforting litany of facts, or literally stifles the narrator's voice. The first displacement strategy creates an impression of visual accuracy, but in fact continually defers the encounter with the furnace. Martineau used the word 'peeping' to characterise her visual encounter with the furnace.[9] 'Peeping' implies a furtive mode of looking that glimpses the critical visual experience, but never fully encounters it. It remains a possibility of suffering, an unrealised experience, a matter of seeming: 'it *seems* impossible to live through the day in such a heat', 'the temperature [...] may be *imperfectly* imagined'. Instead of the potentially distressing portrayal of the body exposed to the furnace, the reader is bombarded with 'fact-heavy instruction' and manufacturing statistics. The second displacement strategy (the stifling of the narrator) literally silences the descriptive voice. Dickens and Wills, Martineau and the *Exhibitor*

portray a crisis in which the narrative is interrupted by the narrator's physical distress. Dickens and Wills struggle for breath, the *Exhibitor* is stifled by a shell of heat and perspiration, and Martineau interrupts what was about to be an observation of the workers to wish that she could plunge her face into a water-trough. As Armstrong points out in her chapter, there is a sympathetic element to these interruptions, as they 'bear witness to the artisan's own loss of breath in the process of making glass'. However, the outcome – the failure to describe the artisan – precludes interpreting these paralyses as expressions of sympathy. Rather, Armstrong argues, 'these vocal obstructions [...] testify to a moment when speech fails and empathy reaches its limit'. The verbal and the visual break down, paralysed by an excess of affect: 'something is left unsaid, silenced in confrontation with the mouth of the furnace'.

Vision and ekphrasis are impossible at the mouth of the furnace, but are of paramount importance in much of the pre- and post-furnace phases of the narrative. In the first phase, the narrator's movement through the industrial landscape towards the factory is rendered vividly. Armstrong points out in her chapter the importance of the glass visitor's stranger status. This landscape is new to the narrator as well as to the reader, hence the echoes of the travelogue in the narratives' morphology. These are journeys, records of sight-seeing. Thus the first phase of the visit, the induction, prefaces the journey into the unknown with vivid representations of the dirt and mud of the industrial wasteland. Armstrong points out in her chapter that this is most evident in the *Leisure Hour*, where the description of a 'landscape of ecological disaster [covers] over four columns of print'. There is no equivalent to the furtive and painful peeping at the furnace. Every detail of the industrial terrain's grime and filth is carefully noted by the stranger-narrator. The *Illustrated Exhibitor's* narrator describes a 'desolate region of mud and water'; Martineau's landscape is sodden and befouled, 'inches deep in black mud and puddles'.[10] The *Leisure Hour*'s description of a blasted land dotted with 'vitrified scoria, the faecula of unnumbered furnaces' and 'stagnant pools of brown water' (25) paints a particularly vivid picture.[11]

The second and third sections of the narrative, which explore the process of glass-manufacture and the history of glass, are primarily task-focused. Visual

experience is of less importance than the transmission of facts. However, the Stourbridge clay pots, made by hand in the factory and used to bring glass to white heat in the furnace, do come into view. They attract an inordinate amount of attention, which Armstrong attributes to their anthropomorphization. They function as 'the hidden analogy for the experience of labour, and substitutes for the workman's body'. The pots fascinate the narrators, and are described with a mixture of admiration (for their size and qualities of endurance) and disgust when their clay comes into physical contact with the hands and feet of the workers. They stand as avatars for the narrator's unexpressed ambivalence towards the glass-workers. The pots offer an acceptable object for ekphrasis and for the voicing of 'overt disquiet' that cannot be expressed of the industrial process. Dickens and Wills describe a broken pot lying shattered in the rain that had withstood seventy days use, and, Armstrong points out, make an implicit connection between the broken pot and the workers they encounter drinking outside the factory. Martineau expresses disgust at the physical contact between the labourer's feet and the clay that will form a pot, a distaste echoed in the *Penny Magazine's* 'regret' that a 'process so primitive' should occur in 'the age of machinery'. The pot is also exoticized, through reference to Ali Baba in the *Penny Magazine* and Dickens and Wills' article. There is something magical and beautiful about glass production in these mythic narratives. If the pot stands for the narrator's discomfort at the presence of the working body at the centre of the industrial process, it is also subjected to the same strategy of representation by which the narrator accommodates this troubling presence in the industrial myth. Both pot and worker are made magical.

Descriptions of what Armstrong calls 'the choreography of work' in the post-furnace phases of the narrative tend to aestheticize the worker's movements, representing work as if it is beautiful and effortless. The Orient, magicians, heroes and demons are invoked to describe the skilful proficiency of the workers. There is a marked and significant departure here from the standard representation of workers in factory literature. In polemical literature on the factory system in the 1830s and 1840s, the worker was a problem, either as a hindrance to the rolling-out of mechanization, or as a malnourished pathologized victim of industrialization. Labourers and machines

figured as combatants in the struggle between artisanship and mechanization. The factory worker was imagined in both pro- and anti-factory writing as a misshapen cog in the mechanical system, an ill-fitting component of the factory-automaton. This combative model, in which the worker is reduced and dehumanized, does not fit the representation of the worker in glass factory tourist narratives. Though these narratives efface and ignore significant aspects of glass manufacture and the conditions of the workers, Armstrong points out that they do at least portray the worker with respect and acknowledge the worker's agency, expressing 'the mythos of glass-making as a heroic, even agonistic, transformation through the agency of a collaborative act'. Their imaginative and fanciful descriptions of the worker in action as an object of beauty, an athletic and self-determined actor, offer a more positive way of seeing the worker than the conventional image of the obstructive inefficient cog. Nevertheless, these strategies of representation render the worker less lucid. This is particularly evident in the case of the skilled female workers. Armstrong explained in the workshop that Martineau censored her account in response to a request from the factory owner not to mention the female glass-cutters, whose skill and physical strength would, it was thought, have troubled the London readership. Martineau complied, but did describe the less-skilled female glass-smoothers, emphasizing their grace and the beauty of their finished work. The workshop group noted that this gendered representation of labour is even more marked in Dickens and Wills' narrative, where the glass-smoothing process is a 'fairy scene', a carefully choreographed balletic display.[12] They sidestep the troubling efficiency of the female labourer by conflating the female glass-smoothers with the Orient: Dickens and Wills see 'a scene from an Oriental Story-Book' in which 'handsome' women throw themselves into 'elegant and graceful' positions.[13] Other strategies of transformation are the dematerialisation of the worker, where the worker becomes a disembodied 'figure', or a 'picturesque shadow' (Dickens and Wills, 434); the representation of the worker as a heroic, almost Herculean figure in Martineau's account, and conversely, as a demonic 'salamander in human form' for Dickens and Wills; and the magician-worker, who works faster than the narrator's eye can follow.[14] As the group noted in relation to the aestheticization of the glass-smoothers, this re-

imagining of work serves to obscure the effort involved and diminishes the worker's achievement. A disembodied, heroic, demonic or magician worker does not in fact *labour*. He effectively wills the commodity into existence. As Armstrong explains in her chapter, 'laden with respect and sympathy, imaging the workman as hero *and* conjuror, these accounts also make the workman and his work invisible. His very skill, baffling the eye, makes him disappear'. Even in the midst of the most intense visual description, the reader witnesses (or just as significantly, fails to witness) yet another vanishing act. Labour disappears.

There is a profusion of description in the latter phases of the narratives, where glass commodities are sent out into the world and the narrator returns 'from the shades'. The accounts conclude with displays of artefacts and catalogues of glass commodities in which 'the scintillating glamour of cut, engraved, painted, smoothed and polished objects, glistening and brilliant, supersedes all other description'. The workshop was particularly interested in the conclusion of Martineau's account, in which two crystal glass candelabra were dispatched from Birmingham 'to the tomb of the Prophet, at Medina; where, as his Highness's Secretary observes, they will be the admiration of hundreds of thousands of pilgrim worshippers'.[15] Martineau's secular pilgrimage to a temple of manufacture ends with the reproduction and proliferation of her admiring gaze 'among the remotest regions, and the strangest races and faiths on earth'.[16] The reader is free to conjecture whether the admiring pilgrims have come to witness the tomb or the candelabra that light it. Armstrong observes of Martineau's anecdote that 'the journey home is the journey of exported commodities and their symbolic meanings, including the force of empire'. The end of the narrator's journey is only the beginning of the glass commodity's journey.

The workshop discussion focused on the tensions and absences in the texts, particularly those that were derived from the troubling human presence. Given that the texts were supposed to function as journalism, to convey information to their audiences, the workshop's interest in visual disruption might seem to run counter to the texts' purpose. However, as Armstrong makes clear in the last section of her chapter, these are not 'naïve writings'. Their 'occlusions, evasions and aporias' are not left as they stand.

The texts' structure and internal tensions 'actively *produce*' the sorts of questions that were discussed in the workshop. Certainly the workshop was not over-directed. The issues discussed arose organically out of the material, and the discussion was fluid, driven by the group's response to that material: there was plenty of debate and space for the presentation of opposing models of response. It cannot be said that a consensus was reached, rather that more questions opened up (regarding the gendered representation of work, the significance of glass in the project of empire, the function of the illustrations). Perhaps the imposition of a consensus would have been the true act of reading counter to the texts, given that, as Armstrong concludes, 'the subtext is that glass, mediated through work, but also a mediating substance in itself, responds to readings that accept its antithetical nature and the double nature of work'.

Endnotes:

[1] Mark Pendergrast, *Mirror/Mirror: A History of the Human Love Affair with Reflection* (New York: Basic Books, 2003), p. 248.

[2] Charles Babbage, *On the Economy of Machinery and Manufactures* (London: Charles Knight, 1832), p. 114.

[3] Sabine Melchior-Bonnet has written an entertaining account of the difficult beginnings of the Royal Company of Glass and Mirrors. Sabine Melchior-Bonnet, *The Mirror: A History*, trans. Katharine H. Jewett (London: Routledge, 2001), pp. 35-46.

[4] Svetlana Alpers, *The Art of Describing: Dutch Art in the Seventeenth Century* (Chicago: University of Chicago Press, 1983).

[5] Isobel Armstrong, *Victorian Glassworlds: Glass Culture and the Imagination 1830-1880* forthcoming (2008) from Oxford University Press. I am extremely grateful to Isobel Armstrong and Oxford University Press for having allowed me to read an advance copy of the first chapter. All quotations from this chapter are taken from an unpaginated manuscript, hence the absence of page references in my essay.

[6] George Dodd, 'A Day at a Flint-Glass Factory', *Penny Magazine*, 10 (1841), Supplement, 81-88 (p. 83).

[7] [W. H. Wills and Charles Dickens], 'Plate Glass', *Household Words*, 2 (1851), 433-437 (p. 435); 'A Visit to Apsley Pellatt's Flint Glass Works', *Illustrated Exhibitor and Magazine of Art*, 1 (1852), 54-59; 70-74 (p. 58).

[8] [Harriet Martineau], 'Birmingham Glass Works', *Household Words*, 5 (1852), 32-38.

[9] Martineau p. 35

[10] *Illustrated Exhibitor* p. 434; Martineau p. 33

[11] 'Birmingham and her Manufactures. IV. – Glass Works of Messrs. Chance, at Spon-Lane', *Leisure Hour*, 56 (1853), 59-62.

[12] Wills and Dickens p. 213

[13] Wills and Dickens p. 213

[14] *Exhibitor* p. 20; Wills and Dickens pp. 434 and 436

[15] Martineau p. 38

[16] Martineau p. 38