A Tale of Two Yorkshire Villages: The local environmental impact of
British reservoir development, c. 1866-1966
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Abstract
The supply of clean, soft water was of great importance to towns and cities in Britain during the nineteenth and twentieth centuries in helping to maintain a healthy population and the resources for industries. Leeds, West Yorkshire, was no exception to this, with the Leeds Corporation looking north of the town to the Washburn Valley in the 1860s for a new supply of water to replace the polluted waters of the Rivers Aire and Wharfe. The construction of four reservoirs in the valley, three between 1869 and 1879, and a further one built between 1961 and 1966, irrevocably altered the natural environment. This article will examine this environmental change by focussing on two case studies: the village of Fewston, which was largely damaged by land subsidence one year after the completion of the original three reservoirs in 1880, and the construction of Thruscross Reservoir and the flooding of West End village in the 1960s, in order to highlight how the actions of a municipal body impacted on the natural environment and the lives of those that lived upon it.

Keywords
Water supply, reservoirs, subsidence, socionature, engineering

Nineteenth and twentieth-century British towns and cities relied on several important resources, key amongst them was a plentiful supply of water. This was particularly the case in the West Riding of Yorkshire, which was home to several textile producers including Leeds. A supply of pure water was vital in trying to maintain a healthy population, whilst soft water was preferable to industry as its chemical composition made it easier to use with soap to clean cloth. A reliable supply of water was also, as John Sheail has noted, needed to effectively combat fires, particularly industrial fires that incurred great financial loss.¹ A reliable supply of pure, soft water, therefore, was of great social and commercial importance, which resulted in towns and cities expanding into the countryside, imposing urban engineering on the rivers and lakes of rural Britain. As James Winter has noted, with the possible exception of the railways, ‘it was the building of reservoirs or the conversion of

lakes into reservoirs that demonstrated most conspicuously the effect of city growth on the
surface of the countryside’. ḷ2 Changes to landscape caused by the construction of reservoirs
was, of course, not unique to Yorkshire. Owen Roberts has highlighted the importance of
water from rural areas to the civic project in his analysis of water schemes in Manchester,
Liverpool, and Birmingham, whilst Harriet Ritvo has highlighted the impact of the building
of Manchester’s Thirlmere scheme on the inhabitants of the Vale of Thirlmere in the Lake
District during the 1880s, which resulted in a diminished and economically weakened
population. ḷ3 The impact of reservoir construction was also felt beyond changes to landscape,
they also affected the people that lived in these areas. There is a need, therefore, to examine
this impact simultaneously; as Stephen Mosley has argued, incorporating social history and
environmental history can produce more inclusive histories and provide an insight into ‘the
ways in which power, resources, and risk have been inequitably distributed across rural and
urban landscapes’. ḷ4

Indeed, urban-environmental historians and historical geographers have begun to
assess uneven distributions of power by analysing affected landscapes as socionatural sites,
the product of processes that are simultaneously social and natural. ḷ5 Matthew Gandy has
argued that utilising the concept of socio-natural hybridity ‘illuminates the tension between
the city as an abstract arena for capital and as a lived space for human interaction and cultural
meaning’, a theme highlighted in his research on the construction of waterworks and the
reworking of nature in New York City. ḷ6 Maria Kaika has examined the dialectical
relationship between nature and the city in her investigation of dam construction in Athens in
the twentieth century, illustrating how the construction of the Marathon Dam in the 1920s
simultaneously embraced modernity’s quest to modernise nature and highlighted Athens’s

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2 James Winter, Secure from Rash Assault: Sustaining the Victorian Environment (London: University of
3 Owen Roberts, ‘Waterworks and commemoration: purity, rurality, and civic identity in Britain, 1880-1921’,
Continuity and Change 22(2, 2007): 305-325; Harriet Ritvo, The Dawn of Green: Manchester, Thirlmere, and
(3, 2006): 929.
Waterscape, 1890-1930’, Annals of the Association of American Geographers 89 (3, 1999): 443-465; also see
Matthew Gandy, Concrete and Clay: Reworking Nature in New York City (London: MIT Press, 2003); Nik
Heynen, Maria Kaika and Eric Swyngedouw (eds), In the Nature of Cities: Urban Political Ecology and the
Politics of Urban Metabolism (London: Routledge, 2006); Maria Kaika, City of Flows: Modernity, Nature and the
City (London: Routledge, 2005); Vanessa Taylor, Heather Chappells, Will Medd and Frank Trentmann, ‘Drought
is normal: the socio-technical evolution of drought and water demand in England and Wales, 1893-2006’,
6 Gandy, p.9.
ancient past through its neoclassical design. She notes that, in embracing the construction of
dams in rural areas, the city was no longer shaped by nature and was able to exercise control,
although this meant that the city was perpetually dependent on creating new nature,
‘modernity’s Promethean Project’, in order to sustain itself. Both Kaika and Gandy examine
how nature and natural resources were conceptualised by public and private authorities, and
how that conceptualisation allowed nature to be remade in order to better serve urban
interests. This is also a theme that Marc Landry has explored in his analysis of the reshaping
of nature in the Austrian Alps, showing how the Walchensee Hydroelectric Project impacted
on alpine landscape and communities. Whilst the initial project, first mooted in 1904 and not
completed until 1924, altered the course of the River Isar, further changes to the project after
the Second World War led to further social and environmental change, including the
displacement of inhabitants along the Isar.

Changes to landscape enacted by public and private authorities were not always
passively accepted by local populations. William L. Kahrl has illustrated how the
construction of reservoirs in the Owens Valley, California, which provided an abundant
supply of water to Los Angeles, came at the expense of the valley’s residents and
agriculture. As with many examples of resource development in rural areas, Kahrl
highlights that the residents had little input into how the Owens Valley was developed and
were, therefore, the victims of political disenfranchisement. Erdem Evren has similarly
explored how the construction of Yusufeli Dam in Artvin, Turkey, galvanised local resistance
to reservoir construction before giving way to political bargaining with the Turkish state.
He points to the prolonged amount of time that the residents of Yusufeli have waited for the
dam to be built, due to changing political and financial dynamics, as a factor in the decline of
the anti-dam campaign. The themes explored by Kahrl and Evren resonate in the experiences
of residents in the Washburn Valley, which are explored below. A more recent example,
particularly regarding subsidence, is Frank Vanclay and Nick van der Voort’s examination of

7 Maria Kaika, ‘Dams as Symbols of Modernisation: The Urbanisation of Nature Between Geographical
8 Ibid, 295.
9 Marc Landry, ‘Environmental Consequences of Peace: The Great War, Dammed Lakes, and Hydraulic History
10 Ibid, 441.
12 Ibid, p.443.
13 Erdem Evren, ‘The rise and decline of an anti-dam campaign: Yusufeli Dam project and the temporal politics
14 Ibid., p.418.
gas extraction in the Province of Groningen, The Netherlands. They have explored the social impacts of earthquakes and subsidence that has been caused by gas extraction, with damage occurring across the region and little action being taken to reduce risk due to commercial commitments. Thus, environmental change enacted by public and private authorities in search of resources and, in the case of Groningen, capital, often had unintended consequences and was often the result of how authorities conceptualised the natural environment in the face of growing consumer demands, as Vanessa Taylor and Frank Trentmann have illustrated.

Tim Soens et al. have echoed Mosley’s call in integrating social and environmental histories by urging urban-environmental historians to look beyond recognising sites of socionature and utilising the theoretical framework to think about human and non-human ‘actants’ and the distribution of power relations. The reservoirs of the Washburn Valley, sites of socionature, were designed and implemented by the skill and labour of engineers and navvies, however, as shall be seen, the uneven distribution of power instigated by a civic elite was felt both during their construction and, in the case of Fewston village, after their completion. As Shane Ewen has noted in this journal, there was always an element of risk and uncertainty with engineered landscapes despite the claims of engineers to the contrary.

It was not until the 1860s that the Leeds Corporation decided to build a system of reservoirs in the Washburn Valley, approximately 15 miles north of the town, in order to compensate for the heavily polluted waters of the rivers Aire and Wharfe from which they drew their supply. Whilst the three reservoirs built between 1869 and 1879: Lindley Wood, Swinsty, and Fewston; provided an overwhelming positive benefit for Leeds, their construction profoundly affected the landscape on which they were built. A planned fourth reservoir at Thruscross was postponed due to a lack of time and finances, and was not built until the 1960s, however this also resulted in changes to landscape. This article will explore the effects of uneven power distribution across the rural landscape by examining the impact of the reservoirs on the local environment in detail by using municipal records such as the Leeds Corporation Waterworks Committee minutes and newspaper reports from Leeds-based

newspapers and, more local to the valley, *The Wharfedale and Airedale Observer*. Two case studies will be examined: firstly, the village of Fewston in the 1880s, situated on the banks of Swinsty Reservoir, which suffered from land subsidence less than a year after the completion of the reservoirs; and secondly, the village of West End, which was submerged after the construction of Thruscross Reservoir in the 1960s. Analysing these case studies as sites of socionature will show how the Washburn Valley was simultaneously impacted by human intervention and hydrological changes that affected local society, to illustrate the centrality of water and urban demand to these environmental changes. Examining both the subsidence of Fewston and the construction of Thruscross, different types of landscape change within a small area controlled by one municipal government, will help to analyse the continuity of environmental attitudes towards the valley, thereby showing the benefits of taking a localised approach to histories of reservoir construction and water provision.

Parliamentary approval and the construction of the reservoirs

![Figure 1: Map showing the Washburn Valley reservoirs in relation to Leeds.](image-url)

20 This map has been reproduced with the permission of Digimap © Crown Copyright and Database Right [2018]. Ordnance Survey (Digimap Licence).
Whilst the Leeds Waterworks Company, the private water company that supplied Leeds with water prior to municipalisation in 1852, had constructed Eccup Reservoir, completed in 1842, the main source of water for Leeds from 1854 was a pumping station on the River Wharfe at Arthington. After a scathing report from the Medical Officer for Health of the Privy Council in 1865, the Leeds Corporation sought a new waterworks scheme. The borough surveyor, Edward Filliter, produced a report in 1866 that proposed a system of gravitation reservoirs in the Washburn Valley at Lindley Wood, Swinsty, Fewston, and Thruscross. The proposal was not without opposition from several landowners, including F.H. Fawkes, the owner of Farnley Hall in the south of the valley. Whilst the concerns of other opponents, such as Lady Franklin Russell, were dismissed by the House of Lords Select Committee charged with scrutinising the Waterworks Bill, the opposition of Fawkes was a major potential obstacle for the Corporation, as he owned the land proposed for the site of Lindley Wood Reservoir. As Sheail has noted, ‘opposed bills’ were heavily scrutinised by Select Committees and often fell on the side of property rights than the community value of a project. The Leeds Corporation, therefore, would struggle to defend their Bill at the Committee stage of Parliamentary proceedings without a compromise. A Leeds Corporation Waterworks Sub-Committee assigned to ensure the passing of the Bill through Parliament negotiated with representatives of Fawkes in an attempt to gain his support. They were instructed by the wider Committee to acquiesce to the terms put forward by these representatives, which included Fawkes having control over the pipeline from Fewston to Arthington pumping station, control over the location and general specifications of Lindley Wood Reservoir, the sole provision of sporting rights in the area, and the sum of £45,000 for the use of his land. Indeed, sporting rights did not factor into the consideration of the Select Committee, as the large sporting areas of the Washburn Valley, such as Blubberhouses Moor, were not proposed sites for construction, and, therefore, would not impact on upper-class leisure interests or the quality of the water supply.

With the withdrawal of Fawkes’ opposition to the scheme, and the assistance of the eminent water engineer Thomas Hawksley, who acted as an advisor and parliamentary witness and then as lead engineer, the Leeds Waterworks Act was passed through Parliament.

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in 1867, granting the Corporation the ability to build four reservoirs at Lindley Wood, Swinsty, Fewston, and Thruscross within a ten-year period. At the ceremony to mark the start of construction in 1869, Hawksley lauded Leeds for its mechanical prowess, its knowledge of business, and its proficiency in its financial transactions, summarising that if the Corporation paid as much diligence to its water engineers in the building of the reservoirs then they were certain to succeed. He went on to argue, ‘[T]he Corporation must therefore be so good as to give the engineers the means of conquering this mighty enemy’, emphasising how the Corporation and engineers would continue to conceptualise nature.  

Construction began on Lindley Wood Reservoir, a reservoir to compensate for a loss of water to mill owners on the River Wharfe, in 1869, followed by Swinsty, a service reservoir, in 1870 and Fewston, a storage reservoir, in 1874.

Construction took longer than anticipated, as several incidents occurred that highlighted the unstable nature of the land and indicates that the engineers lacked a sufficient knowledge of the landscape. The potentially unstable nature of the Washburn Valley landscape was highlighted in a series of letters sent to both the Leeds Mercury and The Yorkshire Post and Leeds Intelligencer by C.L. Dresser, an architect and surveyor, who warned during the passing of the Leeds Waterworks Act that the land was not suitable for the construction of reservoirs. He drew upon the examples of dam collapses at Holmfirth, Huddersfield (1852), and Dale Dyke, Sheffield (1864), which, as Ewen has shown, were prime examples of how engineering knowledge was slow to change, and will have still been relatively fresh in the public consciousness. Whilst no incident occurred on that scale in the Washburn Valley, there were issues in forming a watertight foundation at both Lindley Wood and Swinsty, with a large crack appearing in the sub-strata at the latter. A further landslip occurred at Lindley Wood in 1874, drawing criticism from The Yorkshire Post, highlighting that the requisite engineering knowledge was, at times, lacking. This emphasises the ways in which engineers attempted to impose their will over nature and, in so doing, created a site of socionature. It is clear that natural agency was felt during the construction of the reservoirs, despite the best efforts of engineers. Because of these setbacks, the fourth planned reservoir,
Thruscross, was postponed. Although there were several attempts to re-visit the construction of Thruscross, most notably in 1896, it was not until the 1960s that the Leeds Corporation returned to the area to finish Filliter’s plan.

The Subsidence of Fewston village

Figure 2: Ordnance Survey map showing village of Fewston, 1889.

Despite the setbacks, three reservoirs had been completed by 1879. At the opening of Fewston Reservoir, the last to be completed, the Mayor of Leeds, Alderman Robert Addyman, remarked that the reservoirs would be ‘a lasting monument to the genius of Mr. Hawksley, and to the constructive powers of his very able assistant, Mr. Filliter’. Whilst the issues that had plagued Hawksley and Filliter had been publically forgotten by the Mayor, it was not long until they reappeared. The village of Fewston, shown in Figure 2 on the northern bank of Swinsty Reservoir, had been built several centuries prior to the reservoirs;


Diana Parsons has noted that the first recorded rector of Fewston was in 1234. It was built upon the same unstable land as Swinsty and Fewston reservoirs and had subsequently suffered several instances of land subsidence throughout its history. Whilst many of the residents in Fewston were involved in farming, Fewston Mill, a corn mill, also provided some employment. As Figure 3 highlights, despite a peak in 1861, population was in decline throughout the period, aided by the demolition of Fewston Mill in order to build Swinsty Reservoir.

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<tr>
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<th>1851</th>
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Figure 3: population of Fewston, 1851-1901.

Less than a year after the opening of Fewston Reservoir, an article published in *The Yorkshire Post*, reprinted from the *Wharfedale and Airdale Observer*, reported that an alarming subsidence of the land had taken place at Fewston village:

[J]n some places the ground has sunk no less than two feet and large cracks in the soil, from six inches to a foot in width, may be seen in several places. Most of the buildings are cracking and shifting to an alarming extent.

The article reported on the condition of the house of Mr. Moon, a corn miller in the village, noting that ‘close observation shows that the movement is going on daily; in fact, the ground on which the house stands, and the garden in front, are gradually shifting toward the valley below’. The *Leeds Mercury* published a further article, again reprinted from the *Wharfedale and Airedale Observer*, outlining the amount of damage that had been inflicted upon the village. Whilst pointing out that the original reports exaggerated the damage, a visit to the village found that ‘the actual destruction to property is really greater than was originally

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33 Information for this table has been taken from the England Census, 1851-1911, found on Ancestry UK.
35 Ibid.
The report noted that cracks had appeared in land belonging to the Diocese of Ripon, on which the Vicar of Fewston lived, that were so large that cattle could not enter the field for fear of them falling and breaking their legs. A further article in The Yorkshire Post noted the experiences of Mrs Greaves, a resident in the village. According to the report, cracks had appeared on the walls and floors of her house, with joists leaving the walls. Additionally, ‘[O]ver every mantelpiece there are cracks in the chimneys, and through the crevices the smoke issues and fills the house’, illustrating that the structural integrity of the houses was not the only problem that residents faced.

Whilst many faced the prospect of losing their homes, the Leeds Times interviewed a ‘native’ who did not lament the destruction of the village, given the lack of employment in the Washburn Valley due to the closure of mills and the completion of the waterworks. Indeed, the views of ‘the Owl’, a regular contributor to the Leeds Times, highlighted a Leeds-centric attitude to the event. In arguing that the Corporation should purchase the land, he posited: ‘the pulling down of the whole of the houses will save so much pollution, and the Leeds people need not be alarmed at what is taking place, as it may be all for the best so far as the water of the reservoir is concerned’. This highlights the attitude many felt towards the Washburn Valley generally. It was a source of water for Leeds, with any damage inflicted upon the area of no consequence as long as the Corporation continued to provide a pure supply of water. This is indicative of wider attitudes to rural areas; as Winter has shown for Britain and Theodore Steinberg for the US, industrialisation was predicated on the streamlining of nature. This is understandable, given how the valley lay on the hinterland of Leeds, close enough to be considered within Leeds’s geopolitical orbit, but far enough away to not be directly governed or even supplied with water. As Gandy has illustrated of New York, the growth of the city was linked to a regional urban ecology in which ‘first nature’ was reworked. This attitude, then, was linked to the wider conceptualisation of nature during the nineteenth century. It was, however, little comfort to those in the valley whose homes were being slowly destroyed.

36 ‘Subsidence of land at Fewston’ [report from The Wharfedale and Airdale Observer], Leeds Mercury, 24 Sept. 1880, 3.
39 Ibid.
41 Gandy, p.34.
This Leeds-centric attitude was emphasised by the lack of reporting by the Leeds newspapers after the initial reports. The Wharfedale and Airedale Observer, however, continued to report on the deteriorating conditions in Fewston until the end of the year. Whilst the Leeds newspapers suggested that the subsidence had occurred only once, the Observer provided a running commentary on the plight of residents. By the start of October, the subsidence had begun to affect the church and burial ground, with additional damage to Moon’s property and a wall built by the Corporation near Swinsty Reservoir. Reports in the Observer and further afield brought visitors to Fewston wanting to see the subsiding village, ‘prying into nooks and corners’. Such was the number of these dark tourists, those interesting in seeing sites related to suffering or tragedy, that the local public houses did not have enough food to meet demand. Another report from the Observer claimed that up to 500 hundred people had visited the village, many of whom were reported to have been disappointed that the village was not in as bad a condition as they had expected, with the Observer noting that many wanted the subsidence to ‘get on with its work and submerge the village at once, whilst they were present to see it’. This implies that many of the visitors were from Wharfedale or Airedale, as they would have needed access to the running commentary provided by the Observer, although some may have been inspired to visit from the initial reports published in the Leeds newspapers. There is a certain element of voyeurism to the public’s interest with the subsidence, an element that Ewen and Peter Haining have highlighted with regards to the remains of Dale Dyke Reservoir in 1864 and the East Anglian Earthquake of 1884 respectively, perhaps fulfilling the Victorian intrigue with the macabre. Whilst on a larger scale the subsidence of Fewston, Haining has also highlighted the extra trade visitors who came to see the devastation brought to local inns and public houses. This fascination with the sinking village continued, with the Observer noting that ‘the subsidence seems to be getting more satisfactory to visitors than it was a few weeks ago, as very little was heard on Sunday about exaggerated reports’. All the while, the subsidence continued to worsen. Another example was cited involving Moon, with the ground suddenly sinking two

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43 Ibid.
47 Haining, p.155.
feet whilst he was trying to bring a horse out of a stable.\textsuperscript{49} By December, although the excitement surrounding the village had dissipated, the subsidence continued. Moon, who the \textit{Observer} referred to as a man of ‘heroic fortitude, worthy of a British Admiral’ as he went down with his ship, had measured his house sinking at the rate of half-an-inch a week.\textsuperscript{50}

![Subsiding houses in Fewston village, 1880](image)

\textbf{Figure 4:} Photograph of subsiding houses in Fewston village, 1880.\textsuperscript{51}

The Leeds Corporation Waterworks Committee had been alerted to the issue of subsidence as early as 10\textsuperscript{th} September, seven days before it was widely reported by the Leeds newspapers. Filliter had reported to the Committee that Moon’s house was ‘in a dangerous condition and required early attention’.\textsuperscript{52} The tone of the minutes, however, quickly changed. In October, the Committee received a letter from Moon’s solicitors, arguing that the construction of the reservoirs had caused the damage to his house and that, subsequently, the Waterworks Committee, on behalf of the Corporation, should purchase the property. The Committee, however, declined the request, refusing to accept any liability in the matter.\textsuperscript{53} That the reservoirs were the cause of the subsidence was a popular theory held by both local people and the newspapers reporting on the incident. This theory, explained in a \textit{Leeds Mercury} article, argued that the declivity of the village lay on a weak foundation which consisted of shale. The water from Fewston Reservoir, situated at a higher altitude to Swinsty

\textsuperscript{51} This photograph has been reproduced with the permission of Jim Brophy.
\textsuperscript{52} Leeds Waterworks Committee Minutes Vol.4, 1878-1885, WYAS, LLC22/1/4, 108-109.
\textsuperscript{53} Ibid, 111.
Reservoir, flowed into the latter. This increased volume put pressure on the banks of the reservoir, with water seeping into the shale strata of the foundation, and moving the shale as the water pressure subsided. Subsequently, the foundation of the land became unstable and caused the subsidence.54

The members of the Waterworks Committee, however, were unwilling to accept this theory. In response to the presentation of a report from the Diocesan Surveyor by the parish vicar, Reverend Ashley, the Committee resolved to commission Professor Henry Green, a geologist from Yorkshire College, in order to determine the cause of the subsidence.55 As Roy MacLeod has noted, the use of expert scientific testimony by authorities during the nineteenth century was indicative of a dependence on evidence that was deemed to be reasoned, objective and political neutral to decision making.56 Green presented his report to the Committee in May 1881, in which he outlined how the geological nature of the land was prone to subside. Whilst concurring with the theory that water easily entered the shale strata of the foundation, this had happened for many years before the reservoirs had been constructed.57 This, along with the ‘three exceptionally wet years’ that had been experienced, ‘explains sufficiently why motion should recur just now’.58 This led Green to conclude that ‘we…may dismiss entirely the supposition that the water in the Fewston Reservoir can in any way have affected the landslips’.59 This expert testimony provided the Committee, and ergo the Corporation, with the evidence it needed to deny liability for the subsidence, leaving little to no recourse for the residents of Fewston.

Green’s report used the village’s prior susceptibility to subsidence as evidence to dismiss the Corporation’s culpability. In effect, he gave the Corporation the evidence required to avoid having to pay for the damage inflicted on the landscape. Whilst the land was indeed prone to subside, the movement of the village towards the reservoirs indicated that water from Swinsty Reservoir, pressured by water flowing in from Fewston Reservoir, entered the shale strata of the village foundation and moved the shale as the water pressure receded, causing the unstable foundation to move. Additionally, there can be little coincidence in the fact that this subsidence, on a magnitude that had not been experienced by Fewston village in the past, occurred less than a year after the completion of Fewston

55 Leeds Waterworks Committee Minutes Vol.4, 1878-1885, WYAS, LLC22/1/4, 117.
57 Ibid, 138-139.
58 Ibid.
59 Ibid, 141.
Reservoir. The combined maximum storage capacity of Swinsty and Fewston reservoirs was 1.8 billion gallons, an enormous amount of pressure to impose upon an unstable landscape. Nevertheless, Green’s report was sufficient evidence for the Corporation to not recompense residents, who were constrained by their inability to challenge the legal and financial power of the Corporation, as well as the legitimacy of scientific testimony. Thus, viewing the subsidence of Fewston village, through the prism of socionature, as a result of the urban need for water, it is possible to see how unevenly power was distributed across the landscape. Even during a series of land purchases by the Corporation that began in 1897 in order to tackle pollution, the Waterworks Committee refused a request from Reverend Ashley in 1898 to purchase the vicarage that had been affected by the subsidence as the Committee did not want to accept liability in any way, even when presented with a pretence under which to purchase the land.

The village fell into disrepair and was soon abandoned by the majority of its inhabitants. As can be seen in Figure 3, the population decreased after 1871, with a 21 per cent decrease between 1871-81, a 25 per cent decrease between 1881-91, and a further 15 per cent decrease between 1891-1901. By 1901, the population had roughly halved from what it has been in 1851, illustrating the impact of the reservoirs on the population of Fewston. The decline in newspaper coverage highlights that the incident was not important to the residents of Leeds, aided by the geographic distance between the town and its water source. The village of Fewston, however, was not entirely forgotten. Newspaper correspondents occasionally ventured to the banks of Swinsty Reservoir and provided accounts of seeing ‘the ruined village’. An article in The Yorkshire Post from 1882 posited that only eight families remained in Fewston, with many former residents moving to Harrogate or to Eccup Reservoir to work on the enlargement of the waterworks. The article continued that the appearance of the village, were it not for the impact of the subsidence on residents, would be ‘amusingly grotesque’, stating in an almost flippant manner that, ‘[T]he houses look as though they have been, were that possible, going through a hard course of drinking, and were trying to put themselves in order again’. This dark humour was mirrored in another account of Fewston village by Tom Bradley, a writer of guides for The Yorkshire Post, in his guidebook to the Washburn Valley published in 1895. He wrote:

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61 MacLeod, p.3.
62 Leeds Waterworks Committee Minutes Vol.7, 1896-1903, WYAS, LLC22/1/7, 71; 74-75.
64 Ibid.
One fine morning it [the village] began to move down the hill-side as if it had taken it into its head to go fishing. Walls began to divide and roofs to fall, and altogether the village got itself considerably mixed up. The inhabitants fled from their houses, which fell out of plumb and began to assume that wilted appearance which suggests having been to a Corporation dinner…All the world flocked to see the evolution of this wonderful village, and the man at the public did a roaring trade. Some of the houses still remain, a sorry example of the action of too much water, not whisky.65

Once again, the metaphor of intoxication was employed to describe the state of the village. Whilst this may have made the state of the village relatable to readers, particularly those who had not visited it, it trivialised the impact that the reservoirs had both on the landscape and the people that had lived there.

In constructing the reservoirs on a foundation the engineers did not fully understand, they inadvertently created a scenario in which the construction of a socio-technology caused damage to the natural landscape. This case study is an example of the Leeds Corporation, along with the town’s press, prioritising the aims of the town over damage to the landscape and the lives of those who lived upon it.66 In other words, how the actions of a powerful urban elite impacted both human and non-human actants in creating a socionatural site. This was not an uncommon occurrence during the nineteenth century, as Ritvo has alluded to with regards to Thirlmere, and Roberts in his work on the imposition of English waterworks on the Welsh landscape, such as Birmingham’s Elan scheme.67 The lack of reporting from Leeds-centric newspapers also highlights the plight of residents, who had little to no legal recourse, particularly after the publication of Green’s report. This stands in stark comparison to the contemporaneous opposition to Thirlmere; whilst ultimately unsuccessful, the Thirlmere Defence Association managed to rally support to their cause inside and outside of Parliament.

The imposition of vast bodies of water by social forces worked with the natural foundation of the land in order to weaken its shale strata and cause the land to shift, affecting both the landscape and those who lived upon it. This example highlights how much a seemingly innocuous body of water, designed to serve a municipality, could alter the natural landscape

66 Public bodies moving beyond their own municipal boundaries, the consequences of that act, have been examined beyond the sphere of public utilities. Rob Ellis has examined this in relation to the asylums of London County Council in Epsom, which lay outside of LCC’s boundary and came to be seen as an imposition. See Rob Ellis, “A constant irritation to the townspeople”? Local, Regional and National Politics and London’s County Asylums at Epsom’, *Social History of Medicine* 26 (4, 2013): 653-671.
and change the lives of its inhabitants, demonstrating how municipal power was distributed unevenly.

The Rise of Thruscross and the Fall of West End

The social and topographical landscape of the Washburn Valley continued to change into the twentieth century. The next major change to occur as a result of dam building was the construction of Thruscross in the 1960s, which required the flooding of West End village. Whilst building a fourth reservoir in the Washburn Valley was firmly back on the table by the 1950s, the demise of West End had been precipitated long before the building of Thruscross. The upper-Washburn Valley was more associated with industry than the lower half of the valley, specifically flax spinning. The first of several mills to be built in the area was Low Mill, which would later be known as West End Mill, in 1791. This was followed by Patrick’s Mill in 1800, Aked’s Mill in 1809, and Patrick’s Little Mill in 1822, which can be seen in Figure 5. All of these mills were successful for a time, with Low Mill estimated to be worth £4,550 in 1796. Patrick’s Mill and Patrick’s Little Mill employed 120 workers operating more than 2,000 spindles. This success, however, was not long lasting. Both Patrick’s Mill and Patrick’s Little Mill ceased production in 1838, the same year that Aked’s Mill suffered

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69 Parsons, p.40.
from financial difficulties and was burned down. It was replaced with another mill, Croft House Factory, however that too had ceased production by 1845. Low Mill was the most successful of the mills, employing 90 workers. However, by 1868 the emphasis on production had changed from flax to hemp and jute. By the time the Leeds Corporation bought Low Mill in 1901 using compulsory purchase powers, industrial production had ceased in the Washburn Valley.

This decline was for two reasons: firstly, the Washburn Valley was not especially accessible, particularly given nineteenth century transport methods. The increase and improvement of railways during the mid-nineteenth century meant that it became economically unviable to transport goods from a location that could only be reached by horse and cart. The second reason was due to changes in industrial production, particularly around the use of water. Whilst water continued to be an important factor in industrial production, the change from water-powered to steam-powered machinery meant that industrialists were less reliant on water sources such as rivers to power their factories. Additionally, as Peter Temin has highlighted, whilst steam-powered engines could be used anywhere, their distance from the coal and wood that powered them would have involved additional transport costs.71 The upper-Washburn Valley, therefore, became increasingly unviable for industrial production. This decline in industry was felt in terms of population; as Parsons has highlighted, the population of Thruscross parish fell from 610 to 219 between 1811 and 1891.72 Whilst the mills were not on the same scale as urban factories, both in terms of production and workforce, they were a vital source of employment to residents of the upper valley and helped to stimulate the local economy.

The decline of West End was further precipitated by the Leeds Corporation, who purchased land in the upper valley during the early twentieth-century in order to combat the pollution of the Washburn watershed, which led to further depopulation. The Yorkshire Evening Post continually returned to West End, dubbing it ‘the deserted village’ as early as 1911.73 One correspondent to the Yorkshire Evening Post, Rightaway, in an article from 1919 revisiting West End, drew a somewhat hyperbolic comparison between the village and war-damaged Belgium: ‘A pilgrimage there at the present time might help one to picture some of the ruined villages of Flanders’, a parallel that J.B. Priestly also made in his 1934 English

72 Parsons, p.42.
The Yorkshire Evening Post’s fascination with West End continued throughout the inter-war period, with excursions drawing upon its history as a once thriving industrial village. One article from 1938 pointed to the land purchases by the Leeds Corporation in the 1900s as the final nail in the village’s coffin. However, the demise of West End as an industrial village had been a gradual process, impacted by several related and unrelated factors.

The post-war period brought new demands for water. As John Hassan has highlighted, in contrast to the depressed inter-war period, there was a much higher demand for water after the Second World War, mainly due to the demands of industry as the country underwent sustained economic growth. Whilst the Waterworks Committee did not propose constructing a reservoir at Thruscross until 1952, a Yorkshire Evening Post article from 1949 suggested that construction was a distinct possibility. The article provided interviews with the few remaining residents of West End and residents of the nearby village of Thruscross who vehemently argued that a reservoir in the area would spoil the valley. One resident, almost with an air of resignation, stated that ‘[W]e know Leeds must have water, but it’s heartbreaking to lose our little valley… We hope the borings reveal a mass of solid rock totally unsuitable for reservoirs or embankments’. Whilst in a different spatial and temporal context, these responses mirror those noted by Evren with regards to the Yusufeli Dam, that the implementation of infrastructure could not be fought by residents, leading to the effect of compliance and de-politicization. The article continued the style of reporting employed during the inter-war period by once again highlighting the decline of a once bustling industrial village with nothing but ‘skeletons’ to show for it. These comments are indicative of the wider concern during the inter-war and post-war years of municipal encroachment into the countryside.

The post-war period saw a heightening of these fears, with the increased accessibility of the motor car, the proliferation of leisure, and the expanding of the municipal boundary. Leeds, for example, purchased Golden Acre Park, situated between Bramhope and Adel, in

75 ‘Last of “Little Mill” at West End: Washburn Valley’s industries in days of water power’, Yorkshire Evening Post, 4 June 1938, 8.
77 Con Gordon, ‘Reservoir will spoil valley, say dalesmen’, Yorkshire Evening Post, 23 November 1949, 5.
78 Evren, p.408.
79 Ibid.
1945. Indeed, Adel, and areas to the east of the city such as Seacroft, described by Alistair Kefford as ‘[T]he city’s great overspill estate’, became subsumed by Leeds in 1957.81 Whilst areas closer to the Washburn Valley such as Otley and Harewood were not subsumed by Leeds until 1974, this is evidence of a growing interest in the hinterlands of the city. This is further illustrated through the water supply of the valley itself. Due to the pollution of the water supply to Fewston and other villages in the valley such as Blubberhouses and Norwood, the Leeds Corporation agreed a plan to supply these areas through the Wharfedale Rural District Council in 1949, although the plan did not progress until 1955.82 Whilst there was a practical element to this supply, with Fewston situated close to Swinsty Reservoir and Blubberhouses close to Fewston Reservoir, it is symptomatic of the Corporation’s desire to expand its urban boundaries during this period. The building of Thruscross was also a practical necessity for Leeds, however the construction of the reservoir created another area beyond the city that could be considered a part of the wider Leeds municipal area.

A further article in the *Yorkshire Evening Post* from 1953 once again lamented the future loss of West End, this time featuring an interview with a former school teacher in the village who deplored the decline of schooling in rural villages that, she argued, caused children to lose their sense of place.83 This was symptomatic of the developing sense during the mid-twentieth century of a ‘lost’ England, aggravated by the encroachment of towns and cities into the countryside.84 A case in point was the loss of West End village itself, although, according to the *Yorkshire Evening Post*’s reporting, the loss would be borne more to visitors who would never see the beauty of West End than the residents themselves, who had long come to terms with the loss of their local idyll.85 This, perhaps, is at the heart of the *Yorkshire Evening Post*’s reporting which, as one resident noted, was not circulated in the Washburn Valley. The concern lay less with the loss of a residential area, but with the loss of a tourist destination on the doorstep of Leeds, which had become more accessible with the increase in

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82 Wharfedale Rural District Council (hereafter WRDC), ‘Blubberhouses, Fewston and Norwood Water Supply Scheme’, 4\textsuperscript{th} Dec. 1952, WYAS, WYL1203/1/2, 2; WRDC, ‘Blubberhouses, Fewston and Norwood Water Supply Scheme’, 12\textsuperscript{th} Aug. 1955, WYAS, WYL1203, 1.
85 Jeans, 261-262.
motor ownership during the period. Whilst Leeds would be gaining a needed water supply, it would be losing a place of beauty. The Leeds Corporation certainly did not directly factor leisure into their planning of Thruscross, a commonality shared with contemporaries such as Cow Green Reservoir, Teesdale, and Rutland Water in the East Midlands, although the Welland and Nene River Authority did employ a landscape architect to help design the latter reservoir’s aesthetic.86 In contradistinction with narratives of the reservoirs in the lower valley, which were seen to heighten the beauty of the Washburn Valley, the loss of West End was portrayed as a loss to thousands of visitors who would no longer be able to walk over the pack-horse bridge or visit Holy Trinity Church. As one correspondent wrote, ‘Something will vanish with the Washburn brook. A solitude and a loveliness to spell and an enchantment. You cannot enter the valley without recognising it. You cannot stay without succumbing to it’.87

The decision to finally construct Thruscross Reservoir was taken by the Corporation in 1959. Due to the development of Parliamentary procedure, there was no need to attempt a costly local government bill. Sheail has explored the development of ministerial Orders, which allowed government ministers to decide on uncontroversial local government schemes.88 Whilst Thruscross required the flooding of West End, much of the land had already been purchased by the Leeds Corporation in the early-twentieth century in an attempt to abate pollution. However, it did not stop debates around the loss of West End. Whilst the use of the more straightforward ministerial Order framework was approved by the Ministry of Housing and Local Government, the Corporation was opposed by Ripon and Pateley Bridge Rural District Council (R&PBRDC), West Riding County Council (WRCC), and the Ripon Diocese Registry and Church Commissioners.89 The Minister for Housing and Local Government, Henry Brooke, also faced questions in the House of Commons regarding the impact that Thruscross Reservoir would have on the landscape, including how many acres of land would be submerged, how many people would be removed from their homes, and how

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87 Con Gordon, 5.


many roads would disappear.\textsuperscript{90} Sir Malcolm Stoddart-Scott, Conservative M.P. for Ripon, was concerned that Brooke was aware of the closure of roads around West End that would inconvenience farmers, which was also the primary objection of R&PBRDC and WRCC.\textsuperscript{91} Brooke visited the Washburn Valley on 15th June 1960, along with Stoddart-Scott and members of the Leeds Corporation, viewing the proposed site of the dam and the village of West End itself. Commenting on the proposal, Brooke stated: “I think Leeds is lucky to have this land where there are very few people living”.\textsuperscript{92}

Negotiations took place between the Leeds Corporation and the respective objectors that led to clauses being inserted into the Order, such as the guarantee of a new church and burial ground to replace Holy Trinity Church.\textsuperscript{93} With the insertion of clauses and guarantees made by the Corporation about the provision of a new road in the area to replace the road that was to be submerged, Brooke approved the Leeds Corporation (Thruscross Reservoir) Water Order in December 1960.\textsuperscript{94} A report in \textit{The Yorkshire Post} in December 1960 confirmed construction would begin in the spring of 1961 and that the village of West End would be flooded.\textsuperscript{95} Flooding villages in order to create reservoirs was a common feature of dam building, notably involved in the construction of Thirlmere, Ladybower, and Rutland Water reservoirs amongst others.\textsuperscript{96} The Leeds Corporation, therefore, was not novel in its approach, nor did its members take the decision lightly. The decision to purchase lands using the 1897 Leeds Corporation Act aided their decision, meaning that there were few residents remaining in the village by 1960. Additionally, the Corporation sought to lessen the impact of the reservoir by providing a new road for traffic, ailing the fears of critics such as Stoddart-Scott, and a new church and burial ground.\textsuperscript{97} The loss of the village, however, was undoubtedly hard to take for some.

\textsuperscript{90} Evening Post Parliamentary Correspondent, ‘Minister may visit doomed village’, \textit{Yorkshire Evening Post}, 2 June 1960, 3.
\textsuperscript{91} Ibid.
\textsuperscript{93} Church Commissioners to Secretary of Ministry of Housing and Local Government, 15 August 1960, Leeds CB Thruscross Reservoir: Water Order 1960, TNA, HLG 127/29.
\textsuperscript{95} Ibid.
\textsuperscript{96} See Harriet Ritvo, \textit{The Dawn of Green}; Denis Cosgrove, Barbara Roscoe and Simon Rycroft, ‘Landscape and identity at Ladybower Reservoir and Rutland Water’.
The building of the reservoir effectively wiped West End from the map. With a capacity of 1.7 billion gallons, the reservoir transformed the landscape from a quiet rural village into a vast sheet of water. A tender from Holland & Hannen and Cubitts Ltd. (HHC) for £1,104,750 was accepted by the Waterworks Committee in March 1961, the lowest of sixteen bids received according to *The Yorkshire Post*. An article in *Water and Water Engineer* provided some detail as to how construction would progress, with HHC planning to install a ten ton cableway and a two cubic yard concrete mixing plant, which had been used in the construction of Clatworthy Reservoir, West Somerset, in order to aid construction. The experience of constructing Clatworthy, ‘the largest concrete dam in the West Country’, may have been a factor in the Waterworks Committee’s decision, with ‘key experienced personnel’ from that project being brought to work on Thruscross, with the remaining workforce locally sourced. A dam face 120 feet high composed of over 200,000 cubic yards of mixed concrete resulted in a vastly different reservoir to those built lower down the

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98 The photograph on the left is held by the Washburn Heritage Centre and has been reproduced with their permission. The photograph on the right is from a collection of uncatalogued photographs held by the Leeds Industrial Museum, Armley. Date unknown, however the unfinished road across the top of the dam and the full reservoir suggests late 1966-early 1967. The photograph has been reproduced with the permission of Leeds Industrial Museum, Armley.


101 Ibid.
valley in the 1870s. As such, its impact on the landscape was more visible. Figure 6b highlights both the size of the dam face and the vast storage capacity of the reservoir, making Thruscross a more striking feature on the landscape than the other three reservoirs, which have a more natural aesthetic. It is also clear that farm land was also flooded by the reservoir, another alteration to the landscape which can be viewed in the photograph from before construction began in Figure 6a.

Reports from the *Yorkshire Evening Post* written by Malcolm Barker provided an insight into how the construction affected the landscape. The first report from 1962 sought to contrast the usually quiet nature of the Washburn Valley with the nightmarish noises of construction. At the site of the dam wall, much of the rock was removed with ‘scientifically placed blasts’; however, the rock basin formed the foundation for the dam wall, and may have been destabilised by explosives, hence:

> ...down there in the great gash is one of the few places where rock meets man on equal terms, the man armed only with pick and shovel and the rock with the thickness and stability of tens of thousands of centuries.

The construction of Thruscross was framed as a way of imposing power over the natural environment, creating a socionatural site. This narrative, termed ‘the elemental struggle of the navvy’, highlights the environmental attitude of the *Yorkshire Evening Post*. This description was in the same vein as that expressed by Thomas Hawksley in 1869, that nature had to be conquered and man should be provided with the tools to do so, emphasising the lineage of this socionatural power dynamic. However, the reporting of the *Yorkshire Evening Post* did not necessarily reflect wider attitudes to the environment during the mid-twentieth century. Sheail has explored the writings of Thomas Woodhead, an ecologist who compiled a history of Huddersfield’s waterworks in 1939 that considered the ecological impact of the town’s water catchment area, arguing that ecology could provide the solutions to problems arising from waterworks schemes, such as peaty freshwater. Thus, whilst Barker’s reporting was somewhat outdated, it reflected the environmental attitudes of the *Evening Post*. A case in

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point is Barker’s depiction of the navvies, armed only with a pick and a shovel against a rock formation that had stood for thousands of years. He painted changes to the landscape in a positive light, emphasising that nature must be conquered in order to gain a much needed fresh supply of water for the city, paying little attention to the negative effects of changing the landscape, such as ecological damage. Nevertheless, the reporting of Barker highlights how the building of Thruscross was beginning to change the landscape.
Figure 7: a photograph of the partially constructed Thruscross Reservoir.106

A further report from 1964, entitled the ‘half-term report’, provided readers with an update on the progress that had been made at the construction site. Barker again remarked that it ‘still resembles a raw gash in the valley…But it is a gash that is gradually being filled in and healed as the smooth white walls rise from the foundations’.107 Once more, the building of the reservoir was framed as a narrative of improvement, with the navvy healing the landscape with technology. Whilst the engineers may have had experience of dam construction, setbacks did occur, including a large rock fall and bad weather that halted work for three months in 1963, emphasising the role of the natural forces in the construction of Thruscross.108 Barker also referred to the vast amount of concrete being used in the construction of the dam wall, the purpose of which was to stop the River Washburn ‘in its ancient track’ and force it back up the valley, again emphasising that the building of Thruscross was an exercise in overcoming nature.109 Figure 7 presents an image of this ‘gash’ on the landscape. Whilst the surrounding land that would be submerged was yet to be affected, the trough created by the navvies is evident, as is the beginning of the dam wall that would eventually bridge the two sides of the valley. Figure 7 also gives a sense of how large the reservoir would be in comparison to the size of the River Washburn itself, which can be seen snaking through the centre of the photograph from the doomed village of West End amongst the trees.

The construction of Thruscross was completed in 1966. Barker once again returned to

106 This photograph is from a collection of uncatalogued photographs held by the Leeds Industrial Museum, Armley. Date unknown, however the partially constructed nature of the reservoir, cross-referenced with Barker’s reports, suggests between 1963 and 1964. The photograph has been reproduced with the permission of Leeds Industrial Museum, Armley.
108 Ibid.
109 Ibid.
witness the damming of the River Washburn in order to begin filling the reservoir, commenting that the valley was to be transformed ‘into a large and shimmering lake’.

Barker’s reporting of the construction of Thruscross emphasised a progressive narrative: man had imposed power over the natural environment in order to service Leeds with water. Whilst the reservoirs at Lindley Wood, Swinsty and Fewston were undoubtedly the result of socionatural processes, Thruscross was the result of the uneven distribution of municipal power that had begun sixty years prior to its completion. The removal of residents as a result of the land purchases altered the social and cultural relations that people had with the village. As seen in the planning of Thruscross in the 1950s, residents had long been resigned to losing the village, and were therefore unmoved when it eventually happened. Whereas the three original reservoirs were earthen embankment and built to blend into the natural aesthetic of the valley, Thruscross was designed to be a visible landmark with its white concrete dam wall. Whereas the engineers in the 1870s worked with the contours of the land, the navvies of the 1960s used explosives to create an artificial valley in which to build the dam. The landscape was visibly, and in some ways violently, altered in order to construct the large dam. Whilst nature was seen as an obstacle to overcome, its agency was still felt by the engineers and workers at Thruscross. They could not use explosives to blast all the way down to what became the foundation of the dam wall, emphasising a greater understanding of what pressures the land could tolerate than in the 1870s. Whilst Barker portrayed the construction of Thruscross as a victory for man over nature, it was still constrained by natural limits. Additionally, the reservoir was ultimately bound to the path of the River Washburn, which could not be moved to a more convenient location. Thus, Thruscross Reservoir became a site of socionature, a place in which the power of the Leeds Corporation was displayed, both with regards to the natural landscape and the people that lived upon it, but was also shaped by non-human agency.

The impact of Thruscross was, in some way, more profound than the original three reservoirs. It was almost a century in the making, with many people displaced through compulsory purchase almost sixty years before construction began. A statement from the Leeds Corporation in July 1960 stated that only 53 people lived in the parish of Thruscross, 49 of which were tenants of the Corporation, whilst a report compiled by the Ministry of Housing and Local Government’s Engineering Inspector B.C. Wood outlined that only six

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houses were occupied in the area to be submerged, four of which were holiday homes. This emphasised the long decline of West End, precipitated by factors beyond the construction of a reservoir. Like the subsidence of Fewston, the actions of the Leeds Corporation aided this depopulation, and certainly altered the landscape in order to benefit urban needs. Another commonality was the way in which both incidents, through newspaper reporting and photography, were conveyed in a progressive manner to the population of Leeds. As Haining has highlighted in his study of the East Anglian Earthquake, newspaper reporting attracted visitors to sites of disaster where the landscape was visibly different. The subsidence of Fewston and the gashes created at Thruscross, shown in Figure 7, were alterations to the landscape caused by humans that emphasised uneven power relations between urban need and rural resources in the West Riding of Yorkshire.

Conclusion

This article has analysed the impact of reservoir construction in the Washburn Valley, in particular how these constructions created sites of socionature where the dynamics of power between the urban elite, local residents, and the landscape were exercised. The construction of reservoirs was of vast importance to towns and cities, a need that remained constant as governmental processes and building methods evolved during the nineteenth and twentieth centuries. By examining the effects of these reservoirs on the valley in the 1880s and the 1960s, it is possible to see the continuity of the environmental attitudes of the Leeds Corporation. Harnessing a localised study, closely examining the effects of reservoir construction on the landscape as well as the people that lived upon it, aids this investigation. As Ritvo and Roberts have shown of Thirlmere, Elan, and Vyrnwy reservoirs in the nineteenth century, and Sheail and Cosgrove et al. have shown of Rutland Water and Ladybower Reservoir in the twentieth century, reservoirs made an indelible impact on the rural environment. It is clear that municipal authorities and private water companies were driven to urbanise nature, in part, because of how the rural was conceptualised but also due to the growing importance of the water consumer as Taylor and Trentmann have illustrated.

112 Haining, p.155.
113 Ritvo, The Dawn of Green; Roberts, ‘Waterworks and commemoration’; Sheail, An Environmental History of Twentieth-Century Britain; Cosgrove et al., ‘Landscape and identity at Ladybower Reservoir and Rutland Water’.
114 Taylor and Trentmann, 199-241.
Thus, there were practical, as well as ideological, reasons for the development of large waterworks systems. Whilst overwhelmingly positive for the towns and cities they serviced, their construction led to changes to landscape, the flooding of villages, and unforeseen consequences. As Ewen has highlighted with regards to the disasters at Dale Dyke and Holmfirth, engineering knowledge was slow to develop, which resulted in large scale disasters but also smaller accidents as explored above. These attitudes are evident through an examination of local newspapers during both periods, showing the value in analysing these two different examples of changes of landscape, thereby adding to and complementing the existing research on the impact of reservoir construction in Britain.

This article also highlights the benefits, as Mosley has suggested, of combining social and environmental history. As has been shown in the subsidence of Fewston village and flooding of West End, neither environmental nor social impacts occurred in a vacuum, they were intertwined. Tim Soens et al. have added that ‘[E]very change in the material context…not only affects the environment, but also the relationship between people’. This underlines the importance of not just combining environmental and social history, but of taking an interdisciplinary approach to environmental studies, in order to recognise and analyse the power dynamics of socionatural sites in historical contexts or in the present, as in Groningen. This helps to show the ways in which urban actors, in this case the civic elite, attempted to steer the asymmetrical relationships between Leeds and its hinterlands to their advantage. Scholars such as Ritvo, Kahrl, and Evren have shown how municipal and national governments in the UK and abroad have impacted on local communities, that has led to the depopulation of rural communities and the destruction of rural economies. The socionatural sites examined here highlight add to these histories by illustrating the extent to which municipal government affected the natural environment in order to provide much-needed water for Leeds. The subsidence of Fewston village was caused by the implementation of a socio-technology that was not wholly suitable to the area’s geological structure, thereby negatively affecting the landscape and the residents of the village. The flooding of West End had long been precipitated, but the actions of the Leeds Corporation and the reporting of the Evening Post highlighted that attitudes towards the rural environment had changed little since the 1870s. Once more, the landscape and residents were impacted by

115 Ewen, 24.
116 Mosley, ‘Common Ground’.
117 Soens et al., p.11.

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the construction of a socio-technology for an urban area, as well as highlighting the continuity of how the Washburn Valley was conceptualised as part of a wider urban ecology.¹²⁰ Both instances are evidence of uneven distributions of power by a municipal authority over the rural landscape and society in order to provide water for the city. In doing so, the natural and social landscape of the Washburn Valley was irrevocably altered.

Acknowledgements

I would like to thank Shane Ewen and Rob Ellis for their incredibly helpful comments and feedback on earlier drafts, as well as those that attended the Environmental History Day at Leeds Beckett University in 2017 at which this work was presented. This article has been taken from a chapter of my PhD thesis, funded by the Arts and Humanities Research Council’s Heritage Consortium, to whom I am very grateful. I would also like to thank the peer reviewers and editor for their helpful and constructive feedback, as well as their patience.

¹²⁰ Gandy, p.34.