I

Water, besides its employment as a consumer good and industrial raw material, has several other, often conflicting uses, and its consumption generates environmental and public health benefits and costs which bear little relation to the private costs and values incurred in its provision. In the Victorian period, given the absence of a national water policy or overall co-ordinating agency, attempts to develop water resources frequently led to clashes between different interest groups. Two groups in particular were active in attempting to control water sources in this period—the manufacturers and urban corporations. The former, using a stream as a source of power, or more commonly as a supply of water for use in the production process and as a convenient sink for the discharge of industrial waste, frequently found their interests colliding with those of local authorities wishing to impound the stream in order to supply drinking water.

The physical and organizational structures which were created in the course of the water industry’s growth, and the rush by individual groups to control resources would be conceptualized later as hydrologically inefficient and irrational.¹

Such outcomes can also be viewed from the economist’s perspective as the predictable consequences of the application of a weak, arms-length regulatory regime to the exploitation of a natural resource exhibiting pronounced multiple- and conflicting-use and natural monopoly characteristics.²

In particular two types of distortion arose in the course of the Victorian scramble for sources, recognized by contemporaries,³ if analysed and regretted more fully by later observers blessed with hindsight. First, the more powerful municipal authorities, in satisfying their own interests, acquired control over catchments and developed water resources in a manner which bore little relationship to broader regional requirements, such as the ability of smaller communities to access their natural sources of supply. Secondly, to buy off interests with prior legal claims to those resources, over-generous compensation was awarded to owners of riparian rights. As matters of municipal governance were being worked through following the local government reform of 1835 there was also some contention over water internal to town councils. The main significance of these party political squabbles over water, which are briefly touched on in the historical literature,⁴ was in contributing to delays in resolving the water question locally. Of greater long-term importance for the water industry were the conflicts between water undertakers anxious to develop more distant supplies, especially after 1850, and manufacturers who possessed water rights in these areas. These confrontations have also received only passing treatment from historians.⁵

³ Royal commission on water supply to the metropolis and large towns, P.P. (1867–9), XXXIII, p. cxxviii; A. Silverthorne, London and provincial water supplies (London, 1884), pp. 12–16.
Bolton provides a good illustration of these issues—notably the expedient nature of party political disputes over water before 1850 and in particular as an oft-quoted example of the exceptionally generous compensation arrangements which were conceded to millowners as the water industry strove to develop new sources in this period. To develop the foregoing arguments and to place Bolton’s experience in context further discussion is provided in section II of the struggles by powerful parties such as urban corporations and manufacturers to gain control over water in the years after 1830. In section III the role of water in local politics in Bolton before 1850 will be discussed. The confrontation between municipality and manufacturers over attempts to develop water resources further after 1850 in the district will be analysed in section IV, the water issue finally being settled locally by the 1870s. Bolton was typical in some respects but not all. Therefore, to assess the longer-term significance of the manner in which struggles to increase water utilization in Victorian Britain were resolved, some brief note is made in section V of important developments elsewhere, thereby providing some points of comparison with the town’s experience.

II

Before the industrial revolution, many communities relied upon traditional sources of water such as local streams, ponds, wells, and makeshift methods of catching rainwater. The degradation of such local supplies, coupled with burgeoning new demands arising from urban and industrial expansion, placed the water-supply situation in a state of impending crisis in many towns by the beginning of Victoria’s reign. Although the nature of the interrelationships between dirt and disease were not fully understood, the situation did have an urgent public health dimension. The improvement of water supplies was, therefore, perceived by contemporaries as a central component of sanitary progress.

As building and manufacturing activity frequently worked to render sources close to urban areas unfit for drinking purposes and even unsuitable for industrial use, it was necessary to look further afield for better supplies. The collection and distribution of water became established upon a more formal basis and waterworks were constructed by private companies and later, increasingly, by the local authorities themselves. In the north of England source developments typically took place in upland districts no longer adjacent to, let alone within, town boundaries. As the water industry expanded in the mid-Victorian period town councils, anxious to secure the public health and many other economic and social benefits that would come with the improvement of public water supplies, came into conflict with manufacturing interests already established in the catchment areas in question.

Those who owned land next to a river possessed important riparian rights, including the right to abstract river water for their own purposes. The rights of riparian owners to water were not unrestrained, however, for unless they had a monopoly of such rights they were legally obliged to ensure that they did not injure the interests of other riparian owners. The mere acquisition of riparian rights alone, therefore, was seldom sufficient to provide urban water-supply undertakings with a free hand. The efficient management of water resources for urban use usually necessitated their impounding a stream, but they could only do so if all riparian owners gave prior consent. In practice this proved difficult, and the usual way in which undertakers obtained authorization for their water projects was by a private Act of Parliament. This brought its own set of problems.

Millward has described the state’s intervention in water industry affairs in this period as ‘arms length regulation’. The regulation, as embodied in the Waterworks Acts of 1847 and 1863, was limited to matters such as the requirements to

provide fire plugs in the mains and to make supplies available to houses where mains had been laid, and restrictions on dividend payments. This framework could not ensure that water resources would be developed on a hydrologically rational and fair basis with due attention to the needs of all potential users within catchments. Parliament was behooved to judge each source development proposed by water undertakings on its individual merits. This process enabled separate groups of water users to lobby energetically for the protection of their perceived rights and traditional prerogatives. The result was that ultimately the waterworks code, including local amendments stipulated in private legislation, came to display great variety. A great disunity of practice emerged, ‘not infrequently the results of “Parliamentary bargains” between the water undertakings and their opponents, rather than any settled course of policy’.  

Nowhere else was lobbying more active than among millowners, particularly in advancing their claims for the guaranteed release of water to ‘compensate’ them for any loss or disruption of flows caused by the impounding of streams. Millowners dominated discussions in the setting of compensation supplies for nineteenth-century water-supply schemes. Parliament adopted a rule of thumb that one third of the total yield of an impounding scheme should be reserved when industry was present and one quarter otherwise. This was eventually regarded as very generous to millowners, imparting a serious distortion to the way resources were developed, having the effect, for example, of considerably reducing the effective yield of new waterworks.

The way the settlement of compensation claims was handled demonstrates how rather narrow industrial interests could make a significant impact upon the way water resources were exploited in the nineteenth century. It underlines the primacy of manufacturing over broader economic and


environmental concerns in this period, at least in the aquatic field. In much the same way, virtually the same lobby successfully undermined attempts to introduce effective river pollution legislation. Luckin comments that moves to amend the emasculated Rivers Pollution Act of 1876 were countered by arguments that such steps would cause irreparable damage to the economy and that effectively devised and enforced national legislation against river pollution 'would have trespassed in an unthinkable manner on the rights of property and the rights of capital'. Partly because water-supply schemes were subjected to parliamentary scrutiny and authorization on a one-at-a-time basis, the issue of compensation supplies never crystallized around an historical event or national debate as specific as that surrounding the passage of the Rivers Pollution Act. Nevertheless, the way it was handled reveals similarly the power of the manufacturing lobby and the readiness of parliament to cave in to its self-interested representations.

Nowhere was the question of compensation supplies more important than in the textile districts of the north. Water supplies for power, processing, and waste-removal purposes were extremely important resources for textile industrialists. For example water might provide the power for the generation of electricity, thereby providing 24-hour lighting and continual working, as in the case of Mitchell Brothers, printers, dyers, and manufacturers of Bury, in the 1880s. The ambitious borough councils of Lancashire and Yorkshire were anxious to improve the provision of urban water supplies. While one third was the norm, occasionally the authorizing legislation required that an even greater share of the yield of new waterworks be 'surrendered' for compensation purposes. For the Longdendale chain of reservoirs constructed to serve Manchester's needs after 1851 it was not, for example, until 1870 that the amount of water actually delivered to the city

12 House of Lords, Minutes of proceedings taken before the Select Committee of the House of Lords on the Bury Corporation Bill, 24 May 1889, p. 40 (copy in Bury Reference Library).
exceeded the amount released to millowners as compensation. There were subsequent misgivings that so much of the capacity of this bold new gravitation supply was committed to the storage and release of compensation water. It was later realized that for many waterworks authorized in the 1840s and 1850s

the amount of compensation which at that time, and for several subsequent years, was given to the streams both in the Longdendale Valley and in other districts . . . was largely in excess of that which subsequent experience has shown the millowners can under ordinary circumstances usefully employ or reasonably expect.\textsuperscript{13}

The way in which the development of water supplies was shaped by the struggles between competing interests operating in an inadequate regulatory framework is reflected in Bolton’s experience. However, Bolton was exceptional in that up to two thirds of the yield of new projects was reserved for the satisfaction of compensation demands. Nevertheless, events here fully illustrate many of the central themes in the history of the water-supply industry in early and mid-Victorian England.

In Bolton water occupied a central place in local political life. Its experience reflects how even local authorities close to abundant sources were made to struggle to secure adequate supplies. By the early nineteenth century the growth of population and industry were rendering many of the town’s ‘regular’ sources obsolete.\textsuperscript{14} From 1824 a private water company met some of the town’s needs from a source in Bolton’s hinterland. The charges of the company, however, were considered excessive by many, while the heightened conflict that marked local politics in Bolton across the second quarter of the nineteenth century further compromised its ability to serve the town efficiently. The company was taken

\textsuperscript{13} Manchester Central Library, M 231/2/1 (minutes of the waterworks committee, vol. 24), statement to the committee, 3 Sept. 1878.

over by the town council (the corporation) in 1847 and with the stabilization of Bolton’s political life being effected by 1850 the prospects for the development of an adequate supply of water were good. The moorlands to the north of Bolton constituted an ample catchment area, were underlain by impermeable rock, and received a high rainfall. From such easily accessible sources the improvement-minded administrations that now dominated Bolton’s political life calculated that they could comfortably supply the town. But in attempting to develop these sources they came into conflict with a number of interests situated beyond the corporation’s boundaries, the strongest of which were the numerous bleachworks which had located there to take advantage of the plentiful supplies of soft, clean water. The conflict between the town corporation and these interests ensured that the push to assure the town’s supplies was long delayed and, in fact, was not resolved until the completion of the Wayoh reservoir in 1876.

III

In many northern industrial towns, the years between 1825 and 1850 were ones of heightened social tension. However, while the struggle between middle class and working class was occasionally violent, in Bolton at least it was not the predominant local political rivalry. This occurred between petit-bourgeois and middle-class political activists, among whom conflict was at times sufficiently intense to impose serious constraints on the smooth operation of local government. Between 1827 and 1836 a radical petite bourgeoisie fought a vigorous campaign to open up the local political system to a greater degree of accountability. Then, from 1837 to 1850 an ascendant group of Liberal Dissenters struggled for supremacy in local affairs with the entrenched Tory Anglican oligarchy. With petit-bourgeois activists

16 Garrard, Leadership and power.
concerned to see stringent economies in all areas of public expenditure, and with the local water company (established in 1824) being owned and controlled largely by Conservatives, it was perhaps inevitable that conflicts over water figured prominently in these political struggles.\(^{17}\)

In order to understand how water featured in the campaign of the petite bourgeoisie to make areas of local government more accountable, it is important to understand that before 1850 power in Bolton was distributed across a range of parochial and manorial institutions.\(^{18}\) As far as public health and water issues were concerned, the two main bodies were the Great Bolton Trustees, responsible for the larger of the two townships that constituted the town, and the Little Bolton Trustees. Both bodies had been oligarchic in character. In 1830 an Act of Parliament made the Little Bolton Trustees more open by providing for the annual election of at least one third of the trustees at a public meeting of ratepayers.\(^ {19}\) This was sufficient for radicals and Liberal reformers to gain control of that body. The Great Bolton Trustees, however, continued to be Tory-dominated and resistant to pressure to make that body more open in character.

The two sets of trustees had the powers to develop their own water supplies. By the early 1830s neither set of trustees had exercised any options in this respect, other than in providing some public wells. The problem for the Little Bolton Trustees was that while they could supply water to that township, they had no powers to charge for it. The trustees of Great Bolton had these powers, but chose instead to purchase water from the private company.\(^ {20}\) What angered the radicals was the way in which certain members of the Great Bolton Trustees apparently profited from this situation. For when the Bill authorizing the water company received the royal assent in June 1824, seventeen of the Great Bolton Trustees were

---

19 *Bolton Chronicle* [hereafter B.C.], 10, 17, 24 Apr. 1830.
shareholders. Therefore, as the Liberal Richard Kynaston subsequently commented, having become contractors with themselves for the town's water, 'It became their interest to neglect the springs and public pumps, for the supply of the poor inhabitants, free from charge, and to force on them the payment of a high rate of charges.'

Demands by radicals and ratepayers in the early 1830s for an improvement of supplies came to nothing at this stage.

Eventually, following pressures from philanthropists and poor-law administrators, a waterworks was constructed on Bolton Moor in 1842–3. It enabled water to be delivered to certain points in Great Bolton, yet this did not signify an end to the water controversy. If anything, from about this time onwards until 1850, water featured more prominently in Bolton's internal politics, as rival middle-class élites struggled for local political supremacy. Bolton's rising group of middle-class Liberal Dissenters wanted not merely the reform of the old country-orientated nexus of manorial, magisterial, and township authority, but its replacement by a more rational, representative, and efficient system of local government.

Up to 1842 the Liberals had achieved much in pursuit of their aims. They had won the allegiance of the radical petite bourgeoisie and many ratepayers. Municipal incorporation was achieved in 1838, although its legitimacy was not confirmed until the Boroughs Incorporation Act of 1842. Meanwhile, the local governmental system was still not adequately equipped to cope with the town's worsening sanitary condition. The public health of the town was now the object of increasing concern. The middle class overall agreed on the need for improvement, but the new town corporation, encountering determined opposition from vested interests, did not possess the necessary powers to achieve this effectively. The domination of the two sets of trustees, responsible for a single urban area, by rival political factions negated plans for a co-ordinated and effective sanitary and public health

21 Bolton Express, 15 May 1824; B.F.P., 13 May 1843.
23 Taylor, Popular politics, chapter 3.
24 Taylor, Popular politics, p. 77.
service. An effective improvement policy required the absorption of the trustees' powers by the town corporation, but at various times between 1843 and 1850 one or the other of these bodies steadfastly refused to be taken over by the Liberal administration or by the Tory one which succeeded it in 1844. Until 1847 Liberals, in trying to improve and extend urban facilities, also came into conflict with the privately-owned and Tory-controlled water company, which had supported the Tory petition against municipal incorporation.\(^{25}\)

Municipal incorporation thus did not automatically provide the Liberal town corporation with the necessary powers to develop a reliable water supply. The newly constructed Bolton Moor reservoirs could legally supply water only to Great Bolton; Little Bolton had no right of access to this particular supply. In any case the reservoirs were in sites which were subject to considerable contamination from nearby farms. Delivered free to the poor through twenty-seven public standpipes, there were frequent complaints that the water was 'of a nasty green colour' and so hard as to make washing expensive in the use of soap. It was felt to be fit only for street-cleansing purposes.\(^{26}\) The private water company supplied no free water to public standpipes, levied high charges, and in fact regularly prosecuted people for theft of water.\(^{27}\) As in many towns at this time, therefore, the state of the water supply constituted a serious obstacle to the improvement of public health.

The first serious moves to change this situation were made in March 1843 when the water company promoted a private Bill to increase the capacity of its waterworks.\(^{28}\) In response the town corporation promoted its own Improvement Bill, which contained provisions to develop a new municipal water supply at Heaton in direct competition with the company. The corporation also sought legislative amendments so that the rights of the company to let its works should be restricted

\(^{26}\) B.F.P., 22 Apr. 1843; B.C., 23 Jan. 1847; Entwistle, Sanatory condition, p. 67.
\(^{27}\) B.C., 8 Sept. 1832; 17 Aug. 1833; Entwistle, Sanatory condition, p. 66.
\(^{28}\) B.F.P., 18 Nov. 1842; 11 Mar. 1843.
to the corporation alone. The threat of the town’s plans for a municipal supply led the company to make concessions, and it agreed that its option to let should be limited to the corporation.29

Meanwhile, however, the corporation’s Improvement Bill, under which the Great Bolton and Little Bolton Trusts would be merged with the corporation, was lost after Conservative councillors came out in opposition. They contended that the corporation was not legally entitled to fund the parliamentary expenses of the Improvement Bill out of the borough fund. This was sufficient to see off the Bill. It seems clear that the Great Bolton Trustees were really behind the opposition, much to the annoyance of the former Liberal mayor, the Unitarian manufacturer Charles Darbishire, for whom the eradication of the ‘corrupt’ Great Bolton Trust was the main object of the Bill.30

Thus the attempts of the Liberal corporation to improve municipal services had been damaged by the determined opposition of party and vested interests. Yet the Conservatives found themselves in a not too dissimilar position after they came to power in 1844, when action from the Liberals threatened the water company’s position. In August 1845 the Liberals revived the proposal to develop a source at Heaton, now as a private venture. For a while it looked as if Bolton might be served by two competing private water companies, separately controlled by the rival middle-class élites. The company was able to avoid this situation only by agreeing to reduce its charges and by purchasing the rights to the Heaton project, all of which was much to the satisfaction of the Liberals.31

Soon after this, however, the Tory corporation negotiated an option to purchase the water company. To Liberal and radical sources, the reason for what was so clearly an amicable arrangement was evident in the option’s terms. Many Tory councillors who voted for the purchase in 1847 were shareholders in the water company and therefore stood to

29 B.E.P., 11 Nov. 1843.
gain substantially from a purchase price which, at £170,000, was possibly some £50,000 above the real value of the waterworks. The solicitor who advised the water company, and the town clerk, representing the corporation in the matter, were the same person, James Watkins. Momentarily there was intense indignation among some Liberals and radicals at the apparent machinations of Tory councillors over the water scheme. In the event, opposition to the corporation’s takeover and expansion plans was not sustained. Many Liberals swung around to the view that the present supply was no longer adequate for the needs of both people and industry and were satisfied that the town had at last acquired a reliable and fairly cheap municipal supply, even one promoted by a Tory council. The water clauses passed through parliament.

Nevertheless, the town’s governance still remained the focus of party political conflict. While at one level Bolton’s élites were shifting towards something of a consensus on the need for an effective administration, at other levels the political factions continued to be embroiled in petty struggles. In fact, in the late 1840s it was the Liberals who were obstructive, resisting attempts to dissolve the improvement trusts and thereby undermining attempts to establish the corporation as a unitary authority. A variety of moves, countermoves, and concessions eventually culminated in such postures being abandoned. This occurred against the backdrop of serious outbreaks of typhus and cholera in 1847 and 1848, and the publication of a hard-hitting exposure of the town’s dire sanitary condition. A greater concordance than had hitherto existed among the rival middle-class élites over public health reform emerged. This facilitated the passage of the Bolton Improvement Bill through parliament with its main provisions intact.

The Improvement Act of 1850 was a major landmark in Bolton’s municipal history. The town corporation was now an

33 B.C., 14 Aug. 1847.
34 Entwisle, Sanatory condition.
effective and accountable governing body, with control over
the most important functions of local government. Its
establishment as the major multi-purpose institution of local
government did much to resolve internal tension within a
middle class which was now in agreement as to how the
town should be governed. Soon after it acquired the water
company in 1847, the town corporation moved quickly to
secure an abundant supply of soft, pure water on favourable
terms to large manufacturers situated within the borough,35
and now it was more favourably placed to deal with water
supply, sewage, and drainage problems. The demands of
ratepayers for fairer and lower water charges had now been
largely accommodated, and while economy-minded groups
might still criticize expensive municipal sanitary ventures,
the main internal obstacles to progress had now been
removed.

This account demonstrates that party political differences
undermined attempts to find an adequate solution to the
water supply problem in Bolton before 1850. Water became
a pawn in local politics but disagreement over alternative
schemes arose less from any genuine, reasoned, or
ideological differences over the appropriate form which the
solution to the water supply problem should take, and more
from factors associated with tactical political advantage or
even personal gain. Following the passing of the Bolton
Improvement Act of 1850, however, and the municipalized
development of water supplies after the takeover of the
private company in 1847, water virtually ceased to be,
within Bolton, the subject of party political struggle.
However, as will now be shown, as population and industry
continued to grow, forcing the corporation to continue the
push to develop water supplies in the town’s hinterland, the
main problem now became the opposition of vested landed
and industrial interests situated beyond the corporation’s
own administrative boundaries.

35 Bolton Archives, AB/25/1/1, vol. 1, records of Bolton waterworks
department, minutes of waterworks committee, 7 Jan., 25 Nov.
1848.
IV

After 1850 the whole context in which water resource development occurred tended to change, not only in Bolton but in many other parts of the country. That improved water supplies could yield major public health, economic, and social benefits was recognized, and schemes were promoted more energetically than before. While before 1845 only ten municipal corporations had assumed responsibility for developing their towns’ water supplies, over the years from 1846 to 1855 a further twenty-nine did likewise, and similar rates of increase were recorded throughout the mid-Victorian period: twenty-two over 1856–65, sixty-six over 1866–75, and sixty-eight over 1876–85. As has been seen, a fairly stable, if weak and hands-off regulatory framework governing the activities of water undertakers had been created by general and local Acts of Parliament. This regulatory environment encouraged water authorities to engage in a fairly chaotic scramble to secure control over water sources as they searched further afield for supplies. As they did so, the character of the disputes over water changed, becoming more fundamental in nature and springing from the essentially antagonistic interests of the main groups of water users. The boroughs who wished to impound and extract water from rivers in rural and semi-rural locations came into conflict with manufacturers and others who owned land and enjoyed long-established riparian rights to such waters. Threatened by new source developments, these interest groups endeavoured to get the best terms out of the parliamentary process of scrutiny and authorization. Hydrological and regional needs were lost sight of in this process. Nowhere was the conflict more apparent than in the Bolton district, a major centre of the Lancashire textile manufacturing and finishing industries.

To compensate millowners for the development of water supplies, parliament typically required, as has been explained, the reservation of up to one third of the total yield of an impounding scheme as compensation water. In the case of the

waters impounded by the Great and Little Bolton Water Company to supply Bolton, a portion of two thirds had been exceptionally imposed. By the Act of 1824 which established the company, the proprietors were empowered to take water from a local stream and were obliged to construct a reservoir at Belmont to provide compensation supplies to the millowners. The company was required to deliver approximately 60 per cent of the flow during the working day to the millowners. If this provision was generous, the proprietors of the company suffered further when they expanded their operations in order to meet rising demand. In 1835 the company constructed waterworks which, however, drew water from land it did not own. The scheme potentially threatened the interests of a number of industrial concerns located in the catchment, with the company abstracting up to six times the amount of water it was entitled to. However, once the millowners flexed their muscles they soon forced the company to heel. In return for being allowed to abstract this water, the company agreed, under an Act of 1843, to raise the embankment of the Belmont reservoir. The enlargement gave the millowners an ‘extraordinary amount’ of compensation water, the amount discharged now rising from an average of 1,834,000 gallons per day (gpd) to 3,438,675 gpd, which was more than twice the amount the company had available to supply the town.37

The town council, having inherited this situation with the acquisition of the water company, found life no easier as it tried to expand supplies. As the quality of local sources continued to deteriorate amid industrial and urban expansion, improved supplies from further afield were required not only to meet growing domestic and sanitary requirements, but also to satisfy the requirements of traders and manufacturers situated within the borough for water of a reasonable quality.38 The corporation struggled to meet their needs, and the first moves in a bitter series of conflicts with vested interests situated beyond the borough boundaries were made in 1852.

37 Bolton Archives, ABPP/6/9, Bolton Improvement Act 1854, minutes of evidence.
38 B.F.P., 17 Jan. 1846; B.C., 12 Feb. 1853.
When the corporation purchased the water company, the supply of water at its disposal—1,500,000 gpd—was considered ample, but continuing demographic and industrial expansion led consumption to approach this by 1854. The situation, moreover, was aggravated by shortages due to drought between 1852 and 1854. The corporation was forced to neglect important sanitary functions such as the flushing of sewers, and to give priority to domestic consumers over industrial concerns. From the winter of 1852 the corporation progressively reduced the urban millowners’ supplies, until by June 1854 they were entirely cut off. This led to some mills being forced to suspend production, publicans and manufactories reopening the shafts of long-disused wells, and some town millowners resorting to the use of ‘filth’ from the sewers for steam-raising purposes. Thus, drought conditions and compensation awards led to the fate of industry’s claims upon water resources being sharply differentiated between town and rural manufacturers.

To redress the shortfall the corporation prepared a scheme to expand supplies by 2,500,000 gpd by building new reservoirs to the north of Belmont. The proposals were submitted to parliament in April 1854. The millowners did receive surface water from the gathering grounds that the corporation wished to acquire, but, according to Joseph Jackson, engineer to the waterworks, they received much of this very intermittently in the form of ‘great floods’, most of which simply ran away, ‘doing them no good whatever’. It was anticipated that the millowners would in fact benefit from the provision of a regular supply of compensation water. The millowners, however, contended that any taming of the flood waters would severely damage their interests. In particular, fourteen bleachers situated on the Eagley brook and the river Tonge argued that a supply of pure water was essential to them. The periodic floods, it was maintained, scoured and cleansed the river beds, thereby obviating the need to filter water used for processing purposes. Millowners alleged that

40 B.C., 8 Apr. 1854.
the corporation’s project would prevent this happening and would be ‘fatally injurious’ to works.\textsuperscript{41}

It was ironic that the major polluters of the Eagley brook were in fact the bleachers themselves, but there was further opposition from other industrial interests on similar grounds, most notably from the proprietor of paper mills in Farnworth. T. B. Crompton’s plant consumed a vast amount of water—2,340,000 gpd in an unfiltered state for use in the initial phases of the manufacturing process, and 1,440,000 gpd of filtered water for the more advanced stages. This was drawn from settling lodges supplied from the Tonge. Crompton claimed that the corporation’s proposal would increase considerably the cost and difficulty of obtaining the necessary supplies of water.\textsuperscript{42}

The corporation reached an impasse in negotiations with the millowners and Crompton. Both of these now insisted that the only form of compensation they would accept was a piped supply from the corporation mains delivered in larger quantities than the corporation was currently offering, altogether an expensive option. The corporation, confident that parliament would adhere to its normal rule of thumb and grant that one third of the impounded water be discharged downstream in the normal manner, stood its ground and the water measures of the Improvement Bill passed through the Commons intact. But the millowners took their case to the Lords, where their pleas of impending ruination found more receptive ears. The Lords threw out all the new water supply proposals, and effectively required the corporation to increase provision from existing but increasingly inadequate local reservoirs. Given the urgency of the situation—the Lords’ rejection came at the same time as the worst stage of the drought—the corporation now had little option other than to develop the Heaton water and worked quickly to build an emergency culvert which produced 300,000 gpd by December 1854.\textsuperscript{43}

\textsuperscript{41} B.C., 15 Apr. 1854.
\textsuperscript{42} B.C., 15 Apr. 1854.
\textsuperscript{43} B.C., 15 Apr., 6, 13 May, 24 June, 1, 15 July, 9 Dec. 1854; 17 Feb. 1855.
The Heaton project (originally conceived in 1845 as noted above) was completed in July 1857. The reservoir provided for only a very modest improvement in supplies, with complaints about the quality of its water soon following, and demand continued to rise. By 1863 the capacity of the corporation waterworks was again nearing its limits, consumption having reached 2,200,000 gpd compared to a daily yield of 2,500,000 gpd. Accordingly, another Bill was submitted to parliament, the main objective being to extend the town’s water supply. Another attempt was to be made to obtain the rights to the Belmont scheme which had been defeated in 1854, and plans were also submitted to construct a reservoir on the Wayoh brook. The potential of the proposed reservoirs based on moderately extensive catchments was good.

This time the corporation got most of what it wanted, but only after conceding generous compensation and protection clauses to millowners and landowners. The Eagley millowners were to receive what they had demanded in 1854, that is a compensation supply of 40 per cent of the yield of the waters to be impounded, to be delivered through pipes. Millowners on Bradshaw brook, which was affected by the new scheme, also demanded and were granted a piped compensation supply. Many were textile bleachers and printers, using large amounts of water in the production process which they claimed must be pure to ensure business success. In similar fashion to the Eagley bleachers, they also deposited ashes and other pollutants into the watercourse, with the result that the bleachers lower down the Bradshaw brook received in turn a progressively deteriorating supply. As such most of them were forced to filter their supply, the costs of which were kept down by the flood waters of the Wayoh watershed. The proposal to impound the Wayoh brook was, therefore, potentially injurious to them in some respects. They were able, however, to secure most advantageous compensation terms.44

44 Bolton Archives, ABPP/8/6–9, 12–13, 15–16, Bolton Improvement Act 1864, aims of Bill, brief in support, minutes of evidence, various petitions in favour of and in opposition to the Bill.
From the new works the corporation would obtain a supply of 3,700,000 gpd, less than the compensation delivered to millowners of 3,827,140 gpd of water. In 1865 the corporation acquired legislation to enable it to extend supplies to several of Bolton’s adjoining townships. The Bradshaw brook millowners, affected by this proposal, seized on what appears to have been careless and unwarranted wording in the parliamentary measure to squeeze the corporation further by demanding the delivery of ‘clear’ compensation water, as stipulated in the authorizing Act of 1865. Following action taken through the courts by the millowners, the corporation was obliged to deliver filtered washing water, a form of compensation that was without precedent, necessitating a municipal capital expenditure of £20,000 on filtration plants and an annual expenditure of £400 to maintain them.45

The new project proved to be an expensive venture, the final costs amounting to over £338,000. In 1871 angry town councillors publicly denounced it as a ‘great mistake’ and ‘a huge swindle’.46 But the opening of the reservoir in 1876 at least put the corporation in a position from which it could more easily keep pace with the growing demand for water. A total of 7,000,000 gpd was now available for the supply of Bolton and some of its adjacent townships. This did not mean an end to conflict over water, which continued to feature prominently in Bolton politics up to and beyond the opening of the new reservoir. However, as regards the supply to the town itself, most of the main obstacles had now been overcome. The major conflicts and developments of the last quarter of the nineteenth century were mainly concerned with the attempts of areas neighbouring Bolton to gain an access to its supply.

For towns like Farnworth, Westhoughton, Leigh, Hindley, and Atherton access to an outside supply was crucial if they

45 Bolton corporation waterworks undertaking, p. 22.
46 Bolton Journal, 4 Nov. 1871.
were to continue to expand and prosper.\textsuperscript{47} By and large they had to struggle to achieve this. In the early 1870s, for instance, there was a series of conflicts involving Bolton corporation, the South Lancashire Waterworks, and Richard Ainsworth, the largest bleacher in Lancashire and owner of a particularly voluminous private water supply. In 1871 the corporation abandoned plans to lay on a supply of piped water to the South Lancashire Waterworks Company after opposition from Ainsworth, who was demanding excessive compensation in return for access to his water and land.\textsuperscript{48} A dispute in 1872 was more amicably settled when the corporation, seeking powers to extend its mains through Ainsworth's land in order to lay on a domestic supply to the high-lying points of the townships of Heaton and Halliwell, agreed to insert clauses into its Improvement Bill that safeguarded Ainsworth's existing water supply facilities.\textsuperscript{49} Ainsworth's storage reservoirs had a combined capacity of 90,000,000 gallons and his works used a total of 1,500,000 gpd. So Ainsworth had enough water to supply his own needs and the eighteen townships (many with fairly sizeable populations in urgent need of outside supplies) which the South Lancashire Waterworks Company was proposing to supply in the Bill which it promoted in 1876. This particular plan never came to fruition, and it was left to the corporation of Bolton gradually to extend supplies to neighbouring townships in need of supplies. Thus in order to satisfy these new requirements the search for water continued, despite disgruntled misgivings from certain councillors.\textsuperscript{50}

Bolton corporation gradually got on top of its water supply problem. By gaining the authority to develop water resources situated to the north of the town, it was able to respond to the town's growing domestic, sanitary, and trade demands in the

\textsuperscript{47} Bolton Archives, ABPP/7/35, Bolton Improvement Act 1861, testimony of Harrison Blair.

\textsuperscript{48} Bolton Journal, 4, 25 Nov. 1871.

\textsuperscript{49} Bolton Archives, ABPP/12/10/1, 12, Bolton Improvement Act 1872, R. H. Ainsworth's petitions against the Bill; ABPP/12/17/2, agreement between Ainsworth and Bolton corporation.

\textsuperscript{50} Bolton Journal, 4 Nov. 1871.
years to come. But it had managed to achieve this only by conceding extremely generous participation in the yields produced by its new waterworks. This was the outcome of having to face up to a powerful pressure group in the form of those proprietors of riparian rights who owned mills and land in the water catchments, who were adept at persuading parliament of the necessity of upholding their claims. The House of Lords was especially receptive to the pleas of millowners that the impounding of streams without adequate compensation would ruin their enterprises. In the event the compensation rates that were set were generous. This was also the case in nearby Bury, where similarly high compensation rates compromised the efficiency of the town's supply. As one exasperated witness bemoaned, 'Of course a millowner would like to have the Atlantic at his disposal.' And indeed across the country the millowners did very well out of the bargain. As a result of the terms under which the new waterworks were authorized they enjoyed regular, guaranteed supplies of water. The new works provided protection against the intermittent and generally unpredictable effects of flood, while in many instances the legislation required that many riverside factories should be provided with a supply of piped, clean water, thereby protecting them against pollution caused by other factories located upstream. The water industry was less favoured by these arrangements. There is little doubt that the compensation agreements established in the Victorian years adversely affected water supply and distribution patterns. The fact that up to two thirds of the yield of any new scheme might have to be reserved to meet compensation awards certainly contributed to the competitive scramble among local authorities to secure and fully to develop catchments. For example, a powerful factor in Manchester’s decisions in the 1840s to acquire control of virtually all the gathering grounds in Longdendale and to devise a considerably bigger system of reservoirs than originally envisaged was the initial opposition of the millowners to the proposal and the need to make

51 House of Lords, Minutes of Select Committee on Bury Corporation Bill, p. 25.
substantial provisions for compensation water. Silverthorne’s complaint that the demands of the mill owners for compensation supplies led to the promotion of excessively large and costly projects in Lancashire and Yorkshire in this period (Bolton and Sheffield being particularly singled out) was polemical in tone. However, the fact that no less than 48 per cent of the total yield of nineteen municipal waterworks developed before 1884 for which data are available was reserved for compensation supplies suggests that it cannot be dismissed out of hand.

Having to allow for compensation deliveries was not, of course, the only factor which led local authorities anxiously to seek out and develop new sources after 1850. Their statutory responsibility to respond to growing demand, and the permissive, effectively ‘first come, first served’, method of allocating sources contributed to the scramble to acquire control over catchments. The rapid, unregulated development of water resources led to cities and large towns obtaining the means to satisfy their own requirements, but smaller communities could be denied use of convenient sources and other irregularities in provision might result. For example, rivalry for reservoir sites led Halifax and Bradford into conflict in 1869, both disputing each other’s claims to the Ogden catchment. As Sheail has stated of the West Riding of Yorkshire, ‘The relationship of gathering grounds to distribution areas, and the way in which trunk mains crossed and re-crossed one another, illustrated the lack of collaboration between many of the undertakers involved.’

Bolton does not illustrate the tendency of large local authorities to deny smaller communities the use of natural gathering grounds, as the resources it developed lay in sparsely populated districts immediately to the north of the

52 J. F. Bateman, History and description of the Manchester waterworks (Manchester, 1884), p. 204.
54 Calculated from data summarized in Hassan, ‘Growth of water industry’.
town and the corporation was, if in the face of certain parochial objections, prepared to promote schemes that extended supplies to neighbouring townships. However, the experience of the neighbouring Irwell valley did illustrate the problem. Here the communities located on the upper reaches of the river, such as Haslingden and Rawtenstall, were long denied adequate supplies of water, despite being close to good gathering grounds which provided supplies by mains to big brother Bury. Only about one third of the population in the area received piped supplies in the 1890s, these communities not being privileged by the kind of exceptional arrangement provided for in the Thirlmere scheme discussed below. Reflecting the greater financial and political muscle of the larger boroughs, an enormous discrepancy between urban and rural water provision did emerge nationally, so that in 1914 only twenty-nine out of over 1,100 boroughs and urban districts were without piped supplies, in contrast to the 62 per cent of 12,689 rural parishes which still lacked this service.

As more convenient sources became fully utilized, water undertakers were forced to look beyond local river basins to meet growing demands. The extreme examples of this tendency, representative of a new phase in waterworks development, were the long-distance gravitation projects which brought water to Manchester, Liverpool, and Birmingham from sources 106, 68, and 74 miles away respectively. Developed between 1879 and 1904, these fixed-site schemes, with their long aqueducts, were outstanding examples of Victorian engineering. By exploiting distant catchments they helped water consumption per head in the three cities to triple in the half century prior to 1913. To later water planners, however, these projects came to be regarded as costly and inflexible. They stemmed from the attempts of relatively powerful boroughs to secure their own

56 For example, Bolton Archives, ABPP/12/10/13–14, petitions against Bolton Improvement Bill (House of Lords), 1872.
57 House of Lords, Minutes of Select Committee on Bury Corporation Bill, pp. 92–3.
58 Hassan, History of water, pp. 14, 57.
59 Hassan, History of water, p. 53.
sectional interests by pre-empting others from acquiring control over gathering grounds. Birmingham secured control over catchments in central Wales in the 1890s, for example, with the potential to exceed the city’s likely needs for many decades.\(^\text{60}\)

However, the scale of the works promoted by Manchester, Birmingham, and Liverpool was so great and issues of such public interest were involved—significant environmentalist and even proto-nationalist objections were raised—that parliament devoted more attention to the proposals than was usual for water Bills. Authorization involved a more wide-ranging debate and a more subtle accommodation of interests than the relatively straightforward settling of the antagonistic claims between millowners and water undertakers that had typified most parliamentary deals. For example, the 1878 Act approving the Thirlmere scheme allowed nearby local authorities to draw water from the aqueduct when they had no other sources of supply, and therefore represented a first step towards the principle of bulk supply and co-operation among local authorities. However, it should be noted that initially Manchester had no intention of trading Thirlmere water with any other district, the concession being drawn out of, if not imposed upon, Manchester by the process of parliamentary scrutiny. The corporation acceded to the Select Committee of Inquiry’s recommendation in the context of passionate arguments by the well-connected Thirlmere defence movement that the works would cause immense damage to scenery of national importance. Manchester therefore felt obliged in response to promote the damming of the lake as part of a worthy public scheme of great collective value, and altered its plans for the distribution of the water accordingly.\(^\text{61}\)

A more flexible approach to compensation supplies was also incorporated into the Liverpool and Birmingham water supply Acts, with the needs of fisheries and the river systems as a whole, as opposed to simply the

---


clamorous demands of industrial millowners, being taken into account.\textsuperscript{62}

That parliament by the early twentieth century was beginning to provide protection for a wide range of interests in its approval of major new schemes did not, however, do anything to remedy the defects which had been built into many earlier settlements. In some instances local authorities might succeed in renegotiating compensation awards and thereby obtain a useful increase in the effective yield of existing waterworks. As early as 1859, for example, millowners agreed to a reduction in compensation supplies from Longdendale on payment of £50,000, which enabled Manchester to draw an extra 4,600,000 gpd from the reservoirs at a time when total water consumption was 11,000,000 gpd.\textsuperscript{63}

Frequently, however, riparian interests proved resistant to such accommodation, and the legacy of indulgent compensation awards continued to plague water managers. Bolton corporation itself found it necessary in the early twentieth century to increase supplies to the town, and in 1905 and again in 1922 it promoted Bills which would have had the effect of allowing it to deliver some compensation water from downstream sources, making available more, less polluted upstream supplies for town consumption. Again, strong opposition from millowners, who valued the high quality of their existing compensation supplies, forced the corporation to settle for considerably less than originally hoped. The net effect of the 1922 legislation was that the corporation still had to release 3,400,000 gpd for compensation purposes from Belmont reservoir, with only 1,100,000 gpd available for town supplies.\textsuperscript{64}

Nevertheless, by now the flaws inherent in many water supply schemes approved in the previous century were widely recognized. In 1923 an advisory committee on water, which reported to the Minister of Health, spoke of the need to

\textsuperscript{62} Sheail, 'Constraints on water development', p. 356.
\textsuperscript{63} Manchester Central Library, M232/2/8, E. A. Armitage, 'Report regarding Etherow millowners claims', 14 Dec. 1859.
\textsuperscript{64} Sheail, 'Constraints on water development', p. 358.
‘abolish’ the ‘arbitrary’ practice of reserving some one third or more of a waterworks’ capacity for compensation supplies. Although it subsequently tempered its position, the committee nevertheless maintained that generous compensation awards led to a serious under-utilization of resources and in 1930 lamented the prevalence of nineteenth-century arrangements which it described as obsolete, unfair, and wasteful. It proposed a formula for calculating awards which would have had the effect of reducing compensation supplies by a half. Parliament, however, still much exercised by the defence of property rights in this period, was not yet persuaded of the need to address the problem actively. Only minor adjustments to compensation arrangements were made during the inter-war years, and only with the passing of the Water Act of 1945 was the means provided for a resolution of the problem of overgenerous compensation supplies.

This study underlines the need to take full account of the interplay of political and economic forces in a history of the water industry. In the early Victorian period the task of improving water services was compromised by the manner in which attempts to develop water supplies were drawn into the labyrinthine world of party political and interest group politics. From mid-century, in order to secure control over catchments and expand supplies, northern local authorities in particular were obliged to make substantial concessions to riparian interests so that a significant part of the yield of waterworks was unavailable for the urban consumer. The physical and organizational solutions arising from the struggles among competing interests to gain control over water resources during this formative period had, therefore, long-lasting consequences for the water industry.

65 P.R.O., HLG 50/81, minutes of first meeting of advisory committee on water, 18 Jan. 1923.