Troubled Waters

Part One - The Cheltenham Water Works Company

1. Growing Pains

In the early 18th Century Cheltenham was a small village with a market, some 320 homes and about 1,500 people. It was undistinguished, with thatched cottages strung along a long High Street, down the centre of which ran a rivulet diverted from the Chelt at Cambray Mill. This served as an open sewer, which could be negotiated by stepping-stones. As the Charlton Kings schoolmaster, Frederick J. Perry, commented in 1853, *"A hundred years ago, water ran through the principal street; and, in hot, dry weather, frequently stagnated and became very offensive. The houses were inconvenient and unnumbered and the accommodation for visitors extremely mean."* The discovery, or rather noticing, of the mineral springs which forced their way up through the underlying lias clay and overlaying sand deposits changed Cheltenham's character completely. Taking the waters for health reasons was already much in vogue, both in England and on the Continent. The waters were analysed in 1721 and the results published in London and other towns. Cheltenham springs were hailed as better and more salubrious than others and for the next 50 years Cheltenham became a desirable summer destination for people of quality. The flow of visitors was welcome but seasonal and the town grew slowly. It was only towards the end of the Century that a combination of the Paving Act of 1786, enforced by 58 newly appointed Town Commissioners, and entrepreneurial development provided residences, places of entertainment, streets and paved footpaths sufficient to persuade the nobility and persons of distinction to settle more permanently in the town and its environs. Even so, by 1801 the population of Cheltenham had reached only 3,076 (730 in Charlton Kings), which was hardly an explosion. The prolonged visit of King George III and his family in 1788 put the name of Cheltenham firmly on the map for people of fashion. As new springs were discovered, fine spa buildings arose to serve them. The preamble to the Improvement and Paving Act of 1806 notes that *"Cheltenham had for near a century been a place of great publick resort and was likely to increase."* This Act gave the town an increased number of Commissioners and some limited powers of compulsory purchase of property. A Scavenger was appointed to clean the streets, the dust of which was apparently of a type particularly obnoxious to fine ladies. In 1826 one William Edmunds entered into a contract with the Commissioners for watering the town. The lengthy document listed first the important roads, which had to be watered twice daily, by 9 a.m. and by 4 p.m., and some lesser roads, which had to be done once only and by 4 p.m. The roads were to be well and sufficiently watered in an effectual and complete manner, so as to keep the dust thoroughly and constantly laid in dry weather, from gutter to gutter. The contract ran for a year from April to November, then starting again on 1 March, or as soon as the roads should be in a state requiring the same. Should he at any time omit or neglect to water the aforesaid roads,

The Mythe, Tewkesbury, in 1870; Mythe Bridge toll-house; and Telford's Mythe Bridge over the Severn. In the background, the Borough Mills and Tewkesbury Abbey. View from The Mythe Tute.

the sum of £1 was to be deducted from his pay. However, the Scavenger never had enough water, since the owner of Cambray Mill, William Barrett, was unwilling to open the sluice which released the rivulet, which now ran down the gutters, rather than the centre, of the High Street. In 1807 he agreed to do so, provided he was indemnified against claims from the three mills further down the Chelt. He later reneged on this. Up to about 1830 the Industrial Revolution had relied on water power but thereafter the strength and reliability of steam power became dominant. Millers and mills were coming to the end of their era of importance and some already had steam engines for use when the water supply was low, though they preferred to use the free water power. However, they had age-old rights, which they continued to insist on. Although the period of the Napoleonic Wars slowed development in the town, by 1811 the population had reached 8,225 and by 1821, 13,396, with Charlton Kings reaching 1,607.

The population growth continued to accelerate. There was plainly money to be made in developing Cheltenham but there were also difficulties to be overcome. One of these was the geology of the area. Some two thirds of Cheltenham and Charlton Kings lay on a damp sandbed which overlay gravel and blue lias clay, the latter forming an impervious natural basin. However, many of the areas available for high quality building development were situated on the blue clay base, without a sand deposit. These included Pittville, Marle Hill, Lansdown, Bayshill and Montpellier, and in Charlton Kings, Battledown. Those houses on the sandbed could draw spring water from their wells, though even there, there were areas where the blue clay broke through to the surface. There were differing theories concerning the source of this spring water; some said that it percolated from the surrounding hills. However, Edward Hull, the Government Geological Surveyor, was convinced that it came mostly from rainfall, with a small admixture from the River Chelt and other brooks. Hull reported that the sandbed was only 30 to 40 feet in depth on average; as building progressed and the natural filtration of rain was artificially hindered by the making of roads, sewers and streets, this supply of water would constantly decrease. Those houses on the blue lias clay alone could not rely on sinking adequate wells; experience showed success was unlikely, though some on the slopes of the hills could benefit from springs. In the main, the only way that these areas could be developed was by the provision of piped water. There was, therefore, a strong profit motive for the supply of water by the laying of mains to these areas. On 4 October 1823 it was reported that *"the town continues full and the winter arrivals begin to be very numerous; nearly every good house is being already engaged. A new Water Company is about to be immediately established, the reservoir of which will be Leckhampton Hill"*. This was only partly right: in 1824 a group of private individuals formed by Act of Parliament the Cheltenham Water Works Company. In so doing, they provided the infrastructure necessary for the further development of Cheltenham and indeed Charlton Kings. They also created three classes of water consumers: those who could pay for mains water: those who obtained their water free from private wells and those, notably the poor, who obtained their water where they could, either from a limited number of public pumps, streams or from a water carrier who sold from a cart. These differences were to bedevil any discussion on the provision of water for a growing population for the following fifty years.

Cheltenham's growth after 1815 was not unique: there was a rapid growth in the size of many towns throughout the nation, precipitated by the Industrial Revolution. However, the flight from the countryside brought with it over-crowding, poor housing, no proper drainage and polluted water and a sharp rise in the death rate. While Commissioners could clean up some of the main streets, the side streets, where most of the population lived, were beyond them. For the poor, disease, in the form of tuberculosis, typhoid, smallpox and scarlet fever, was always present and the situation was constantly deteriorating. In Glasgow a death rate of 28 per thousand in 1821 rose to 38 per thousand in 1843. Cholera came to England from the East in 1832 and claimed

some 18,000 dead, spreading through the slums with fearful speed. Doctors had no idea what caused it. In 1853 The Lancet asked, *"Is it a fungus, an insect, a miasma an electrical disturbance, a deficiency of ozone, a morbid off-scouring from the intestinal canal? We know nothing; we are at sea in a whirlpool of conjecture"*. Cholera became common in summer in Great Britain; it was mainly caused by drinking polluted water but leading medical opinion supported the view that it was a "miasma", the odours given off by rotting matter in unsanitary areas. Efforts to sweep all the filth into nearby rivers only served to facilitate the spread of the disease: other more fanciful solutions tried included firing off bags of gunpowder to disinfect the air. There was unrest in the cities, as the press reports of body snatchers caused many of the poor to believe that people were being removed to hospital to provide doctors with anatomical practice. Despite all this, there was strong resistance to enforceable sanitary reform, both in Parliament and among local authorities, where vested property interests stood firmly against any central authority. Under the 1831 Cholera Prevention Act, local authorities were entitled to require elementary sanitary precautions to be taken, though there was no means of enforcing them. Cheltenham had set up such a Board and escaped most of the worst effects of the epidemics, largely because its growth was not from industry and the town did not possess the network of crowded and filthy slum streets to be found in the more industrial towns and cities.

In 1834 the Secretary to the Poor Law Commissioners, Edwin Chadwick, a barrister friend of Jeremy Bentham and John Stuart Mill, who was convinced of the link between disease and poverty, began his report "Sanitary Conditions of the Labouring Population of Great Britain", which was produced in 1842. Among other aspects of urban life, it inquired into the water supply of fifty large towns; in six cases the supply was good, in thirteen indifferent and in thirty-one insufficient or impure. In Birmingham four houses out of five and in Newcastle eleven out of twelve houses were without water. In Liverpool there were two water companies, both paying high dividends, but the city had no fountains or pumps, no standpipes for street cleansing and not enough water to put out fires. Chadwick proposed a complete system of sanitation: fresh water from the rivers, constant supply and good pressure and water closets for every house. The flow of water would take house refuse into the sewers and thence through new sewers to the edge of towns for use as liquid manure. The Prime Minister, Sir Robert Peel, set up a Royal Commission on "The State of Large Towns and Populous Districts". From this emerged two major proposals: firstly, the establishment of a new Government Department and secondly, a recommendation that the arrangements for the provision of drains, paving, and clean water supplies should be placed, in each locality, under one administrative body. This did not exclude a private enterprise body but it placed the concept of municipal ownership firmly into public consciousness. A Health of Towns Commission was set up in 1843 and was influential in promoting sanitary legislation. In 1848, spurred on by news that another epidemic of cholera was advancing across Europe, Parliament passed a Public Health Act. This established a Central Board of Health with powers to set up local Boards of Health in areas where the death rate was higher than 23 per 1,000 or where one tenth of inhabitants made application. It also authorised local authorities to provide their districts with water, where there was no existing supply in the hands of a company authorised by Parliament. Strangely, such enlightened legislation encountered substantial opposition. The Economist newspaper considered that *"suffering and evil are nature's admonitions; they cannot be got rid of; and the impatient attempts of benevolence to banish them from the world by legislation, before benevolence has learned their object and their end, have always been more productive of evil than good"*. The Public Health Act of 1858 transferred the supervision of public health to the Privy Council and finally in 1875 all public health issues were brought under one department, the Local Government Board. Sewage, drainage, water, infectious diseases, hospitals, prevention of epidemics now came under one body. Most importantly, all local authorities had to appoint a Medical Officer of Health.

Over the years this sequence of national legislation became the backcloth against which the conflict over the Cheltenham water supply was played out.

Important as they were, it is likely that these reforms would not have proved effective without Disraeli's 1867 extension of the franchise, both parliamentary and municipal. While there was a general spirit of reform in the nation, Parliament was dominated by landowners and shareholders, both in the Commons and in the Lords. Municipal authorities in the big cities were similarly run by narrow and often corrupt cliques, maintained in power at the town halls by restricted electorates, qualified by property ownership. By juggling the rules, landowners could obtain up to twelve votes, dependent on the amount of rates they paid. Disraeli's electoral reforms began to break them up with new electors. Interestingly, while the Liberal Party probably contained more enthusiasts for sanitary administration than the Conservatives, it was Disraeli the Tory who was the driving force in these matters. He well realised that if the Conservatives, hitherto a party of the Shires, were to get votes in the towns and cities, social reform was an essential policy. Gladstone the Liberal showed less interest in this area, since his priority was obtaining a settled and peaceful Ireland. This preservation of vested interest and crossing of party lines was also reflected among the Cheltenham Town Commissioners, where democratic principles came into conflict with old traditions of deference to wealth and position. The law of property had been paramount for centuries and grasping the fact that public utilities had sometimes to transcend an individual's property rights was something many found difficult to achieve. It was to be a slow learning process.

2. *The Water Works Company*

As early as 1810 there had been an attempt to establish a mains water supply for the growing number of dwellings in the town. Joseph Horwood, an engineer, placed an advertisement in the Cheltenham Chronicle on 5 December of that year: *"Should the inhabitants of Cheltenham think it of any utility, I will engage to supply the whole town with Soft River Water, at one guinea per year each dwelling house; with engine cocks, pipes, fire-plugs etc. complete. The engine shall throw two hogsheads per minute, when required, in case of fire. People who wish such a plan to be brought forward, and would have the water laid into the dwellings, must send in their names to me, any time before 25 December next, in order to form an idea of the expense of completing such Works; and should it meet due approbation, the whole will be completed by the 1st of May by your obedient and humble servant."* It was not at all clear from which river Joseph proposed to draw his soft water, presumably the Chelt; however, not enough people wished such a plan, since at that time well water was plentiful and free. By the mid-1820s the population had advanced by some 6,000 in Cheltenham and doubled in Charlton Kings to nearly 2,000 and the lack of water was being more keenly felt. In 1824 the Cheltenham Water Works Company was formed by an Act of the Fifth year of the Reign of King George IV, entitled "An Act for better supplying the Town and Neighbourhood of Cheltenham in the County of Gloucester, with Water". It had a board of directors who formed a management committee, a civil engineer as superintendent or manager and a work force. The Company raised capital by selling shares at auction, the price being determined by their attraction to the public. Originally the capital was £17,500, raised by shares of £250, with a power to raise in addition £13,750. For the first few years, while creating the water infrastructure, it did not pay any dividends. Under the original Act, the Company spent £49,100 on the Works and under the amended Act, up to the year 1849, a further £12,500, making a total of £61,600. After the initial development, a dividend of between 7½ and 8% was paid, which was considered outrageous by

Cheltenham Water Works Company.

FIFTHS.--£50.

Number 79

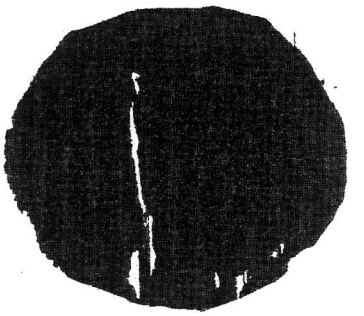
These are to Certify that under an Act passed in the 10th year of the Reign of Queen Victoria, intituled "An Act for authorizing the "Cheltenham Water Works Company to raise a further Sum of Money." John Eldridge of Cheltenham in the County of Gloucester Esquire - - - - - - - - - is the Proprietor of a Fifth Share of Fifty Pounds in the said concern Numbered as above, and that he and his Executors, Administrators, and Assigns, as the Proprietor of such Share will be entitled to a proportionate Share of all Profits and advantages in the said Concern.

Given under the Common Seal of the said Company, the fourteenth day of January, 1848.

Witness.

J. Eldridge

Clerk to the Company

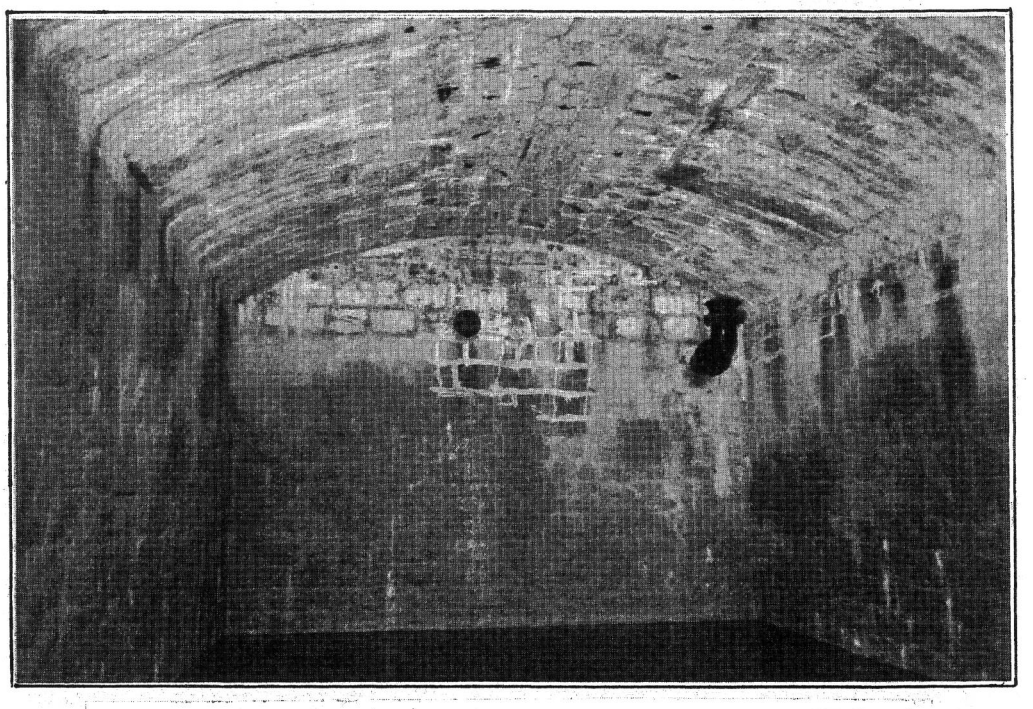


A certificate for a fifth part of a £250 share in the Water Works Company, issued in January 1848. In 1847, the tenth year of Queen Victoria's reign, the Company, under pressure because of its erratic water supply, obtained a further Act, enabling it to raise capital to build a third reservoir at Hewletts. No. 3 Reservoir cost £7,000. The £250 shares soared to a high of £455 in 1853, before falling to £350 in 1854, owing to uncertainty as to its future. John Eldridge, Esq., chaired the Management Committee of the Company until 1854, when Edward Shewell took over. The Clerk to the Company was Mr. G.A. Williams, not to be confused with Mr. G.E. Williams, who became Clerk to the Commissioners in 1852.

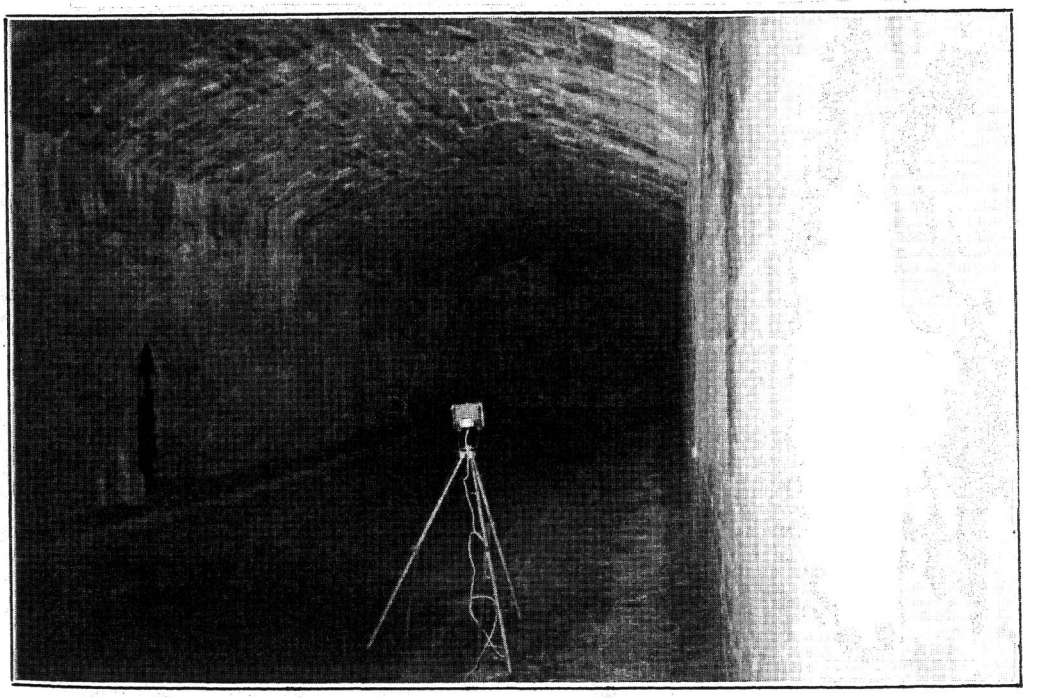
those not receiving it but made the Company a most attractive investment. Under the Act of 1824 the Company was permitted to purchase land up to 20 acres but initially it purchased about five acres of land in the vicinity of the pike house at Hewlett's Road (now Harp Hill) in the Parish of Charlton Kings. This area was chosen because it was 100 feet higher than Bayshill, the highest point of supply and 240 feet higher than the General Hospital, the lowest; water could therefore be supplied without the aid of machinery. Here an underground reservoir was built of stone with four chambers connected by arched openings. It was 80 feet square and 12 feet deep and had a capacity of 413,000 gallons. The reservoir was designed by James Walker of Limehouse, a distinguished civil engineer who had worked with Stephenson on the Liverpool and Manchester Railway. There is a bust of him in Rotherhithe. It was fed by Northfield spring water, said to be of high quality, and had no filtration system. Two miles of 7-inch and 6-inch iron mains led from the reservoir down Hewlett's Road (later Harp Hill) along Hewlett's Street to the junction with the High Street, where there was a Company-controlled turncock. Though now closed off at both ends, these original mains still lie buried in the verge of Harp Hill. Pipes and conduits took the water on from there to customers. The location of the reservoirs in Charlton Kings was of considerable rateable advantage to the Charlton Local Board. By 1858 the Water Company was paying £250 per year in rates for the reservoir and land, which nearly doubled the total rate collected. By 1882 this had risen to £10.41 for the then two-up, two-down house, occupied by Joseph Pearce, £551.16.0 for the land and £1,086 for the reservoir, a total of £1,630, by far the biggest contribution to the Charlton Kings Board of Health.

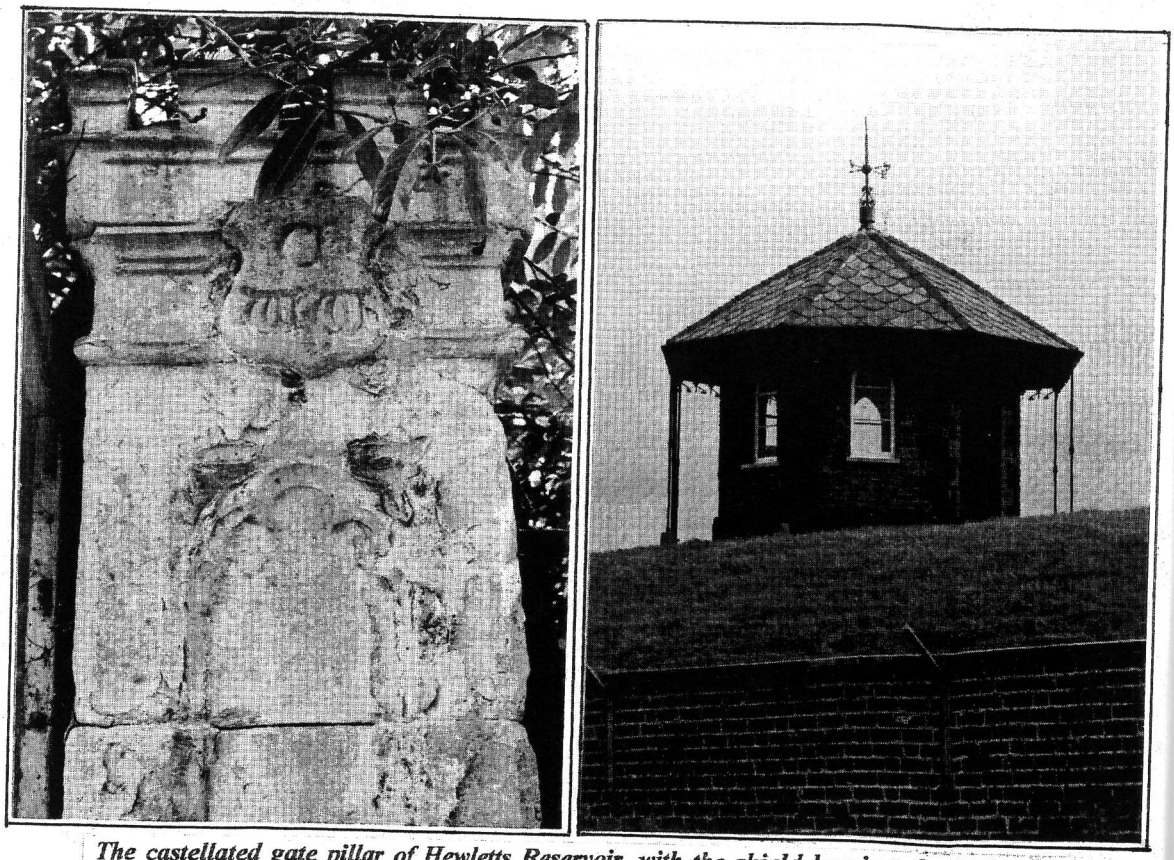
The water from Hewletts was known as "hill water", to distinguish it from the "spring water" from the sandbed. In respect of houses not able to draw water from the sandbed wells, the Company had a monopoly and could effectively dictate its own charges. These would be in the order of 4 or 5% of the rateable value of the house, with additional, and often heavy, charges for water closets, baths, gardens, carriages and stables. There would normally be one water closet, though large houses might have up to three, including a best (upper), lower and a basic model for the servants. Water closets had to have their cisterns filled: here mains water was an advantage, since otherwise servants would have to pump the water into the cisterns. However, the Company would not guarantee a constant supply of mains water and frequently did not provide one. The standard supply was of the order of two to three hours per day and some days there would be none. At such times the water closets became unusable and there were complaints that the houses in the clay districts were almost uninhabitable; this was seen as a real deterrent to the fashionable growth of the town.

An inquiry in 1838 by James Walker, the civil engineer who designed the first two Hewletts reservoirs, had recommended the taking of several springs, their use being compensated by five compensation reservoirs. These would, when filled, compensate current extraction from their holdings, thus levelling out the flow. The original plan, drawn up by the Company engineer, William John McIlquham, foresaw the abstraction of water from the spring near White's Barn, Prestbury, with pipes leading southwest to Hewletts Reservoir. From there a new main was to be laid down Greenway Lane to the London Road at Charlton Kings. The Prestbury plan required the construction of a compensation reservoir adjacent to the Upper Mill there. Three springs were to be tapped which fed the River Chelt at Dowdeswell: this required the construction of three more compensation reservoirs at Dowdeswell, as well as another to the north of the Cirencester Road near the spring sources of the Lilley Brook. However, there was determined opposition from landowners and mill owners in Charlton Kings and Prestbury and the Company, fearing expensive legislation, abandoned the Prestbury plan, all the compensation reservoirs and the main to Charlton Kings. They did, however, continue to pipe some water from Dowdeswell to Hewletts Reservoir. In the absence of these new sources, it was decided to increase storage

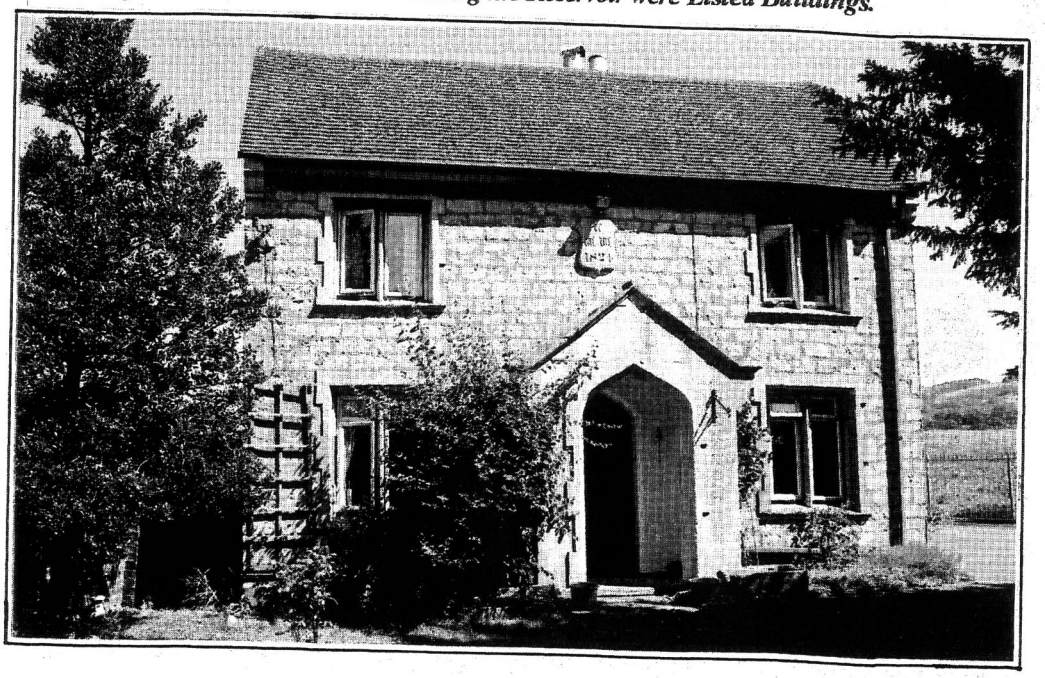


The interior of No. 1 Reservoir, built in 1824. Designed by James Walker, it is underground, built of stone and has four chambers joined by arched openings, one of which can be seen in the lower picture. Fed by local springs, it became the main source of supply to the Cheltenham Brewery. It became disused when the Brewery closed in the late 1990s.





The castellated gate pillar of Hewletts Reservoir, with the shield bearing the initials of Cheltenham Water Works and the decorative Custodian's office. Below, the Lodge, also bearing the Cheltenham Water Works shield with the date of construction of 1824. More modern accommodation has been added to the back of the building. Until recently, both the Lodge and the brick wall surrounding the Reservoir were Listed Buildings.



and in 1839 the Company secured another Act of Parliament enabling it to enlarge and extend the works at Hewletts Reservoir. It had been found that from June to September the supply of hill water was very limited and a second reservoir was built at the site, 150 by 160 feet and 12 feet deep, with a capacity of 2 million gallons. It was built of brick made from the clay excavated on the site and had seven interconnecting chambers. This drew its water from the same Charlton (Northfield) springs and from the Dowdeswell spring, which yielded some 46,080 gallons per day.

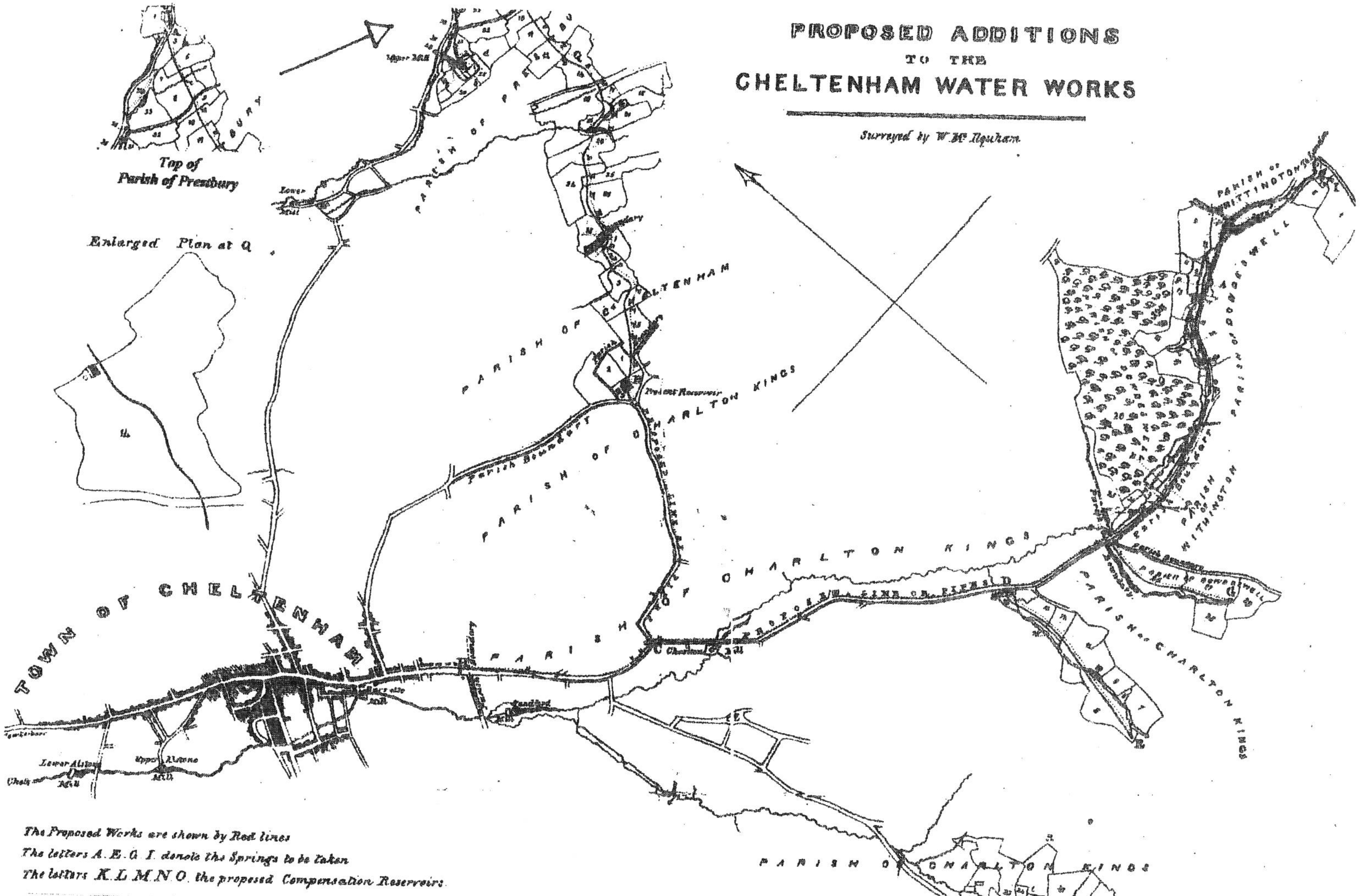
By this time the population had increased by some 15,000 since the first reservoir was built and the Company, although providing its shareholders with a good dividend, was still unable to provide a constant supply to its customers. Moreover, there was growing concern over the threat to wells in the sandbed from sewers and from the construction of railways. A Sewer Company had been formed by Act of Parliament in 1834 to attempt to remedy the almost total lack of proper sewage disposal in Cheltenham. Sewage was supposed to be dumped in cesspits, ashpits or middens and then carted out of town and either spread on farms or sold to be used as manure. In practice, farmers tended to collect only in winter and spring, allowing it to accumulate during the summer. Moreover, in the later 1840s the availability of imported guano as a fertiliser all but destroyed the market for urban sewage. Local authorities established nominal collection systems for the removal of nightsoil but the service was often unreliable. In practice, much sewage was simply buried in the sand or thrown in a waterway. In Cheltenham a main sewer, 2,200 yards long, was laid by the Company along the High Street, with branches off to the sides. The sewers were flushed with Chelt water and then returned the sewage to the River Chelt on the other side of the town, whence it made its way into the Severn. An alphabet poem in The Looker-On of 1839 included:

"C was the Chelt, underground now that flows,
Though hid from the eye, still it reaches the nose"

However, even this improvement was partial in its effect. By 1849 only 736 houses were served by the Company, out of some 6,500 in the town. The Chelt continued to be polluted by private sewers. More seriously, the construction of these brick sewers had the effect of lowering the water levels of the wells in the sandbed. Both sewers and railway cuttings through the sand drew water from wells much deeper than the cutting itself: thus an eight-foot sewer drained wells of ten and twelve feet along its course. Though some, especially the railway companies, disputed this, it did provide more customers and profits for the Water Works Company, although the latter continued to receive criticism for its failure to provide a constant supply. Already by November 1840 there were many complaints that the supply of water from Hewletts Reservoir was not adequate. In that month Colonel T. Charittie of Lansdown Place wrote angrily to The Looker-On:

> *Sir - I think it is high time to take some public notice of the disgraceful manner in which a great part of the inhabitants of this Town is supplied with water, more especially in the Lansdown quarter; and I take this opportunity of stating, publicly, that upwards of one hundred gentlemen are now making the same complaint, and that we are resolved, if an amendment does not immediately take place, that we will no longer be imposed on in this abominable manner, and therefore will not pay for it."*

The Colonel was not a man to be trifled with. The previous year he had fought a duel over an incident in a billiard game and fired his pistol up in the air to show his contempt for his civilian opponent's skill-at-arms. Fortunately for him, he was right. The Editor, publishing the letter



The plan produced for the Cheltenham Waterworks Company in 1838 by the civil engineer James Walker to augment their sole reservoir at Hewletts. It envisaged the capture of springs in Charlton Kings, Dowdeswell and Prestbury with five compensation reservoirs. Opposition from landowners and millowners was so fierce that it was dropped, for fear of expensive legal challenges.

under *"A Hint to the Cheltenham Water Works Company"*, said that he had had many complaints and thought it time to bring the matter before the public. If the existing company did not have it in its power to afford a remedy, then measures should be adopted to form another company, who would be more attentive to the interests and welfare of the Town. The Company reported that the grounds for these problems had been remedied: additional pipes had been laid from the springs at Dowdeswell to pump water to the Reservoir. Pipes were also being laid to another spring, which would prevent such inconvenience in the future. This was, however, wishful thinking.

In January 1847 an inquiry was held at the Fleece Hotel under the direction of the Commissioners of Woods and Forests for the purpose of investigating a proposed bill to enable the Water Works Company to raise a sum of money to further enlarge their works and provide a better supply. Mr G.A. Williams outlined the position of the Company, of which he was the Clerk. It did not intend to take any fresh springs but was seeking a money bill to enable it to increase its capacity, the existing capital being insufficient. The population since the last Census had reached 37,000, who occupied, according to the Poor Law assessment, 4,677 houses. 1,941 dwelling houses were supplied, with the water being turned on every day. The Hospital and the Orphan Asylum were supplied gratis. There were 180 fire-plugs (hydrants, though the term did not become the received form in Cheltenham until the late 1880s), which were laid so as to command a constant supply. There were no public fountains for the use of the poor but there were nine pumps, the property of the Town Commissioners, who used them to water the town. They could supply on average 30,000 gallons daily. The quality of the water, tested by Dr. Boisragon and Mr Moss, was considered excellent and no better supply could be had: there was a spring yielding a good supply on Agg's Hill but on analysis it was not considered good enough. The water of the sandbed was of inferior quality to this hill water. The greater part of Cheltenham was now entirely dependent on the Company supply and the number of the Company's customers was increasing at about 100 per year. Since the supply of hill water was so limited during the summer short water season, when there was a deficiency of 10 million gallons, the Company had determined to build another reservoir at Hewletts. The new third reservoir, which was designed by Henry Dangerfield, the Borough Surveyor, was open, covered three acres of land and had a depth of 17 feet 6 inches. It would hold 9 million gallons, supplied from Charlton and Dowdeswell springs. The Company sought for this £25,000, of which £7,000 would be expended on the reservoir, another part would go to discharging the mortgage debt and the remainder would be floating capital. The third reservoir was completed in 1847 and actually held 14.8 million gallons.

While there was no opposition to the Company's proposal, the major criticisms of the Town Commissioners to the Company's supply were brought forward. The main complaint was the lack of a constant supply at constant pressure. This was particularly important for fire prevention: although the Town had the identical keys to the fire-plugs, they did not have the key to the main turncock. The Company was not prepared to entertain this, holding that maintaining constant pressure would be the cause of more waste and leakage and that their system would have water available for fire prevention within five minutes. They claimed that the principal mains were always full and that when the theatre burned down, the engines were supplied with water by the time they were ready to work. Thomas Byrne, foreman to the Town Scavenger, Mr Haynes, deposed that for road cleansing, the Commissioners' pumps were often dry in the summer. The water then ran in at about two loads an hour, while they needed about 150 loads daily, each of two hogsheads (a hogshead of water being approximately 50 gallons). The Commissioners wanted a compulsory condition laid on the Company in these respects but the latter merely indicated that, if this was written into the proposed Bill, they would withdraw it.

Agg's, Dowdeswell and Prestbury with five compensation reservoirs. Opposition from landowners and millowners was so fierce that it was dropped, for fear of expensive legal challenges.

Dowdeswell to the Sandford Pumping Station, so that water could be pumped from there to Hewletts. This was to make available an additional 20,000 gallons per hour, which under Hewletts' head was of greater value than water straight from Dowdeswell. In 1960 the Borough Engineer reported trouble with birds: the tenant of Salts Farm was keeping a large number of hens on the embankment. Many were alighting on the reservoir and attracting other birds, with the resulting pollution. Under the terms of tenancy, the Council was permitted to take possession of one-twentieth part of the farm in any one year for the purposes of the water undertaking. The Engineer suggested that on acre of the embankment should be surrendered by the tenant and fenced off in the interests of the water supply. There was no more major work at Dowdeswell until 1986, when the matter of the subsiding dam, first raised in 1921 and subsequently shelved by successive Water Committees (see Chapter 41), finally came to a head. Following the 1963 Vaiont dam disaster in Italy, where a massive rockfall created a flood which overtopped the dam, there was a subsequent European Union Directive ordering the upgrading of certain reservoirs. This included the need to improve the capacity of spillways and to ensure that they did not need human intervention to operate. In 1986 major work began at Dowdeswell: the dam was raised by two feet, the amount the centre had subsided, and the spillway, down which the 100,000 gallons a day continued into the Chelt, enlarged to allow for speedier overflow, if required.

Despite this obligatory work at Dowdeswell, it was already becoming evident in the late fifties that the two reservoir complexes at Hewletts and Dowdeswell were no longer necessary or cost effective as they stood. As demand increased, the abundance of high-quality Severn water and the vastly improved methods of pumping it to where it was needed stood in stark contrast to the supply of hill and spring water which had so regularly proved to be unreliable. The relative figures for water provision from Joint Water Board (Severn) resources and the rest were never better than 72% to 28% in 1961 and sank as low as 93% to 7% in 1965. In September 1959 the Borough Surveyor summed up a difficult situation. Steps had been taken to urge the public to use water carefully but demand had risen on occasions to a figure exceeding 5 million gallons a day, falling at times to 4½ to 5 million. Demand had been met by drawing water from Joint Water Board resources (the Severn) and so long as no breakdown occurred, either at Tewkesbury Works or in the pipeline, there was no reason to suppose that water would not continue to be available. There was, however, limited storage at Churchdown and it was on the amount available at this point that hopes and anxieties rested. The supply from Dowdeswell had ceased, firstly because the level was now well below the overflow, and secondly, the intensely hot weather had produced an abundant algal growth in the water, which made filtration difficult. Hewletts' supply stood up reasonably well, although the inflow was small, but by careful conservation and feeding from Sandford Well, the reservoir had been affording a useful amount of water. Sandford Well, despite the prolonged drought, provided an average of 250,000 gallons per day - a useful standby. But there were even problems with the River Severn, which was at an exceptionally low level. This would normally have been augmented with compensation water from Lake Vyrnwy, but the City of Liverpool was attempting to defer such compensation to ease its own supply problem. By 1962 demand in Cheltenham had increased by 5% in the year and that in Gloucester by 15%, owing to industrial development. The maximum demand on Mythe had reached 11 million gallons a day.

In 1979 Cheltenham Borough Council instigated a Flood Alleviation Scheme, following the severe flooding of the River Chelt in May of that year. There was a long history of flooding, recorded from 1731 onwards. Essentially, there is a high run-off from the Cotswold scarp and development in the flood plain has given rise to an excessive amount of water running into the Chelt from pavements and roads. Such an event is estimated to be likely to occur once every 25 years. In November 1995 the Chelt was given main river status, which allowed the Environment

Agency to manage it and provide flood alleviation measures through the use of its permissive powers. By this time, the drop in water demand as a result of the closure of the Brewery, the escalating cost of modernising the outdated filtering system at Dowdeswell, together with the increased capacity available from Mythe, had persuaded Severn Trent that Dowdeswell was no longer required. After Privatisation in 1989, the rapid decline of the works there led to a decision to abandon Dowdeswell as a source of supply. The prospect of turning the Reservoir into a balancing facility as part of the Flood Alleviation Scheme was now apparent and in 1999 the Environment Agency took over the Reservoir and its dam to provide storage capacity for flood water in the upper reaches of the Chelt. This, with other measures taken in the town, increased the capacity of the Flood Alleviation Scheme to cater for the one in a hundred year flood event. Dowdeswell Reservoir has become Dowdeswell Water, a designated Local Nature Reserve. The new role involved lowering the top water level by some fourteen feet to provide sufficient empty capacity to hold flood water up to a 100 year flood event. Since this means that the top levels of the embankment will dry out, the process is irreversible and Dowdeswell cannot become a reservoir again. Much of the catchment area has been sold off. The Gloucestershire Wildlife Trust took over management of the wetlands and the woods at Lineover, though the old collecting tanks can still be found amidst the vegetation.

At Hewletts, No.1, the small original 1824 reservoir, became the preferred source of supply to the Cheltenham Brewery in its various guises. The Northfield Springs water was considered superior to river water for the brewing process. The Reservoir was the smallest of the four, holding 413,000 gallons. Under an old agreement, the maximum available to the Brewery was 100,000 gallons a week but in the 1960s the West Country Brewery was taking as much as three times this amount. Moreover, the Battledown and Harp Hill area, which was also supplied from Northfield Springs, was beginning to develop. In November 1961 the whole supply from Northfield Spring was taken and the Reservoir continued to fall. The only solution was to provide the facility to supply the Battledown area with additional Severn water when necessary. For this a small tank reservoir was required at Northfield Springs, fed by pumping from No.3 Reservoir. The Brewery was asked to pay half the cost. However, by the end of the sixties a small tank was insufficient. Some land was purchased from Mr Albert Mitchell of Glenfall and the small Northfield Reservoir, holding 15,000 gallons, was built just up the hill from Hewletts. It receives water from a submersible pump installed in No 3 Reservoir. In 1964 a new 6-inch main was laid from No. 3 to the bottom of Harp Hill to ensure a bigger supply to the Brewery and to the Battledown and Harp Hill area, the Brewery again being asked to provide half the cost. When the then Whitbread Brewery closed in the 1990s, No. 1 was abandoned and is no longer in use. No. 2 Reservoir, built in 1839, is still in good condition and remains in use, though it has one-seventh of the capacity of No. 3 Reservoir. Until the latter was covered, No.2 was the receiving point for the two trunk mains supplying the Cheltenham area. No. 3 was built in 1847 as an open reservoir for hill water, which it was still receiving in 1962. However, it was found that the already treated water pumped from Mythe deteriorated rapidly in an open reservoir and it made no sense to leave it uncovered. In 1966 a concrete roof containing a waterproof membrane was placed over this large reservoir, which was then turfed over. It is now one of the largest in the Severn Trent area and supplies at least half of Cheltenham's water. The large uncovered No. 4 Reservoir, built in 1857, was abandoned in 1965 after many months in which bacteriological pollution made it unusable. It was subsequently totally demolished in the 1990s, allegedly because of its dangerous proximity to GCHQ, located just below it. However, it was also clear that the expense of covering could not be justified. The Lodge at Hewletts, built in 1824, remains occupied but the water supply operations are controlled remotely from the Midlands. Northfield springs now run much as they did before 1824, untroubled by collecting pipes; disused tanks may still be found, though no longer attacked by *"evil disposed persons"* intent on sabotage.