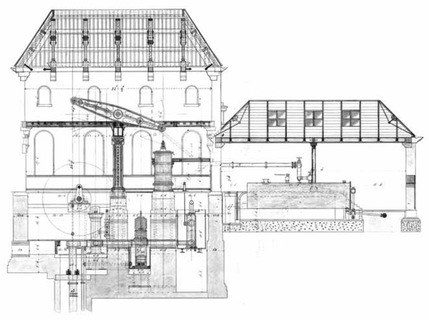


Introduction

WATER!

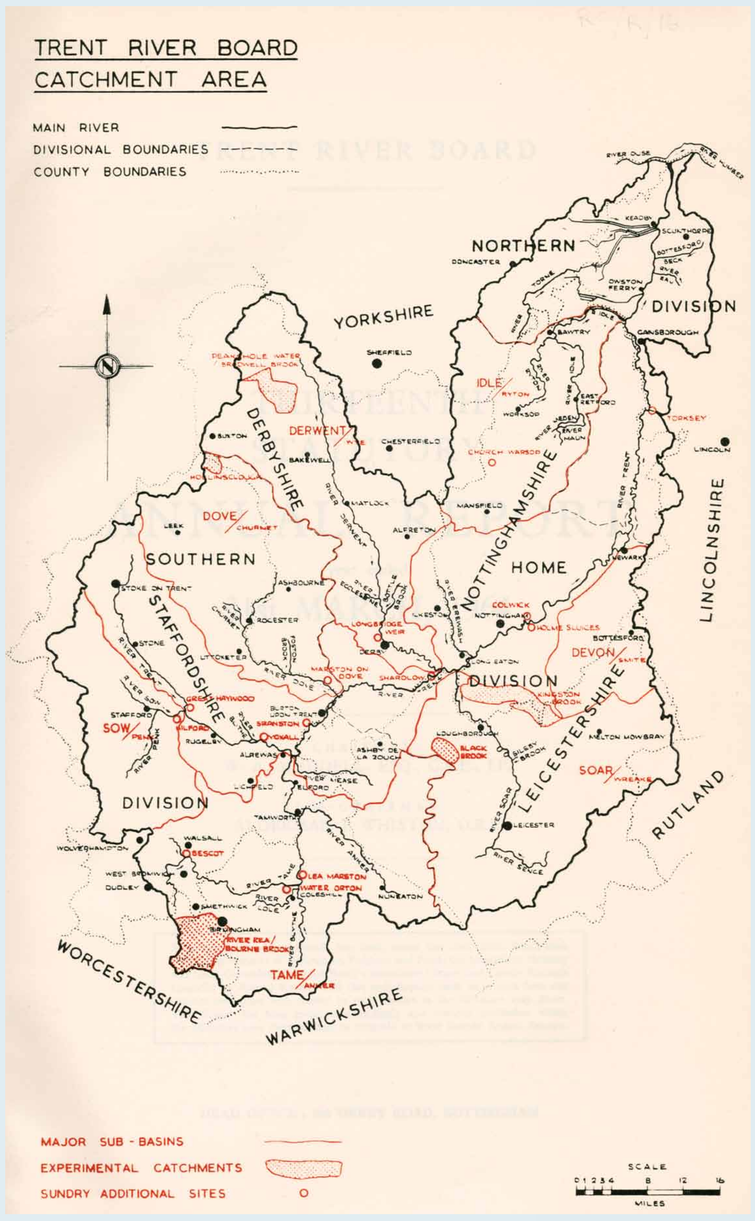
Pipes, Pumps, Floods and Drains in The University of Nottingham's Water Archives

Manuscripts and Special Collections at The University of Nottingham began to acquire the archives of former water companies in the 1950s.

We take it for granted that clean water is piped into our homes, and waste water and sewage are drained or flushed away. Yet these facilities have been widely available for only 150 years or so. The expensive, complicated and disruptive process of establishing and maintaining Nottingham's infrastructure is recorded in the archives of the City of Nottingham Water Department.

Photograph of burst 12 and 18 inch water mains at Haydn Road, Nottingham, 1914
Records of the City of Nottingham Water Department, R/HR/1/8/1/164

The Department's responsibilities were taken over in 1974 by the Severn Trent Water Authority. This huge organisation also inherited the work of the former Trent River Authority, which had been responsible for river management, flood prevention, pollution and fisheries.



Map of the Trent River Board catchment area, 1964
Records of the Trent River Authority, RG/R/14

The River Authority itself had numerous predecessors. The longest-established predecessor, the Hatfield Chase Corporation, was set up in 1626. The records of the River Authority and related organisations document many changes over time, including the move from horse-power to modern technology.

Tree-clearing at Toton using horses, 1930s
Records of the Trent River Authority, RE/DOP/X/1, p.98

Some of the material in this exhibition is shown in public for the first time as a result of a cataloguing project which had support from the National Cataloguing Grants Programme for Archives and was completed in 2011. Over 500 boxes of previously unlisted material were catalogued, and the catalogue records describing the material were made available online. The exhibition has been curated by Manuscripts and Special Collections staff.

Staff of the River Trent Catchment Board studying a hydraulic river flow model, c.1938
Records of the Trent River Authority, RE/DOP/H32/3

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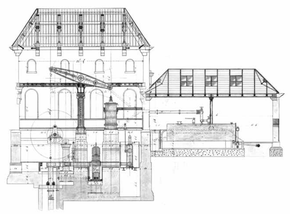
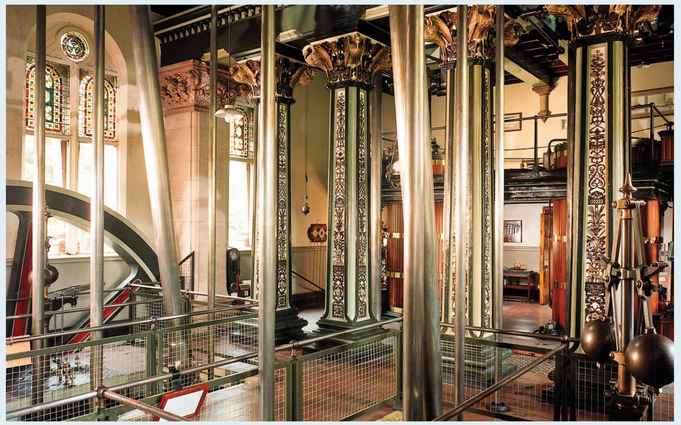


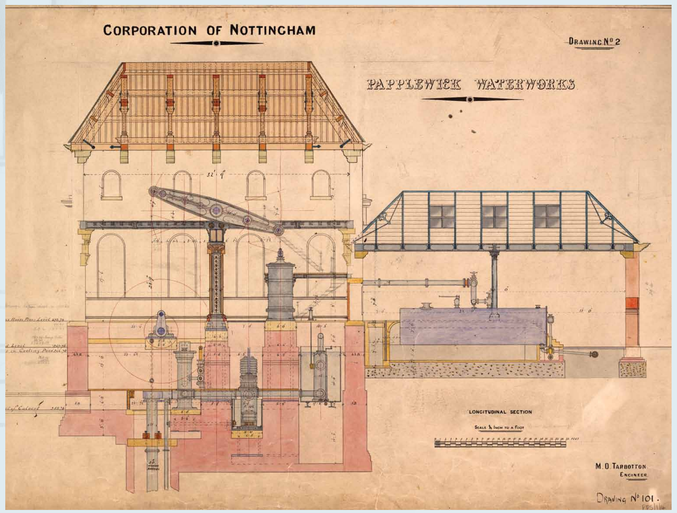
Steam Power: Papplewick Pumping Station

Now an important heritage attraction, Papplewick Pumping Station was designed by Nottingham's Municipal Engineer, Marriott Ogle Tarbotton, and opened in 1884.

Until 1880, the private Nottingham Waterworks Company was responsible for water supply in the town. Under the Nottingham Improvement Act of 1879, the Corporation of Nottingham took over the company and began to undertake the work itself. The growing town needed increasing amounts of clean water to fulfil the demands of private residents and businesses.



Photograph of the Watt beam engines at Papplewick, 2012
Courtesy of the Papplewick Pumping Station Trust



Longitudinal section of the engine house and boiler house, c.1883
Papplewick Pumping Station Plans, PPS/1/4

Tarbotton's plans for a new pumping station were approved by the Corporation in January 1882, and construction work began almost immediately. Fresh water from the Bunter sandstone layers under Papplewick was pumped from a 200 foot deep well by two beam engines, made by James Watt & Co. of the Soho Works, Birmingham. The engines were powered by six boilers made by W & J Galloway and Sons of Manchester. The station pumped 1.5 million gallons of water per engine per day, and was one of a series of pumping stations bringing water to Nottingham.

The engines remained in use until 1969, when they were replaced by electric pumps. The pumping station was closed in 1973, but a lease was granted to the Papplewick Pumping Station Trust, which carried out restoration work and opened the pumping station to the public in 1976.

Original plans of the pumping station were transferred to The University of Nottingham in 2001 and complement material found in the archives of the City of Nottingham Water Department.

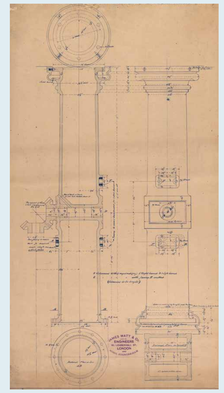
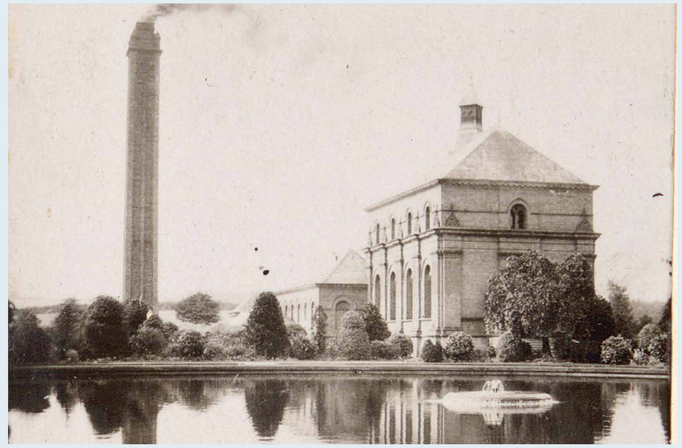


Diagram of steam and exhaust columns, part of the beam engine, by James Watt and Co., engineers, 1883.
Papplewick Pumping Station Plans, PPS/3/51



Photograph of the exterior of the Papplewick Works and cooling pond, early 20th century
Records of the City of Nottingham Water Department, R/HR/1/8/1/10

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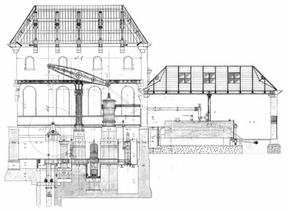
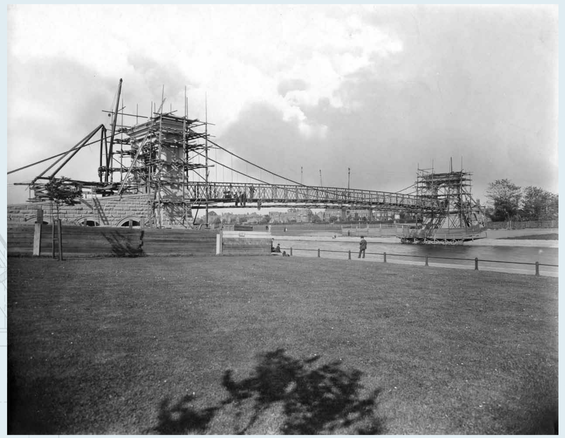


A World Beneath Our Feet

WATER!

Pipes, Pumps, Floods and Drains in The University of Nottingham's Water Archives

Much of the water infrastructure put in place by the Victorians and Edwardians still survives in Nottingham today, from reservoirs and water mains, to the sewers which continue to take away our waste water.



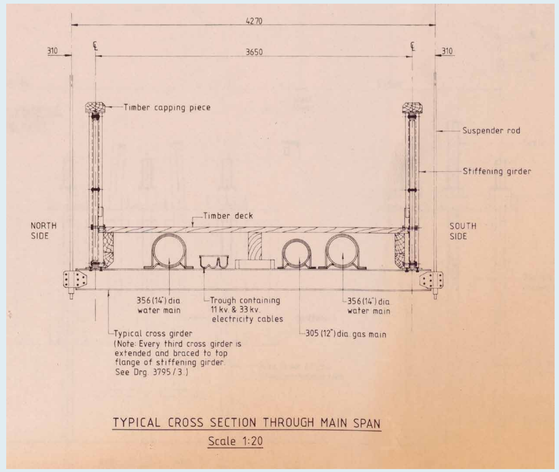
Wilford Suspension Bridge under construction, c.1905
Records of the City of Nottingham Water Department, R/HR/1/8/2/2

Workmen laying pipes at Colwick Road railway crossing, 1910
Records of the City of Nottingham Water Department, R/ HR/1/8/1/154

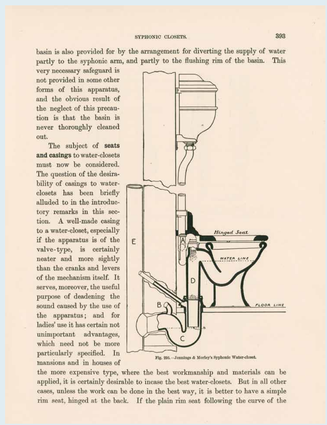
Wilford Suspension Bridge, still an important pedestrian and cycle crossing over the River Trent, was built in 1904-1906 by the Corporation of Nottingham Water Department. It was designed to take water into a new covered reservoir at Wilford Hill, from where it was piped to homes and businesses. The bridge passed into the ownership of the Severn Trent Water Authority in 1974. Plans of restoration work carried out by the Authority in 1983 show how the bridge was adapted to carry a gas main and electricity cables as well as two water mains.

Printed books and architects' plans show the development of modern sanitary devices such as indoor flush toilets, with waste pipes connecting directly into the sewerage system. Before the slum clearances of the early 20th century, however, many Nottingham residents had to use shared privies. The waste was not flushed away; instead it fell into a pail, pit or container underneath the privy.

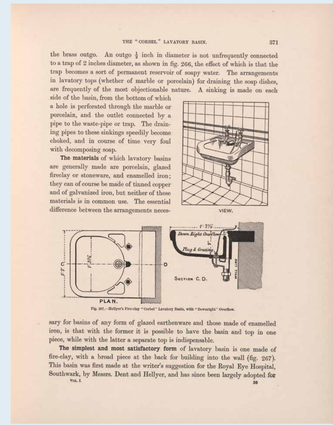
Better sanitary facilities, population growth and industrialisation contributed to increasing demands on water supply. In 1930 the Water Department stated that the average person in Nottingham used 16 gallons (73 litres) of water per day. Today Severn Trent Water estimates that the figure has doubled to 136 litres per day.



Detail from plan of restoration works to Wilford Suspension Bridge, 1983
Records of the Severn Trent Water Authority, RWA/F/6/2



Plan of syphonic water-closet, 1899
Special Collection o/s TH4811.S8



Plan of Hellyer's fire-clay 'Corbel' lavatory basin with 'Downright' overflow, 1899
Special Collection o/s TH4811.S8

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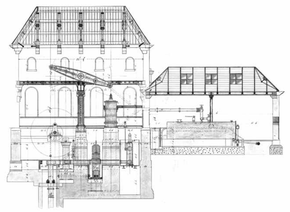


Nottingham's Highway to the Sea

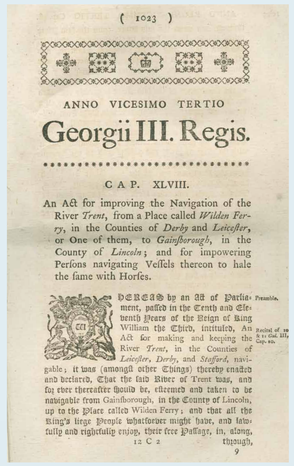
WATER!

Pipes, Pumps, Floods and Drains in The University of Nottingham's Water Archives

In the days before well-maintained roads and railways, transport by water was the quickest and easiest way to move people and goods.

The Trent Navigation Company was established by Act of Parliament in 1783 to make improvements to the river and maintain canal junctions. The previous year, William Jessop had made a detailed survey and plan of the River Trent from Shardlow downstream to Gainsborough.

The company began constructing haling paths (towpaths), allowing vessels to be pulled along the river by horses. It also built 'cuts' or canals, such as those at Sawley and Cranfleet, to bypass some shallow sections. In 1794 it began cutting a canal from Beeston Lock to Lenton. This enabled boats to use the Nottingham canal instead of navigating shallows at Clifton and Wilford. The company records show that the works were very expensive. By 1802 the Beeston cut had cost over £9,000. The money was recouped by charging tolls on river and canal traffic.



(1023)

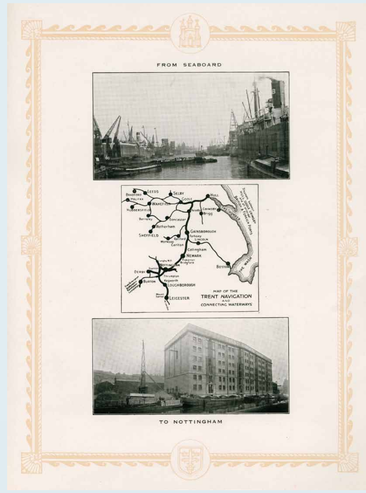
ANNO VICESIMO TERTIO

Georgii III. Regis.

CAP. XLVIII.

An Act for improving the Navigation of the River *Trent*, from a Place called *Wilden Ferry*, in the Counties of *Derby* and *Leicester*, or One of them, to *Gainsborough*, in the County of *Lincoln*; and for impowering Persons navigating Vessels thereon to hale the same with Horses.

Front page of Act for improving the Navigation of the River Trent, 1783 … 'and for impowering Persons navigating Vessels thereon to hale the same with Horses' Records of the Trent Navigation Company, RtN 2



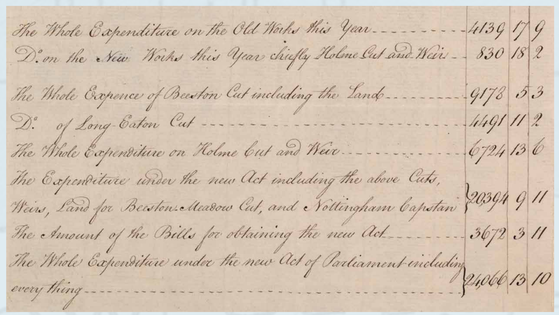
FROM SEABOARD

TO NOTTINGHAM

'From Seaboard to Nottingham', 1926
'Nottingham's Highway to the Sea', East Midlands o/s pamphlet Em.G24 APP

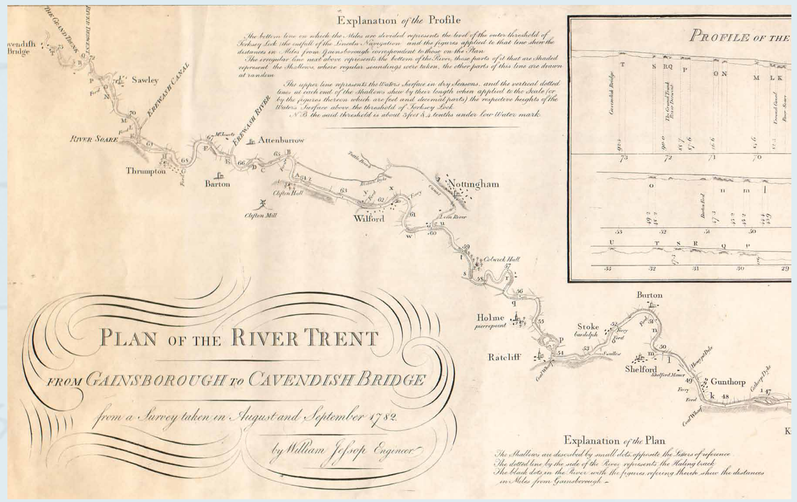
In 1915 the City of Nottingham took over management of the river from Nottingham to Averham. Improvements costing over £450,000 were completed in 1927. Now goods from Europe, landed at the docks at Hull, could travel in wide river barges up the Humber Estuary and the River Trent, all the way into Nottingham city centre. While other rivers and canals suffered from competition with the railways, trade on the River Trent increased four-fold.

The Trent Navigation Company was taken over by the River Trent Catchment Board in 1940, and in 1948 the British Waterways Board took over responsibility for navigation and maintaining the locks.



The Whole Expenditure on the Old Works this Year	4139	17	9
D^o. on the New Works this Year chiefly Holme Cut and Weir	830	18	2
The Whole Expence of Beeston Cut including the Land	9178	5	3
D^o. of Long Eaton Cut	1491	11	2
The Whole Expenditure on Holme Cut and Weir	6774	13	6
The Expenditure under the new Act including the above Cuts, Weirs, Land for Beeston Meadow Cut, and Nottingham Capstan	20394	9	11
The Amount of the Bills for obtaining the new Act	3672	3	11
The Whole Expenditure under the new Act of Parliament including every thing	24066	13	10

Detail from Trent Navigation Company accounts for year ending 7 Sep. 1802 (over £9,000 in debt; works on Beeston cut cost over £9,000). Records of the Trent Navigation Company, RtN 796



Explanation of the Profile

PROFILE OF THE

Sawley

Thrumpton

Barton

Attenborrow

Wilford

Nottingham

Holme

Ratcliff

Stoke

Shelford

Gunthorp

PLAN OF THE RIVER TRENT

FROM GAINSBOROUGH to CAVENDISH BRIDGE

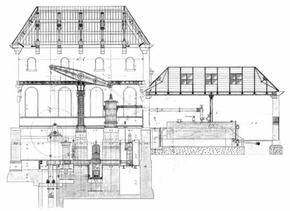
from a Survey taken in August and September 1782

by William Jessop Engineer

Explanation of the Plan

Plan of the River Trent from Gainsborough to Cavendish Bridge, 1782
East Midlands Collection Em.B8 D82

Illustration of a tug pulling three barges along the River Trent, 1926.
'Nottingham's Highway to the Sea', East Midlands o/s pamphlet Em.G24 APP



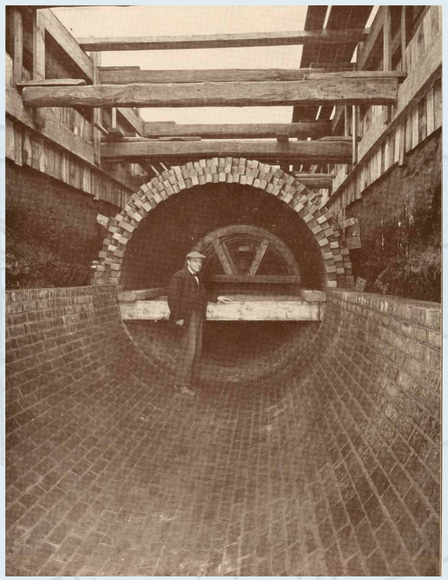
It's a Dirty Job…

WATER!

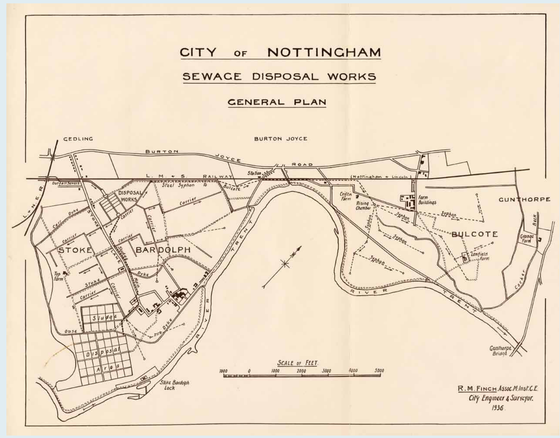
Pipes, Pumps, Floods and Drains in The University of Nottingham's Water Archives

The network of sewers under Nottingham dates back to the 1870s. Until then, raw sewage from Nottingham and its suburbs was discharged directly into the River Trent.

In 1872 the town's Sewerage Board began constructing an intercepting sewer from Bulwell to Nottingham, partly under the present-day Castle Boulevard. The sewage travelled by gravity to a pumping station at Eastcroft, and was then pumped under pressure to sewage works at Stoke Bardolph.



Construction of new main sewer at Bobbers Mill, Nottingham, 1936
East Midlands Collection o/s pamphlet Not 3.G66 NOT



Plan of Stoke Bardolph sewage works, showing system of irrigation and siphons to take sludge and effluent to the fields, 1936. East Midlands Collection o/s pamphlet Not 3.G66 NOT

The facility was designed by Nottingham's Municipal Engineer, Marriott Ogle Tarbotton, and opened in 1880. The untreated sewage was spread on farmland and seeped through the soil, which acted as a filter. The cows on the farm provided milk for local customers. The records of the Stoke Bardolph and Bulcote Model Farm show that in 1930 kitchen staff at Lenton Hall, a hall of residence at University College, Nottingham, purchased milk, cream and potatoes weekly. On 24 December the farm provided an extra order of Brussels sprouts for the hall Christmas dinner.

By the 1930s homes and factories were producing increasing amounts of sewage. In 1936 the City of Nottingham constructed new main sewers and improved the Stoke Bardolph works. The raw sewage was now treated before the clarified effluent was spread over the land.

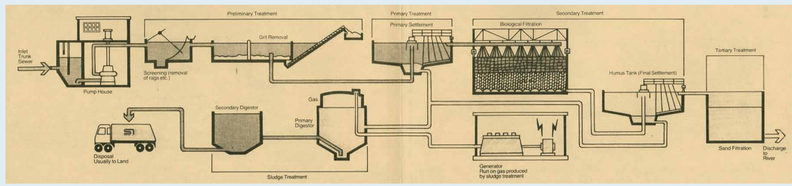
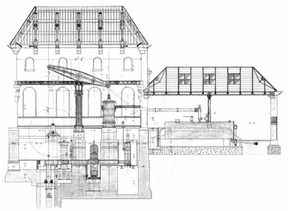


Diagram showing the process of sewage treatment from inlet to sludge disposal, 1970s or 1980s
Records of the Severn Trent Water Authority, RWA/Pr/12/5/2

Aerial photograph of the Stoke Bardolph Works, c.1980
Records of the Severn Trent Water Authority, RWA/Ph/7

Stoke Bardolph was taken over by the Severn Trent Water Authority in 1974 and by Severn Trent Water in 1989. The farm is still used for recycling treated sewage sludge. Since 2010, maize grown on the farm has been anaerobically digested and used to generate electricity.



The Staff of the Water Companies

Photographs and staff newspapers give an impression of the variety of work carried out by the people employed in the water business.

The earliest photographs of staff come from an album kept by the City of Nottingham Water Department. The group photograph from a department outing in around 1890 includes two teenage boys, one identified as G. Parrott. Were they family members, taken along as a treat, or were they in fact workers, as the school leaving age at that time was just 14?

Managers, clerks and technicians would have undertaken most of their work indoors. However, the water companies' essential purpose was to manage the water environment by the use of pipes, pumps and drains, and to do as much as possible to prevent flooding. A significant proportion of the workforce was therefore employed outside, sometimes tackling emergencies in severe weather conditions. 'Revetting' to strengthen river banks was done by hand in the 1930s, which must have been heavy and cold work.

In the 1970s and 1980s the Severn Trent Water Authority produced the staff newspapers 'Stream' and 'Downstream'. The papers featured recent projects, union activities, staff news, cartoons and competitions. The presence of a female employee as 'Girl of the Month' in every issue, and the 'Miss Beautiful Eyes' competition run in 1980, remind us of the changes in office culture in the last 30 years.

Photograph of the Water Department annual outing, c.1890
Records of the City of Nottingham Water Department, R/HR/1/8/1/70

DOWNSTREAM
CHRISTMAS 1980
SEVERN-TRENT WATER
NEWSPAPER OF THE EMPLOYEES OF THE LOWER TRENT DIVISION

An Eye for Safety

FROM over 50 entries, nine finalists were chosen for the Divisional final of Downstream's heat to find Miss Beautiful Eyes for 1981.

The final took place at the Social Club's Annual Dance at Daybrook House in Nottingham on 11 December, 1980.

Three independent judges had a difficult task in deciding on the grounds of pretty eyes and personality, who was to be our representative to the Regional Finals in Birmingham, but their final selection was: 1st Marcella Plackett (Mapperley Hall); 2nd Jane Cordin (Mansfield) and 3rd Linda Qseenan (Mapperley Hall). As the judges had such a difficult time making their decision we are picturing on this page all of the nine finalists and we wish Marcella luck in the final contest.

Runner-up in the competition was Jane Cordin, a twenty-year-old meter clerk at Mansfield. A sporting girl, Jane lists swimming and badminton as her interests.

Holiday prize

First prize in the National Final, to be held in London, includes a holiday for two on the Isle of Aruba, off the coast of Venezuela.

Our thanks to all contestants, to the Social Club for their donation of tickets to the finalists, and to Messrs. Greenham Tools and Messrs. Arco Ltd., who kindly spon-

Scientific officer at Mapperley Hall, Linda Qseenan came third in the contest. Linda, who is twenty-five years old, likes sport, languages and trawling.

Marcella Plackett, the divisional Miss Beautiful Eyes for 1981. Twenty-five-year-old Marcella is a secretary at Mapperley Hall and has worked for Severn-Trent for six and a half years. Marcella likes knitting and dressmaking.

Article about the 'Miss Beautiful Eyes' finalists, 1980
Records of the Severn Trent Water Authority, RWA/F/3/2/1

Technicians measuring fish in the Pollution and Fisheries laboratory, 1970.
Records of the Trent River Authority, RE/DOP/H45/38

Interior of the Drawing Office at River Trent Catchment Board headquarters, 1936.
Records of the Trent River Authority, RE/DOP/H32/4

Revetting work at Owston Ferry, 1935
Records of the Trent River Authority, RE/DOP/X/1, p.62