

# NOTTINGHAM'S WATER SUPPLY - 1880-1980

**MARCH 25th, 1980** was the 100th anniversary of the transfer of responsibilities for Nottingham's water supply to the Nottingham Corporation from the private water companies.

On that date in 1880 the Corporation became responsible for the supply of water to some 192,000 people from five works in and around Nottingham, although two of these works were quickly abandoned due to pollution.

Nottingham's water supply in early days was of a very meagre and intermittent character, and the inhabitants were dependent on the Rivers Trent and Leen, private wells or a number of springs, some of which were considered to possess mystical properties. For those who did not live conveniently close to one of the 300 private wells, water was brought from the rivers in pails by cart, but it is recorded that about the year 1800, eight public pumps were erected - one in Chapel Bar, two in Parliament Street, two in the Market Place and one each in Charlotte Street, Weekday Cross, and the Shambles.

**100 YEARS UNDER THE BRIDGE**

and established the Northern Waterworks at the top of Sherwood Street, from where water was pumped into a large cistern to supply the north-east of the town and to a small cistern in York Street. Water carriers took their supplies from these cisterns and charged at the rate of a farthing per bucket for short distances and a half-penny for longer distances.

In May 1826 an Act of Parliament was obtained by

The original Water Works Company obtained their lease from the Corporation in 1696 and erected an engine house, water wheel and pumps on the south bank of the River Leen near the site of the present Bowling Green Hotel in Canal Street. The supply from this site sufficed for many years, but, in consequence of long continued complaints of the quality and scarcity of the water, the Company obtained an Act of Parliament in June 1827 and constructed a new works in Basford to take water from springs and to tap the River Leen where it was uncontaminated by the town sewers.

On 1st December, 1824 a rival company was formed



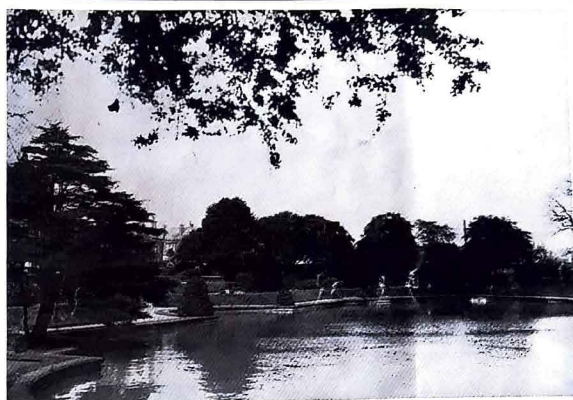
● Members of the water department staff at a social gathering in 1890.

the Trent Water Company to pump water from the River Trent, but owing to bad trade, it was not until 1830 that practical steps were taken to abandon the River Leen source and establish new works adjoining the Town Arms Inn at Trent Bridge. Water was not obtained directly from the Trent, but by filtration through brick tunnels in the

natural beds of sand and gravel overlying the Bunter Sandstone. The works was capable of delivering about 600,000 gallons a day to 15,000 of Nottingham's 50,000 population. The works was abandoned, due to the deterioration of the Trent, on the completion of Bestwood works.

After existing some years in customary rivalry, the

water companies amalgamated, and in 1845 an Act of Parliament established the Nottingham Waterworks Company. The company served Nottingham's needs for the next 35 years until its responsibilities were transferred to the Corporation, under the powers of the Nottingham Improvement Act, 1879, on 25th March, 1880.



From these humble beginnings today's water supply network has evolved and became the responsibility of the Severn-Trent Water Authority on 1st April, 1974. The Lower Trent Division is currently supplying some 966,000 people in the Nottingham and Mansfield areas with an average of 62 million gallons of water per day.

Often taken for granted and criticised for its costs, one wonders how many of our consumers would react to supplies of questionable quality being delivered again by horse and cart - cash on delivery by the bucketful, of course

● THEN: The former Basford Water Works which is the site of the present Hucknall Road Depot photographed in 1903. Below: Hucknall Road Depot as it looks today.



## Groundwater-Nottingham's gift...



by Max Banks, principal officer (water supply)

"Water, water everywhere  
And all the boards did shrink;  
Water, water everywhere  
Nor any drop to drink"  
(Samuel Coleridge)

UNLIKE the thirsty Ancient Mariner we are not surrounded by undrinkable oceans in Nottinghamshire, but many of us dwell over vast natural reservoirs of good quality water concealed within the underground porous Bunter Sandstone.

This familiar reddish-brown formation runs from north to south through most of the county. On the western side we have the outcrop, some eight miles wide in the central area, which then dips in the east below the Keuper Marls. The sandstone thickness varies from around 200 metres in the north to 60 metres in the south.

All water supply forms one link in the continuous cycle of evaporation and of precipitation - this time of year, of rain, hail and snow. Unless the surface soils are saturated, a large proportion of the rainfall is lost by evaporation or is taken up by plant-life. Some will form our surface water supplies as it runs off into streams, rivers, lakes or man-made impounding reservoirs.

Part of the rain, especially in the winter period will percolate through surface soil and porous strata until it is stopped by an impervious or waterproof layer to form our valuable groundwater resource.

By happy chance, or excellent design, the Bunter Sandstone lies on the Permian Marl, a clayey, impervious layer which seals off the Bunter water from the Magnesian Limestone and the Coal Measures below.

### Filtered

Over the centuries, the water makes its way slowly through the pores of ancient pebbly sediments and in fissures in the fractured rocks, to fill the porous sandstone with good quality, naturally filtered water. This is the aquifer which at present supplies 75 per cent of the daily demand. 227 million litres (61 million gallons) to meet the needs of industry, agriculture and nearly one million domestic consumers in Lower Trent's water supply zone was the combined total of groundwater and surface water supplied, on average, each day of the past year.

The most productive area of the aquifer is to the north where the thickness is greatest and the outcrop area for replenishment is large. However, the waters in the outcrop are the most vulnerable to surface pollution. Strict

controls effectively safeguard against gross pollution by toxic and unpleasant substances.

However, these is concern about the slow, cumulative changes which can arise. For example, the heavy use of fertilizers in post-war agriculture is one of the likely causes for a slow, but steady increase in nitrate levels. Significantly, the aquifer in the east of the county which is protected by the Keuper Marl remains unaffected. All waters supplied are within the permitted quality levels specified in E.E.C. directives and as recommended by the World Health Organisation, with blending of two sources being used in two cases to keep well within the parameters. Future generations, however, if the nitrate levels are still slowly leaching through the strata, could be faced with additional costly treatment.

### Contamination

In the first half of the last century growing urban development accompanied by primitive sanitation led to contamination of the surface waters used by the public. Since 1850, the realisation by pioneers in Public Health that certain prevalent diseases of the time, like cholera, were waterborne, led to the rapid development of deep wells dug into the sandstone around the main towns of Nottinghamshire.

One hundred years later the glamorous, but labour intensive, steam engine has had to make way for the automatically controlled electric motor, the cathedral-like buildings to more compact, utilitarian structures and the 30 metres deep wells to 100 metres and above, machine drilled boreholes.

The Division now operates 27 different source stations pumping water from the ground and lifting it to strategically placed, covered, service reservoirs at high elevations. Supplies can then flow by gravity to large areas of demand. The stations are spread out from Worksoop in the north to Basford in the south, from Ashfield in the west to Newark in the East. Remote links from these sites and their associated reservoirs run to a central, continuously manned control room at Nottingham, which monitors and controls the whole network.

Mobile teams of pump attendants and supervisors look after the sites and equipment on a rota visit basis. Apart from the addition of a small quantity of chlorine as a sterilising safeguard no other treatment of the groundwater is required.

The old proverb says that we never know the worth of water until the well is dry. The groundwater, like other natural resources, is a large but finite source. If water

were to be pumped out of the hole faster than it can manage to flow in, the pumping level falls and the pump would run out of water. If, over the aquifer as a whole, we and other licensed abstractors were permitted to take more out than the rate of replenishment, the water table would progressively fall with possible harmful effects on surface flows and on the ecology.

Each regional water authority is statutorily responsible for the licensing and regulation of all abstractors, including its own divisions, and that control is exercised rigorously.

With the exception of one new groundwater site now being investigated in the Ranskill area there can be no further growth in available groundwater resources. With demands continuing to rise and very little reserve in hand

to meet peaks, future growth will need to be met by Church Wilne treated water drawn from the River Derwent.

For many years and in many parts of the Division, however, groundwater will continue to be the main source and, if we continue to guard Nottinghamshire's natural inheritance, future generations will continue to enjoy a clear, cool and sparkling drink out of the Bunter Sandstone. That is, if they do not decide to bottle it all and sell it to less favoured areas!

For the present, whether we occasionally drink the stuff in one form or another or simply flush it down the drain, we can all share G. K. Chesterton's sentiments: "And Noah he often said to his wife when he sat down to dine, 'I don't care where the water goes if it doesn't get into the wine.'"



● The main pump-house at Ompton, housing one borehole, two booster pumps and all the control gear. Passing motorists have been seen to pull up and stare at the three similar style 1960's pyramids.



● Maintenance fitters (left to right): Sam Garratt, Ron Murden and Ron Johnson, with a little assistance from a large mobile crane, lowering a submersible motor, pump and cable into a deep well at Salford. Lengths of pipe are bolted on as the unit is lowered to join into the pumping main at Hucknall.