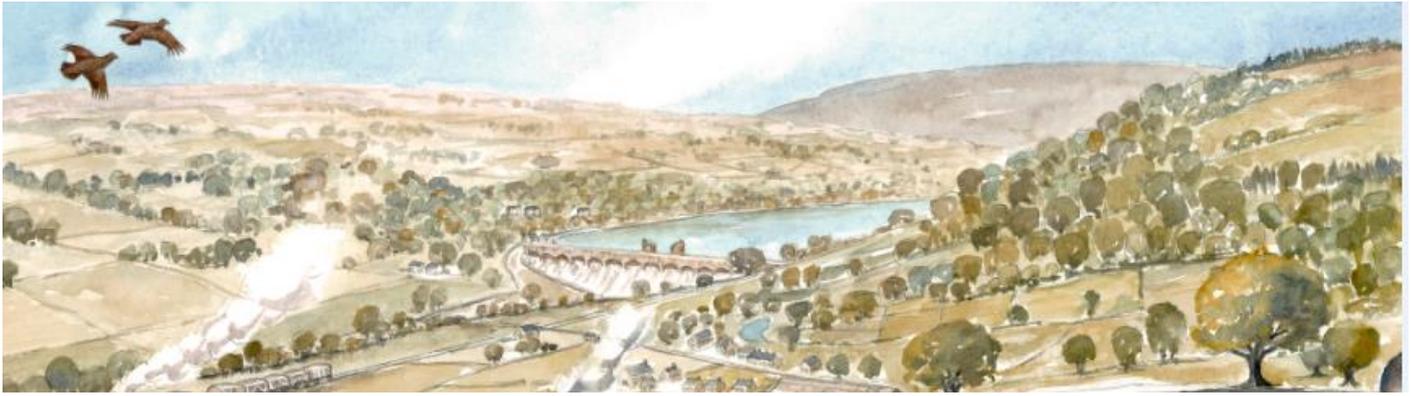


The Reservoirs of Nidderdale: Fact Sheet



What are reservoirs and why are they built?

Reservoirs are enormous man-made lakes which store river or rain water behind a large wall called a dam. They are usually built in the countryside to supply water to the large numbers of people who live in cities.

Who built the reservoirs in Nidderdale?

In the 1800s the nearby city of Bradford grew very quickly and lots of people went to live there to work in mills and factories. By the 1880s, Bradford needed huge amounts of water for its people and for its wool industry. There was no more water in the area around Bradford, so the city authorities realised that water would have to be brought from somewhere else. Nidderdale was chosen and Bradford Corporation was given special permission from the government to build reservoirs in Nidderdale.

Why Nidderdale?

Upper river valleys are often used for reservoirs because the valley sides are steep and narrow and they have few people living in them. This was true of Upper Nidderdale.

The steep narrow valley meant that the reservoirs could be deep and the dams would not have to be too wide to cross the valley. The remote location also meant that few people would have to be re-homed when the valley behind the dam was filled with water.

How could huge reservoirs be built in such a remote location?

A lot of people and equipment would have been needed in the 1880s to build a reservoir, but few workers lived in Nidderdale and the only way of transporting materials in the upper dale was by horse and cart. The car hadn't been invented then!

This did not deter Bradford Corporation. They decided to: a) build a railway to carry equipment and materials to the site for the reservoirs high up in the valley and b) build a village on site for the workers to live in! This was also a good location because the stone to be used could be dug directly out of (quarried from) the valley sides here.

How would the water get to Bradford?

It is 37 miles from Upper Nidderdale to Bradford. Bradford Corporation decided to build a pipe, called an aquaduct, all the way. Most of this would be buried in shallow trenches, but long tunnels were to be built right through hillsides, as well as bridges and tunnels to carry the water over and under other rivers and streams. No pumps were needed as the pipe would be designed to let gravity allow the water to flow downhill to Chellow Heights water treatment plant (near Bradford).

Would the reservoirs stop the river Nidd flowing through the lower valley?

The amount of water in the river Nidd was already quite difficult for landowners and mill owners lower down in the Nidd valley to predict and manage. During heavy rain the river could get too high and in times of drought the river was too low. Building dams in the Upper Valley and piping water to Bradford would certainly affect the people and mill owners of the Nidd Valley.

However, the Bradford Corporation engineers came up with a plan which would help make the level of the river Nidd more predictable. They decided to first build a reservoir nearer to Pateley, at Gouthwaite, which was designed just to control the flow of the river. After Gouthwaite was full, sluice gates (gates that let water out) would be opened or shut to stop the Nidd drying up or flooding while the other reservoirs were being built.

How many reservoirs were built?

Many people would be surprised to know that there are actually four reservoirs and dams in Upper Nidderdale, although you can only see three now. Where do you think the fourth is? The reservoir and the dam we can't see is called Haden Carr. It is underneath Scar House Reservoir. Haden Carr was the first to be built and it was followed by Gouthwaite, Angram and, finally, the largest, Scar House.

The Nidd Valley Light Railway (NVLr)

In 1901, a railway was planned from Pateley Bridge to Lofthouse. This railway was to be a 'light' railway with only one line. It would help transport people and materials up the dale to build the reservoirs in Upper Nidderdale. Work on the new NVLR from Pateley to Lofthouse officially began in 1904. There would be four stations for passengers: Pateley, Wath, Ramsgill & Lofthouse. A further private rail link from Lofthouse right up to Angram had already been completed to help with the building of Angram reservoir.

With the NVLR being a one line railway, a system was needed to make sure that two engines would never meet on the line. A system of 'tokens' was used. No driver was allowed to travel without the 'staff' or token. If he did not have a token with him, it would not be safe to be on the line because another train might be on it already which could lead to a crash.



Building Scar House Reservoir

Work started on Scar House Reservoir in 1920 and it took around 13 years to complete. Alderman Gadie was the Chairman of the Bradford Corporation Waterworks Committee at the time. Some people thought he was completely mad to take on such an enormous project. £2 million was spent, which was an awful lot of money at that time.

The workers

The workmen were paid one shilling and halfpence per hour, which is 5 pence in modern money. It was hard, manual work from 7.30 a.m. until dusk with half an hour break for lunch. The work was dangerous and one man was killed. However, the overall safety record was good and the workers were treated well compared to other labourers at the time. (Read about the facilities they enjoyed in Scar village below.)

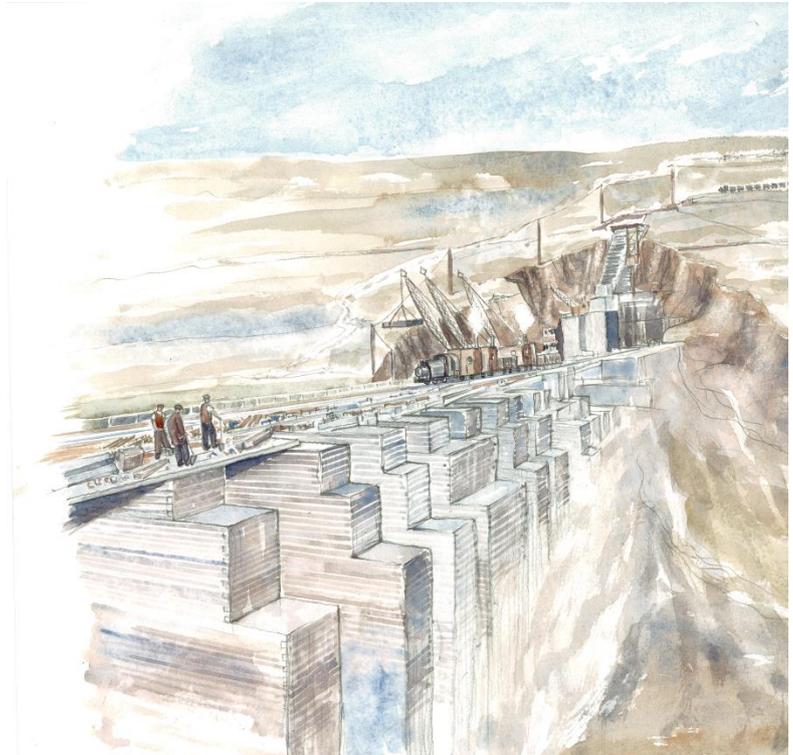
Foundations

The foundations of Scar House dam had to be very deep. The trenches made were over 30 feet (9 metres) wide and 60 feet (18 metres) deep. To realise just how deep this is, imagine two primary school buildings put into these trenches on top of each other! Modern diggers, dumper trucks and back-hoes had not been invented to do the work. Instead, steam power was used. More than 20 steam cranes and three steam navvies (a sort of large, steam-driven digger) were used. However, some of the ground had to be drilled by hand and blasted with explosives because it was too hard for the steam machines.

It took three and a half years to remove the 460,000 cubic yards (352,000 cubic metres) of earth needed - enough to fill a large football stadium. Two enormous aerial cables were fixed right across the valley for carrying materials and rail carts were used to move heavy materials around. If you go downstream from the dam, you can see unusual mounds of grass. These are the 'spoil' heaps of earth which were removed for the foundations, pulled away by steam engines and dumped here. Massive concrete pillars (see the picture above) formed the foundations which supported the rest of the stone work.

Stone

The stone for the dam came from two quarries which you can see high up on the valley sides. It was trundled 400 feet (122 metres) downhill on a gravity railway. Skilled stonemasons shaped or 'dressed' the the stone which would be visible on the dam. The back of the stone was left rough. Over 1 million tonnes of stonework was used to make the dam - about the same weight as three Empire State Buildings! It took one year to build every 35 feet (10.5m) of dam.



Scar Village

During construction of the reservoir a village was built on the south side of the valley near to the dam to house the workforce and their families. There were 10 large hostels for workmen, 34 semi-detached bungalows and 28 houses in 5 blocks including a set of houses called 'The Crescent'. Other buildings in the village included:

- Shops (grocery run by W. Morrison and Co., butcher, draper, newsagent / fishmonger)
- 600-seat cinema
- Canteen
- Bakery which could produce 200 loaves an hour
- Reading and recreation room
- Concert hall
- Hairdresser
- Fish and chip shop
- Library
- Mission hall for Sunday services
- Post office (Scar Village once had its own post mark)
- Bank
- Tennis courts, golf course and its own football club
- Full-board (including 3 meals a day) for a week at one of the hostels cost £1.
- School with 3 teachers and up to 90 pupils.
- Fire brigade with 18 firemen and a police constable.
- Hospital with resident doctor and nurse

The village had hot and cold water, electric lighting and flushing toilets. Most people in Pateley Bridge had no such luxuries, and so the village was a popular place to live. As a result, the workmen were under strict orders that if they or any of their family misbehaved in any way, they would be thrown out of Scar Village and their job would go to someone else.



On completion of the reservoir in 1936 the village was sold in lots over 2 days and dismantled. The canteen is now Darley Memorial Hall.

Can you find the clues of Scar Village in this aerial view of the landscape just south east of the dam?

For a full account of life in Scar Village, read: 'The Reservoirs' by Eileen Burgess in *The Book of Nidderdale*, Nidderdale Museum Society 2003; *Scar Remembered* by Friends of Scar Village Association, 1991; and leaflets on Scar House Village by Joanna Moody 2014 and *Railways in Nidderdale* by Philip Atkins 2012 published by, and available to buy from, Nidderdale Museum Society.