

Introduction

Some had come to see a disaster, others simply for a spectacle, but what they in fact witnessed was the beginning of a revolution. All social strata were represented on the banks of the River Irwell just outside Manchester on that bright morning in July 1761, from the Earl of Stafford down to the humblest farmworker; and all were anticipating a show. The atmosphere amongst them was festive. Bunting decorated the few barges bobbing gently upon the water and a frisson of anticipation sharpened the mood.

A phalanx of stalls had appeared overnight, one of which was offering some kind of roasted meat. As the day settled, occasional gusts of wind started to spread smoke from the fires into the crowd, exciting the taste buds of those who hadn't tasted meat since the previous Sunday, as well as their superiors, most of whom had breakfasted off bacon and fish that morning. Everyone began to wonder if the day's events would be over in time for lunch.

There was no set schedule for those events, no printed handbill or official start time. In fact few of those present really knew what to expect. Most were simply enjoying the break from routine and the opportunity to be part of something different. Indeed, it wasn't long before a question mark began to hang over whether anything was going to happen at all. It seemed that the man whose ingenuity and reputation had drawn them all to the river that morning had disappeared.

One man, one common man, who, some said, had managed to trick a peer of the realm into staking his entire fortune on a venture the like of which had never been seen before and most thought preposterous. This venture, this notion, defied all reasonable expectation and even nature itself. One man, a very singular man, insisted everything would be alright. This was to be his moment of truth, but the word beginning to spread amongst the crowd was that he had retired to his bed.

Once sown, this rumour spread quickly, as if it had hitched a ride on the smoke from the fires. As it did so, wry smiles began to spread across the faces of some of the more colourfully and finely dressed of the assembly. Quite reasonably, they began to wonder if rather than coming to witness a challenge to the natural order of things they'd in fact come to see its reaffirmation. This



At the time of its building Brindley's aqueduct would have stood out as a marvel of construction in a largely rural setting. (Courtesy of The Waterways Archive)

lowly born upstart was to have his comeuppance it seemed. Speeches laced with homage were rapidly being rewritten, with an emphasis on sympathy laced with *schadenfreude*.

Others, more likely to be dressed in browns and greys, felt the first stirrings of disappointment. Many had come to believe in this man whose exploits in the last few months had earned him the nickname 'The Schemer'. They had already seen him perform marvels and they had begun to wonder if he might, just might, be about to deliver a miracle. They had bought into his dream of a new way of doing things and many had broken their backs for him making that dream a reality. More to the point, many of those looking for this miracle to happen were still owed wages.

By the end of the day everyone in the crowd would have their opinions and prejudices thoroughly tested, and debate on the merits of the missing man would be vociferous in the local inns. When they did finally get to eat that day, some sampled the sweet taste of success whilst others tucked into unseasoned slices of humble pie.

The man they would be talking about was James Brindley, the barely literate oldest son of an insignificant Staffordshire crofter; to some a mere millwright, to others an inspiration. We don't know for certain if Brindley did actually witness the events of that day, but his physical presence turned out to be immaterial. What we do know is that what followed turned out to be a decisive turning point in his life and career, setting in train a sequence of events that was both to make him and, in a relatively short space of time, break him.

But all this was to come. Where might Brindley have been as the stallholders pitched their stakes and the dignitaries gathered on the platform erected especially for the occasion? It is entirely likely that the rumours were true and he had retired to his bed, a habit he often adopted at moments of stress in his life. It's not unreasonable to suspect that Brindley had appreciated the importance of the day and succumbed to an attack of nerves. He was also not immune to bouts of self-doubt, even if these were usually short lived.

A quiet man at the best of times, crowds were not his natural milieu. He had tasted failure a few times in his career, seeing it as a natural part of the learning process, but never had he done so before a specially invited audience of the regional great and good of early Georgian society. However confident he may have been in success, even the faintest prospect of such a public failure was perhaps something best avoided. Equally, his natural introversion may have led him to reject the spotlight in favour of watching events unfold from the sidelines amongst the comfort of his men, observing with a critical eye rather than merely sightseeing.

When the show did finally get underway that warm July morning it took only minutes before Brindley's vision was vindicated and triumph was formally declared, but the crowds lingered for hours, unable it seemed to believe what their eyes had told them, before dispersing along with the last of the daylight. They were only the beginning. Others followed, and over the coming weeks tens of thousands would come and gaze and wonder at the structure before them, transforming the reputation of the man whose inspiration had made it all possible. From a moderately successful local figure, respected as someone who had hauled himself up from very little simply by dint of his skill and inventiveness, he would become a national guru in a whole new field of technology.

Before the year was out the process would begin that, in time, would cement his claim to be the country's first civil engineering superstar and the progenitor of a new transport system that was to transform the physical, social and economic landscape of the nation. Over the next dozen years he would work tirelessly as the great and good of the newly emerging industrial centres paid homage to his expertise until he eventually died, exhausted by a combination of overwork and undiagnosed diabetes.

Others, often his personal disciples, would soon follow in the path he cleared and within years England would be gripped by a frenzy of activity the consequences of which would define the nation's fortunes for succeeding centuries. From a land of simmering potential the country would find a new purpose, as well as the means to realise it, and in doing so become the world's first global economic and military superpower, with the greatest empire the world had ever seen to prove it.

Before all this there was the little matter of a bridge. No ordinary bridge but a magnificent stone construction with three semi-circular spans, the middle one of which stretched fully sixty-three feet. Together the bridge spanned a total of 200 yards, an unbelievable distance, and was fully twelve yards wide. Like its designer, it was bold and simple in appearance, with no external fripperies – there to do a job. The early canal chronicler John Philips later remarked upon the considerable strength of the bridge with *'every front stone [having] five square faces or beds, well jointed and cramped with iron run in with lead ... the piers are the largest blocks of stone and cramped as before'*. Also like its designer it had hidden depths and solid foundations.

Perhaps most impressively the bridge was suspended thirty-nine feet over the murky black waters of the River Irwell at a place called Barton, an hour's horse ride out from the centre

of Manchester. Today, we would pass over such a bridge in our cars without a second glance, but in its day it was a remarkable feat of engineering, made all the more so by the fact that it was not only a bridge but an aqueduct, carrying a self-contained man-made river. Its calm even presence seemed to present a challenge to the more chaotic example nature and God had provided below.

It was this feature that made the construction so special. Much of its importance lay in the questions it posed, not only rational questions but also to the accepted order and God's law. On a purely secular level, no one in England had thought of attempting anything remotely like this structure since Roman times, since when knowledge of how to do such things had been lost. Brindley had, in effect, reinvented the necessary technology. What was more, to those in the know the bridge was only half the achievement. Its construction had required the building of significant embankments on both sides of the river, a task that had required the mobilisation of armies of men equipped with little more than pickaxes and barrows.

One of these embankments, at a place called Stretford Meadows, was over half a mile long and 112 feet in breadth at the base, twenty-four feet at the top, and seventeen feet high. Although this was an age when slavery still thrived overseas, the men who had shifted the tons of earth involved had worked willingly under the direction of the Duke's agent, John Gilbert, and the mere millwright James Brindley.

The structure broke all the rules and defied logic. To the uninitiated and educated alike there was the fundamental question of leakage, for didn't common sense dictate that water always found a way out? Even if it didn't leak, how safe was it? Everyone knew that it had been built in less than a year – by a man whose previous experience was mainly in working with wood, fixing mills. Anyone foolhardy enough to cross the bridge in a boat would at best go aground and at worst suffer a terrifying plunge into the ugly rocks and water below.

This scheme went beyond any Roman aqueduct carrying drinking water, though. It was part of a major new water highway, a canal, capable of carrying cargo in boats as well as men and horses. The bridge had been designed to carry part of a second 'artificial river', free of tides or flow and with smooth straight edges, with a certain imperiousness over the natural conduit that God Himself had supplied to serve that rapidly growing town.

With this bridge man was corralling nature and attempting to tame water, one of her most perfidious agents. The natural order dictated that man should accept what he had been provided with and live with it. Brindley and his bridge challenged that assumption and turned it on its head. What if the will of man could be made to triumph over the will of God? This was radical, even blasphemous thinking, and who knew where it could end? If the natural order could be challenged where would it stop?

Those who felt most threatened that warm summer's day hung onto the belief that the whole thing was the folly of a young and impressionable fool, Francis Egerton, the third Duke of Bridgewater. According to this gossip, this young playboy, whose antics had briefly lit up the London social scene, had been taken in by a convincing charlatan and embarked upon some glorious voyage of self-destruction. The well-known gambler had staked his entire fortune on a venture no one knew the outcome of. He was said to be on the point of bankruptcy.

It was common knowledge that Egerton had been the youngest of the great First Duke's eight children. Gossip in fashionable circles suggested he was the runt of the litter, abandoned by his mother and lacking any formal education for the simple reason that no one had expected



Brindley's path often crossed with that of his contemporary John Smeaton, with the latter's reputation and contrary opinion of Brindley's abilities usually combining to slow Brindley's progress down. (Courtesy of The Waterways Archive)

him to survive. By some freak of chance Egerton had survived all his siblings to inherit both title and lands, an unfortunate state of affairs but these things sometimes happened. Those with an interest in the status quo anticipated a mixture of sorrow and relief as they witnessed his final downfall, along with that of the bridge. Those who had invested their sweat in the project might despair, but the world would go on.

Some later engravings of the aqueduct suggest a backdrop of mills and smoking chimneys, but this is Victorian fancy as James Watt had yet to perfect his steam engine and the Spinning Jenny that would help crown Manchester as 'King Cotton' had yet to be invented. Although large by Georgian standards, Manchester still had a population of less than 20,000 and like many such towns was still largely a place of untapped potential. Isolated from markets beyond its immediate hinterland, the physical realities of geography represented a serious barrier to further growth. Supplying food and fuel to its people remained a major logistical problem, as was maintaining order and keeping the population gainfully occupied.

A mural by the pre-Raphaelite painter Ford Madox-Brown, commissioned in 1878 for Manchester Town Hall, is similarly poetic in its interpretation. In this the foreground is dominated by a broad-beamed boat called the Young Duke, barely under the control of a similarly wide-bottomed young mother wearing her finest dress, a black striped number with puffed sleeves. In the front of the boat sit her infant twins waving blue flags. The air of celebration is echoed on the left hand of the bridge – for the scene depicted is from the top of the aqueduct – where a small brightly liveried band, balanced precariously on the battlements of the bridge and complete with snow-white stockings, is in the process of striking up.

Next to them is another boat upon which stands the Duke of Bridgewater himself, his face innocent and his glass empty, although a fawn-coated Brindley is seen refilling it from the

wicker-coated flask of brandy, his so-called 'packet pistol', he was said always to carry with him. The various coats of arms on the Duke's boat are reflected perfectly on the still water. Just in front of them a small boy is preventing a small spaniel from becoming the canal's first victim by fishing it out of the water, sending out the faintest of ripples.

Luckily photographs of the original structure survive, taken just before the aqueduct was demolished not long after Madox-Brown painted his mural. This confirms the main features of the structure as being built of sandstone with two stanchions sitting in the water, each faced with a vertical point, supporting the two main arches. The third, on the southern end, rests on the bank. A wooden wharf sits on the other bank on the Irwell.

These pictures show the aqueduct to be a solid construction, but unremarkable to modern eyes. The distance from the bridge to the Irwell also seems modest – a man could fall down one of the banks and expect to survive. The landscape around the bridge however would have been empty, save for a few trees, which would probably have made the structure stand out in its surroundings. As such, the bridge would have acted as a magnet for the idle and the simply curious on that fine midsummer's morning, who would have walked or ridden to be there.

Amongst them would have been a cross-section of Lancashire society, including local gentlemen farmers and Manchester mill owners, many of whom may have had a few shares in the Mersey & Irwell Navigation Company, which held a monopoly over traffic on the river and would therefore be willing this potential competitor to fail. Members of the clergy would probably have been similarly inclined, although the concerns of some of the more free-thinking amongst their number, who may have been members of some of the informal discussion groups that had recently sprung up, may have been more intellectual than religious.

Others with a more direct stake would have included the men whose dedication and muscles had made the waterway a reality. Many had fled the land to join Brindley's men and would have been unsure if a place remained for them there should the venture fail. Standing alongside them would have been riverboat men, who often had to physically haul their craft up and down the Irwell, dealing with its tides, floods and silt on a daily basis. Despite the direct threat to their livelihood, later, when in the tavern, many of these men would admit to a grudging respect for the men behind the bridge. These river men had witnessed some of the engineering involved, along with its speed and efficiency. Many had benefited from the bribes handed out to forestall them when a particularly delicate piece of work had required Brindley's exclusive access to the river.

If they respected the effort, these men still had grave doubts over the end to which it was directed. To a man, none of them had ever expected the bridge to be completed, fully expecting a flood or the tide to have taken it away each time they passed it. Somehow it had stayed up, but everyone agreed that they were asking for trouble when they filled it with water. It stood practically no chance of surviving.

As it happened they were nearly right. With so much at stake it was hardly surprising that the three main protagonists, Brindley, the Duke and his agent, had agreed that a test run would be a good idea. It turned out just as well they did for when they first ran water into the aqueduct small cracks began to appear in one of the arches. It was at this point that Brindley retired to the Bishop Blaize Tavern at Stretford, presumably in despair, perhaps laying the grounds for the later rumour.

It was left to Gilbert to diagnose the problem – too much weight on the sides of the arch; and also to fix it. Working feverishly, he removed some clay at the weak point and covered the stonework with straw to prevent slippage before applying a fresh layer of clay. Disaster, it seemed, had just been averted.

Despite this, on the day itself it is likely that the Duke, his guest the Earl of Stafford and John Gilbert himself would have shared the anticipation of the crowd as the underwater gates that held the water back were lowered and liquid rushed in to fill the aqueduct. Against a background of hushed anticipation the sound of gushing water would have been clearly audible, its note changing as the channel in the bridge filled slowly. That note would have been a dull one, for the water was pouring into a mud channel, the stonework of the bridge having been covered by a mixture of earth held together by grass and kept firm by clay, giving the bridge the appearance of a furrow held suspended in mid air. Looking from the side it would have been easy to forget it was a bridge at all.

With a slight twist of his head the Duke would have been able to spot the silhouette of a horse emerging out of the late morning mist about a hundred yards down the water, growing larger as it approached the bridge. Attached to a harness on its back was a rope trailing out lazily to a flat bottomed barge carrying a load of coal, exactly the same sort of barge people were more used to seeing plying the river below. The Duke's men had held a ballot to decide who would have the honour of leading the horse and the winner held no fear as he advanced slowly.

As he approached, the Duke would probably have been reminded of the words of the engineer John Smeaton who, in a rare moment of doubt he had allowed to examine the plans for the aqueduct and pass his opinion. It had not been favourable. To his face, this expert, no stranger to lofty structures, for he had recently completed the Eddystone Lighthouse, had pronounced that *'I have often heard of castles in the air; but never before saw where any of them were to be erected'*. After a moment of doubt, the Duke had followed his instincts, convinced by Brindley's absolute certainty that he was right. That trust remained a gamble.

Suddenly the rest of the crowd noticed the approaching barge, their attention drawn more by the clanking of the horse's harness than the soundless progress of the boat, discernable only by the slight V-shaped ripple thrown out by its bow. It is easy to imagine a gasp going up as the man leading it reassured the horse with a pat to its flanks as they stepped onto the battlements of the bridge and apparently walked across a stone tightrope.

Applause might have started somewhere to the left of the Duke and grown spontaneously until it developed into a crescendo, augmented by whoops and cheers. Hats would have been thrown into the air and all sense of social hierarchy would, at that point, have collapsed as men great and small, carried along by the moment, queued to shake the Duke's hand. Wherever he was, Brindley might have allowed himself a slight smile.

Soon others followed the horseman onto the bridge, testing their luck and bravery. Other boats floated out over the river, some making the journey back and forth several times, with the more enterprising boatmen even starting to charge for taking passengers. Over the middle span it was possible to see a man being dangled by his ankles over the side of the bridge, occasioning further gasps from the women in the crowd, whilst a colleague stood to one side holding his waistcoat and hat.

This was the correspondent of the Manchester Mercury, and he was later to file the following despatch: *'A large boat carrying upwards of fifty tons was towed along the new part of the*

Canal over arches across the River Inwell which were so firm, secure and compact that not a single drop of water could be perceived to ooze out of any part of them. His colleague, commenting on the wider implications of what he'd seen suggested slightly less enthusiastically that, *'The Canal will be of very great use as well as amusement'*.

The three men behind the Duke's Cut, soon to be renamed the Bridgewater Canal, had issued a statement of intent: canals represented the future. But that intent needed to be implemented. Finishing this first canal and making money from it was to preoccupy both the Duke and his agent for a few years yet. It fell to Brindley, the master of water, to realise the potential they had unleashed that day, to digest the lessons learned and to form and implement a much grander vision: one of a network of canals that would link the nation and bind together a disparate population in a way that allowed them to realise their latent collective energies.

Who then was this man and what made him so special? What were the qualities that drove him on and allowed him to succeed where others had previously failed? What right has he to be called the man who united the kingdom?

The journey to answering these questions takes in success and failure, aristocrats and navvies, dramatic changes in circumstance, both personal and financial and, as we have already seen, some of the most daring challenges to conventional wisdom ever suggested. It is a journey that begins unpromisingly in a damp stone church in the Staffordshire Moorlands.