THE NEW RIVER
AND
CAPTAIN COLTHURST
1600 – 1608

By

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Many accounts of the New River usually relate how Sir Hugh Myddleton built it between 1609 and 1613. However Captain Edmund Colthurst was the man who instigated the scheme, surveyed the route from Chadwell to London by 1602 and had started construction in 1604-5. Edmund was born in 1845 the eldest son of Mathew Colthurst. It was Mathew who had purchased from Henry VIII both Hinton and Bath Priories following the dissolution of the religious houses. Edmund inherited these properties when his father died in 1559 making him a wealthy person. He is known to have lived at both the Hinton and Bath properties as well as farming land in Ireland before 1600. He had served in the English Army while in Ireland and was afterwards sometimes referred to as Captain Colthurst. On returning to England he turned his mind to the problem, long discussed in the previous forty years, of bringing water from the countryside to London. In 1600 he petitioned Queen Elizabeth I for Letters Patent, in consideration of his military service, "to construct a river of water from springs in Hertfordshire to London". The Queen however died before granting his request. In April 1604 Colthurst received his long awaited permission from James I.

A view looking upstream towards the site of Amwell Spring that Colthurst used in addition to Chadwell to provide water for his New River. Beyond the footbridge, just visible round the bend in the stream, is Amwell Pool and opposite on the other side of the road is Emma's Well, the one original spring at Amwell that can still be viewed. The New River had not been completed much beyond this point by Colthurst in 1605 when work was suspended.

Colthurst had not been idle during that time as it is recorded that it was as early as 1602 that surveyors were seen in St. Margarets. By the end of that year Colthurst had the full course of his river mapped out. It is known that Colthurst was a capable surveyor in his own right and it is likely that he carried out the bulk if not all of this initial survey himself. The route he devised followed the 100 foot contour line and was about 42 miles long to cover a straight line distance of some 20 miles. The gradient of the channel was to be just 5 inches or so per mile. The channel as laid down in the Letters Patent was to be 6 feet wide and 4 feet deep. Given the relatively primitive surveying instruments available at the time it was a tremendous achievement to survey the route accurately enough and then go on to ensure its construction met these requirements. Colthurst had from 1600 onwards been in correspondence with Robert Cecil the very influential Secretary of State which was to prove invaluable to Colthurst in the light of later events. Cecil was not entirely convinced by the scheme at first but was later to both support the scheme and convince others to do so. Consequently by 1604 the City of London supported the idea and planned to take 60% of the water to cleanse the various ditches in London. This was a major concern for the City who thought that it was the smell from these ditches that spread the deceases which caused so many deaths.

Once he was in receipt of his Letters Patent Colthurst began construction of his 'New River' starting at Chadwell Springs. Before he started his work the two springs at Chadwell are estimated to have produced some 8 million gallons of cool pure water per day which made its way into the River Lea. His channel being of such small dimensions would have diverted only some of this water away from the Lea. Locally noises were already being made about the loss of water from the Lea and the impact it might have on the millers, barge traffic and others whose livelihoods relied on a satisfactory flow of water in the river all year round. This was in later centuries to become a major issue and gave rise to many difficulties between the New River Company and other vested interests.

Chadwell Springs was described by the Vicar of Amwell the Rev. Hassell in 1631.

"The remotest of these two springs lieth at the foot of a hill and the other near unto the foot of a hill near Ware in a meadow called Chadwell Mead. This spring is not more commendable in respect of the pureness of the water, than the richness and strangeness of her birth, issuing out of a hole of incredible depth as also in the richness of her current, which itself instantly grows into a river of about twenty feet in breadth, yet ever heretofore emptied her waste into the river of the Lee running along by Ware. Until now being taught a new course, runneth along by the Highway a full a mile in length and pouring her rich spoil into the bosom of her sister [Amwell Springs] and so hand in hand coming along with her to London."

[The Vicar of Amwell was of course writing at a time when the channel of the New River was considerably wider and deeper than Colthurst had planned and was already taking additional water from the River Lea.]

This was not the first time that the springs at Chadwell were used in a scheme to provide good clean water. In the C13th the monks of Waltham were persuaded by Philip of Hertford to create a watercourse that took water from Chadwell to the town of Ware for the benefit of the local population. Local oral history related that the outflow from this channel entered the Lea where the barge cut exists near the site of the old Victoria Maltings just upstream of Ware Bridge. It is probable that the Monks of Waltham were approached following their successful scheme to bring fresh water from the springs at Wormley to the Abbey in 1220, for the benefit of the Monks and the townspeople of Waltham. It is worth noting however that they used wooden pipes of eight inches in diameter bound with lead and packed around with clay in a trench to achieve this. It is thought that whatever method was used at Ware in the C13th it was said it was an open channel in later centuries and followed a similar course to Colthurst's river between Chadwell and Amwell End.

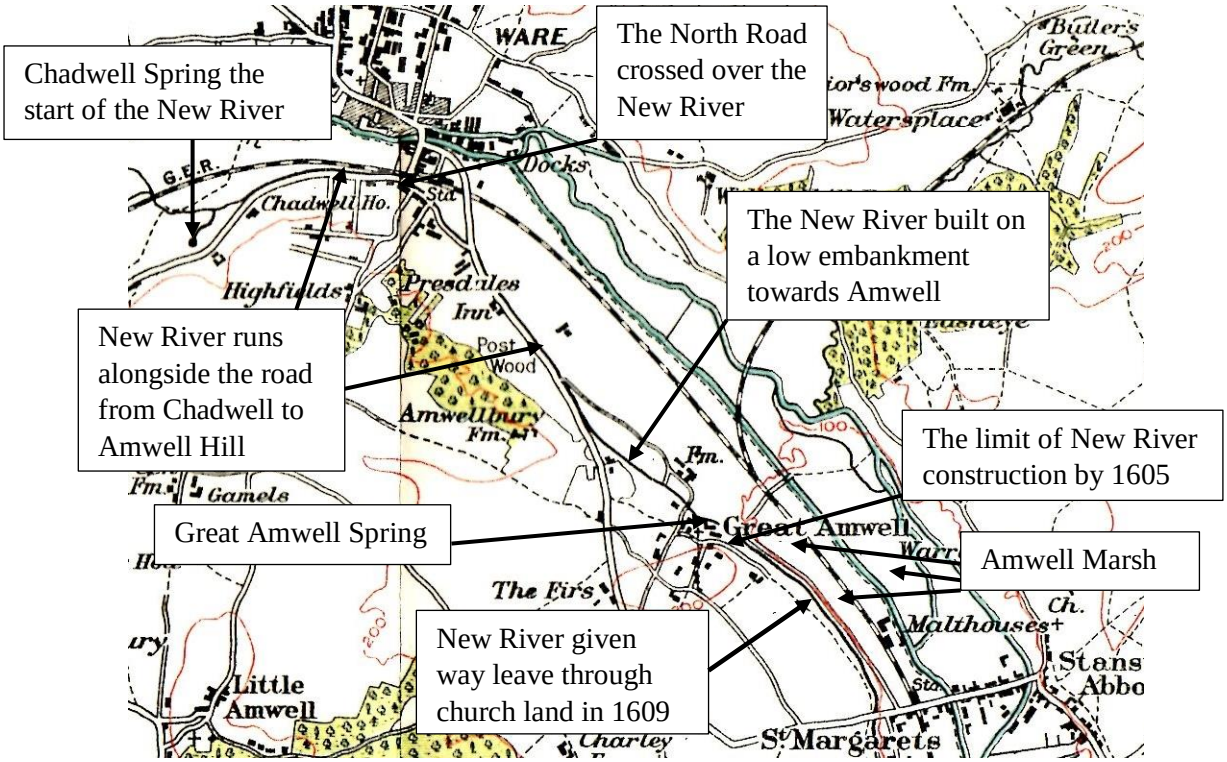
The round pond seen nearest the camera was the location of the lower spring at Chadwell which forms the source of the New River, as seen from the road at the top of Chadwell Hill.

Colthurst pressed on with his excavations during 1604 into 1605 through Ware and onto Great Amwell. Much of the distance being dug alongside the highway from the bottom of Chadwell Hill to the point where the road began to climb Amwell Hill. It included the building of a bridge to take the North Road over the new channel in Ware End {Amwell End}. The main road to the North of England at that time passed through Ware on its way to York and beyond. The course of the excavations veered away from the road at the bottom of Amwell Hill and followed the base of the hill on a slight embankment to reach the springs at Amwell.

Before the New River was built there were four springs at the base of the steep slope to the north of Amwell Church. The two springs closest to the bottom of the slope created a very wet marshy area now occupied by Amwell Pool. The water from these and the two springs lower down the slope formed channels of water which combined to form a stream which crossed the flood plain to join the natural course of the Lea located two thirds of the way across the valley. Due to the large volume of water issuing out at the surface the springs were often referred to as the "Great Spring". The valley downstream of Amwell springs received so much water by groundwater movement that it formed an area known as Amwell Marsh. This very boggy area reached as far down the valley as the present Stanstead Lock and about half way or more across the valley floor. This marsh was to be part of the landscape until the mid-1800s when the pumping of water from underground lowered the water table sufficiently to cause the marsh to dry out. Even today the water table is only a foot or so below the surface over much of the former marsh area.

The four springs at Amwell were arranged on two levels in such a way that meant Colthurst could only make use of the water from the two closest to the church. The remaining two springs continued to feed the stream which took their water across the valley to join the River Lea. These two springs still exist today one in the garden of Well House and the other, much better known and usually referred to as Emma's Well, is accessible to view by a staircase leading down from the road which runs along the north side of Amwell Pool. Colthurst built a plain channel close up against the steep bank below the church fed by the two higher springs. It was to be some 200 years before Amwell Pool would be built and form the attractive feature we are familiar with today.

KEY FEATURES OF COLTHURST'S CHANNEL 1604 - 1605



A view of Emma's Well near to Amwell Pool which still produces water in wetter periods. The picture was taken from the viewing steps provided to allow visitors to enjoy this beauty spot and appreciate its historic significance.

By spring 1605 Colthurst had completed the channel of the New River to a point just a little beyond Amwell Church probably close to the present location of Great Amwell war memorial. However in 1605 Colthurst was faced by a series of setbacks not the least that he had spent the majority of his personal funds and required additional finances. He was also faced with other competing projects being suggested which included one similar to his own and another to bring water from Uxbridge. The City of London were also discussing putting forward their own plan for a water supply from Hertfordshire. There was an idea put forward suggesting a covered water course built in brick to limit the risk of contamination of the water would be a better option. It is no surprise that Colthurst moved to Cambridge to take payed employment on another water course project. At this time Colthurst was claiming that he had built 3 miles of the channel from Chadwell at a cost of about £1,000 with some £700 on construction costs and the rest for attaining Letters Patent. This would have meant that the channel would have reached a point just short of the present location of St Margarets New River Pumping Station. This contradicts later evidence and Colthurst was clearly exaggerating how much he had achieved.

No more work was to be done on the New River until 1609 and the skilled workforce that Colthurst had brought together and trained for the enterprise was dispersed far and wide. In May 1605 Robert Cecil asked Israel Amice, a very experienced surveyor, to appraise Colthurst's scheme. Israel Amice reported to Robert Cecil that Colthurst's New River scheme was well surveyed and the intended course was well designed and very suited for its intended purpose. The City of London decided to investigate the possibilities of promoting their own Act of Parliament that would replace Colthurst's Letters Patent and set up a committee to look into the matter. Colthurst was invited to attend these meetings and Hugh Myddleton was one of those appointed to the committee along with others who would later put money into the project. Robert Cecil was busy working to promote the scheme and also through his insistent compensation for Colthurst was to be included within the Bill.

A view from the road bridge at the upstream end of Amwell Pool. Colthurst's four foot wide 1605 channel lay to the far right. One of the springs is located in the bed of the watercourse to the left of the nearest island. The other is beneath the right hand channel close to the far end of the further island. Emma's Well lies at the far end of the wooden fence seen to the left.

The City obtained its first Act of Parliament in early 1606 which gave them permission to build a water course to bring water from the springs at Chadwell and Amwell to London in a channel that was ten feet wide rather than the six feet of Colthurst's river. After further careful consideration the City gained an Amendment Act in early 1608 which added among other things the provision for stone trunking or vaults in the earth or in aqueduct form on arches. By October Colthurst had acquired financial backers for his scheme and offered the City the opportunity to support him based on his Letters Patent. His offer was politely declined by the City. His new financial partners soon began to realise that the Acts of Parliament gave far greater flexibility when constructing the channel and powers to buy the land through which the New River would be cut. The Letters Patent did not give the absolute right to construct the water course and Colthurst was relying on gaining way leaves to pass through peoples land. They therefore transferred their allegiance to the City of London's scheme with its wider channel backed by two Acts of Parliament. On the 28th March 1609 Hugh Myddleton, not Edmund Colthurst, was made the City of London's deputy to construct the New River in four years. It was not unusual for the City Merchants to appoint "one of their own" to look after their adventure capital investments. Hugh Myddleton had a very good record of careful handling of money and was well respected among those who mattered in the city.

When it came to compensation for Edmund Colthurst he was to state that he had completed two miles of the New River from Chadwell not three as he had previously claimed. In May 1613 the channel from Chadwell to Amwell had its top widened by four feet and the base by eighteen inches at a cost of £15. This suggests that this work was to enlarge the width of the original channel from 6 to 10 feet. The work, as described, would also reduce the steepness of the sides of the channel, notable because Colthurst's 1605 channel had suffered considerable bank collapse in its years of neglect. The 1609 - 1613 channel had more gently sloping sides when first cut to avoid this problem. This confirms Colthurst's later claim that he had built only 2 miles of the channel by 1605 from Chadwell to just beyond Amwell Spring. In addition the Vicar of Great Amwell left us a record stating that on the 2nd January 1609 he gave permission for the New River to be built through church land at no cost. The Vicar describes this field as one he never made a profit from and had because of this never even bothered to fence it off from the marsh on its northern edge. His writings allows us to identify it as the long thin sloping field with the New River running through it which today is bounded on one side by Amwell Lane and on the other the fields that lie between the Folly Housing Estate and Great Amwell School. The field mentioned by the Vicar is about a quarter of a mile downstream from Amwell Pool. Given that the Vicar gave his permission in 1609 it means that the construction of the New River did not progress far beyond the springs at Great Amwell in 1605. The church received a large lectern bible in consideration of their generosity towards the New River.

Edmund Colthurst had of course lost overall control of his project in 1608 but Hugh Myddleton recognised his considerable abilities as a surveyor and engineer. This led to Edmund Colthurst being employed on a good salary to oversee the construction of the New River between 1609 and its completion in 1613. At the opening ceremony he was clearly credited as the main driving force behind the completion of the whole project. He was given free of charge 2 of the original 34 Adventurer's shares in the New River Company by Hugh Myddleton and continued to be paid a salary until his death in 1616. It is sad to relate that over time Edmund Colthurst has tended to be forgotten and Hugh Myddleton has been credited with the construction of the New River rather than for his considerable skill in arranging finance and managing the funds with great care.

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