

= River Arun =

The Arun (/ ʔærʔn /) is a river in the English county of West Sussex . Its source is a series of small streams in the St Leonard 's Forest area , to the east of Horsham . After flowing through Horsham to the west , it is joined by the North River at Nowhurst . Turning to the south , it is joined by its main tributary , the western River Rother , and continues through Arundel and past Arundel Castle , to join the English Channel at Littlehampton . The Arun local government district in West Sussex is named after it . It is one of the faster flowing rivers in England , and is tidal as far inland as Pallingham Quay , 25 @. @ 5 miles (41 @. @ 0 km) upstream from the sea at Littlehampton .

The first major improvements to the river were made between the 1540s and the 1570s , when Arundel became a port , and navigation up to Pallingham was improved , but barges had difficulty negotiating the flash locks that were installed . The work was carried out by Henry FitzAlan , 19th Earl of Arundel , who made the upper section toll @-@ free . Harbour commissioners managed the lower river from Arundel to the sea from 1732 , and major improvements to keep the estuary free from silt were sanctioned by an Act of Parliament obtained in 1793 . With the coming of the railways and changes in coastal shipping , Littlehampton superseded Arundel as the port of the Arun , and the Littlehampton harbour commissioners are still responsible for the river up to Arundel , collecting tolls for its use .

The river above Arundel was improved after 1785 . As the main channel was toll @-@ free , the proprietors of the scheme built two major cuts . One , which included three locks and passed through Hardham Tunnel , was built to avoid a large bend near Pulborough . The other was near the upper terminus , where a cut with three locks crossed the original channel by an aqueduct to reach wharves at Newbridge . Further improvements were made when the Wey and Arun Canal opened in 1816 , joining the Arun at Newbridge , and after the completion of the Portsmouth and Arundel Canal , which opened soon afterwards . These two canals were an attempt to provide an inland route between London and Portsmouth , but were not as successful as the proprietors hoped . Traffic declined rapidly when the railways offered competition , and the navigation ceased to be maintained from 1888 , though some traffic continued on the lower sections . The Wey and Arun Canal is currently being restored , and restoration will eventually include the cut and locks below Newbridge .

= = History = =

When Ptolemy wrote his Geography around 150 AD , the Arun was called the Trisantonis , with later accounts using the same name . Trisantonis is thought to be a Brythonic word for ' the trespasser ' , indicating the river 's tendency to flood land near to the river . Trisanto translates directly as ' one who goes across ' . There is also a theory that the Arun may have been known as the Trisantonis in its lower reaches close to the sea , but known as the Arnus (from the Brythonic ' Arno ' meaning run , go , or flow) in its upper reaches . It is possible that the town of Arundel may mean Arno @-@ dell , or dell of the flowing river . By the Middle Ages the river was known as the river of Arundel , the Arundel river , or the high stream of Arundel . An alternative name , the Tarrant (derived from Trisantona) , is , however , attested in 725 and 1270 , and is reflected in the road name Tarrant Street , one of the main roads running through the town roughly parallel to the river . The first use of the modern name was recorded in 1577 , but the alternative names of Arundel river or great river continued to be used for many years .

The mouth of the river has not always been at Littlehampton . Until the later fifteenth century it joined the River Adur at Lancing some ten miles to the east before entering the sea . This estuary became blocked with shingle by the eastward drift of the tides , pushing the Adur towards Shoreham @-@ by @-@ Sea , while the Arun broke out at Worthing , Goring and Ferring at various times , until it formed its present estuary at Littlehampton between 1500 and 1530 .

= = Improvements = = =

The lower portion of the river , from the sea to Ford , was navigable in the eleventh century at the time of the Norman conquest . In the sixteenth century , Henry FitzAlan , 19th Earl of Arundel built wharves at Ford , and improved the river channel below there , so that the town became a port . Over the 30 years from 1544 , he also improved the river as far upstream as Pallingham Quay . Although the work involved a number of flash locks , which were not very successful , no tolls were charged for its use , and vessels of around 15 tons were used to carry timber . Attempts to make the river navigable up to Newbridge in the early sixteenth century were not successful .

An Act of Parliament was obtained in 1732 , the main emphasis of which was the improvement of " the harbour of Littlehampton , called Arundel Port " , but improvements to the first 5 @. @ 75 miles (9 @. @ 25 km) of the river , from the sea to Arundel , were also authorised . Commissioners were appointed , with powers to erect piers and to cut a new channel to the sea through a sand bar . The Act allowed them to charge tolls for use of the facilities , and once the initial costs had been repaid , one half of the tolls were to be used to maintain the harbour and the river channel up to Arundel . Although most ships were of 30 or 40 tons , ships of up to 100 tons could reach Arundel as a result of the work , and trade improved .

The next Act to affect the river was obtained by a group of local men in 1785 . Under the Act , the proprietors were empowered to make the river navigable for 30 @- @ ton barges up to Newbridge . They had no jurisdiction over the river from Arundel to Houghton bridge , and could not charge tolls for use of the river up to Pallingham . There were 31 members of the proprietors , who could raise £ 10 @, @ 000 by issuing 100 shares worth £ 100 each . Day @- @ to @- @ day oversight of the affairs of the navigation were managed by three proprietors , with a half @- @ yearly meeting of the larger group . The purpose of the navigation was to carry coal , chalk and lime upstream , and agricultural produce in the other direction . Rather than improve the river channel , the navigation upstream of Pallingham consisted of a separate channel , containing three locks , and an aqueduct which carried the navigation over the river at Orfold . The journey below Pallingham was made 3 miles (4 @. @ 8 km) shorter by cutting a new channel between Coldwaltham and Hardham . This involved the construction of three more locks and a 375 @- @ yard (343 m) tunnel . The Pallingham to Newbridge section opened on 1 August 1787 , while the Hardham cut was completed in mid @- @ 1790 . The cost of the work was around £ 16 @, @ 000 .

There were two proposals to extend the navigation at this time . The first was for a canal to North Chapel , to the north of Petworth , in 1791 , and the second was for a canal to Horsham in the following year . The route was surveyed by John Rennie , who estimated that it would cost £ 18 @, @ 133 to build , but negotiations with the existing proprietors failed , and the scheme was dropped in 1794 . Meanwhile , a second Act of Parliament was obtained by the harbour commissioners in 1793 , as there was serious silting of the estuary . Groynes were constructed and the existing piers were made longer . In addition , a towpath was built from the mouth of the river up to Arundel . The Act stated that the capital borrowed to finance the harbour under the previous act had been repaid , and that tolls would all be used for maintenance of the harbour and river up to Arundel , once further borrowings had been repaid . Because the inhabitants of Arundel had spent £ 28 @, @ 300 on the harbour , boats which belonged to the port of Arundel did not have to pay any tolls . As a result of the works , the port of Arundel enjoyed its most prosperous period for the next thirty years , with ships of 200 and 300 tons able to reach the town on spring tides . Facilities improved , and there were four docks by 1840 .

== = Operation == =

Payment of dividends to shareholders began in 1792 , and over the next five years , tolls raised an average of £ 893 per year and the dividend was 3 @. @ 1 per cent . At this time , George Wyndham , 3rd Earl of Egremont was buying shares and having obtained one third of them , he became chairman of the company . He then stopped the payment of dividends so that the borrowed capital could be paid off more quickly . Apart from an interim payment in 1821 , dividends were not reinstated until 1830 . In the 1790s Wyndham was responsible for the canalisation of the River Rother which joins the Arun at Stopham , and he also promoted the Wey and Arun Canal , which

was seen as part of a larger scheme to link London to Portsmouth , an idea which had been contemplated several times since 1641 . He chaired a meeting held at Guildford on 1 June 1811 , at which it was decided to press ahead with the canal , and put up £ 20 @, @ 000 of the initial £ 90 @, @ 500 estimated cost . The canal opened in September 1816 , but the estimated 100 @, @ 000 tons of traffic passing between London and the dockyards at Portsmouth , and the 30 @, @ 000 tons of local traffic , were far too optimistic , with actual traffic averaging around 15 @, @ 000 tons per year throughout its life .

The London to Portsmouth route was to be completed by the Portsmouth and Arundel Canal , in which Wyndham and the Cutfields , who also held many shares in the Arun Navigation , were both significant subscribers . This was authorised by Act of Parliament in 1817 , and an agreement was reached that the Arun would be improved to aid through traffic . Nevertheless , no work commenced on the Arun until the proprietors were sure that the Ford section of the new canal would actually be built . Once they were convinced , they obtained an Act of Parliament in May 1821 , and the engineer James Hollingworth oversaw the improvements , which were completed in mid @-@ 1823 . The work involved improving the depth and width of the channel , and some alterations to bridges and locks to make their size more uniform . The company borrowed £ 3000 to finance the work , which cost around £ 5000 in total . The loans had been repaid by 1831 , and the work allowed barge sizes to be increased from 30 tons to 40 tons , with the result that business improved .

Traffic increased , as shown by the number of boats belonging to residents of Arundel . There were 13 in 1801 , which had increased to 15 by 1803 , with a total tonnage of 266 . A timber merchant called John Boxold owned barges in 1815 and 1832 , while in 1820 , a company began running regular freight services to London , using three barges based near the town quay . By 1823 they had ten barges , which had reduced to seven by 1830 , and barges ran twice @-@ weekly to Chichester , London , Midhurst , and Petworth . The company was variously called Seward and Co . , The Arundel Barge Co . , and several other names .

= = = Decline = = =

From the 1840s , use of the river declined , as a result of competition from the railways , and changes in coastal shipping . Littlehampton grew in importance as a port and after years of resistance by the people of Arundel , the customs house was moved there in 1864 . The Mid @-@ Sussex Railway opened their line from Horsham to Pulborough and Petworth in 1859 , which was extended to Ford and Littlehampton in 1863 . Receipts from tolls had peaked at £ 2044 for the five years from 1835 to 1840 , when a dividend of 11 @. @ 8 percent was paid , but dropped quickly , raising just £ 389 for years between 1870 and 1875 , when the dividend was 1 percent .

By 1852 , the barge service to London only ran once a week , and it had ceased altogether three years later . Most vessels reaching Arundel were coasters rather than barges by 1886 , and just 20 ships used the facilities that year . The Wey and Arun Canal closed in 1871 . The proprietors of the upper river ceased to maintain the navigation from 1 January 1888 , and the last barge passed through Hardham Tunnel on 29 January 1889 . The river was abandoned as a navigation by a warrant issued as part of the Railway and Canal Traffic Act of 1888 . The River Lark in Suffolk was the only other river navigation abandoned at that time . The Board of Trade issued a closing order in 1896 , and after that , there was no navigation authority responsible for the upper river . However , traffic did not cease entirely .

Fifteen or twenty barges were still using the river in the 1880s , although the upper reaches were no longer accessible . Arundel docks silted up between 1875 and 1896 . In 1898 , the London , Brighton and South Coast Railway , who by this time were the owners of the railway from Horsham to Littlehampton , drilled down into the tunnel where the main line and the branch to Midhurst crossed its course , and poured tons of chalk into the tunnel to stabilise it . A trade in chalk and lime extracted from Amberley chalk pits continued into the early twentieth century . Some ships were towed to Arundel by paddle tugs , and imports of salt , timber and coal for the gasworks continued . Arundel was visited by its last steamer in 1914 , and the last sailing vessel to reach the port did so three years later . Passage of larger craft upstream was hindered by the construction of a swing

bridge at Littlehampton in 1908 , and prevented by a fixed railway bridge at Ford built in 1938 . As freight traffic disappeared from the river , Edward Slaughter , who later became part of the company of Buller and Slaughter , was hiring pleasure craft by 1903 , and the company was still doing so in the 1990s .

== Present ==

Authority for the river remains much as it was after 1896 , with the Littlehampton Harbour Board responsible for the section from the mouth up to Arundel Bridge , and no navigation authority for the river above that , although the Environment Agency have responsibility for its drainage functions . There are nine bridges with a minimum navigable headroom of between 8 feet (2 @.@ 4 m) and 5 feet (1 @.@ 5 m) at high water . The river is tidal to Pallingham Quay , 25 @.@ 5 miles (41 @.@ 0 km) upstream from the sea at Littlehampton , and flows at 4 to 6 knots (7 @.@ 4 to 11 @.@ 1 km / h) , making it one of the fastest flowing rivers in the country . The tidal range at Littlehampton is 17 feet (5 @.@ 2 m) at spring tides and 8 @.@ 8 feet (2 @.@ 7 m) at neap tides . High tide occurs 15 minutes later than high water at Dover , and high water at Pulborough is four hours later than at Littlehampton .

== Charitable organisations ==

The Arun & Rother Rivers Trust (ARRT) is a charity set up in 2011 with objectives around education , fisheries , biodiversity , access and pollution amongst other issues .

The Wey and Arun Canal is being restored by the Wey and Arun Canal Trust , which was set up in the 1970s . The Wey and Arun Canal technically ended at Newbridge , but the restoration will include the Arun Navigation section down to Pallingham to reach the River Arun . For many years , the Solent and Arun Branch of the Inland Waterways Association organised an annual cruise on the river to ensure that the navigation rights were maintained . Responsibility for its organisation has now been passed to the Wey and Arun Canal Trust .

== Route ==

At 37 miles (60 km) from its source to the sea , the Arun is the longest of the rivers in Sussex . It rises as a series of streams , known locally as ghylls or gills , to the east of Horsham , in St Leonard 's Forest . It flows westwards , along the southern boundary of Horsham and turns briefly to the north to skirt Broadbridge Heath . Continuing westwards , it is joined by the North River , which is also known as the River Oke , whose headstreams are the heights of Leith Hill and Holmbury Hill in Surrey . After the junction , it passes under the A29 road , which follows the route of the Roman Stane Street at this point , and timber piles of a Roman bridge have been found in the riverbed . The earthworks from a Roman station are close by . To the south of Rudgwick it is crossed by a disused railway line , and at this point it crosses the 66 @-@ foot (20 m) contour . Its course is marked by winding meanders as it turns towards the south , and the county boundary briefly follows its course , before it is joined by the partially restored Wey and Arun Canal . Its former course to the west of the canal can be clearly seen , and is followed by the boundary , but the main flow of the river follows a new straight cut just to the east of the canal . Once the boundary crosses back over the canal , the river resumes its meandering course on the eastern side of the canal .

A little further to the south is another straight cut , with the old course still visible on the other side of the canal . Soon it reaches Newbridge on the A272 road near Wisborough Green . The location of the wharf which was the northern terminus of the Arun Navigation was just to the south of the bridge . Wharf Farm was nearby , and the modern 1 : 2500 Ordnance Survey map shows buildings named " The Old Wharf " . Brockhurst Brook joins from the east before the river turns briefly westwards . Soon it is crossed by Orfold Aqueduct , which carried the Arun Navigation over the river channel . The River Kird joins it , flowing from the north , and it turns southwards again . At Pallingham the remains of Pallingham Manor are on the north bank , next to Pallingham Manor Farm , a 17th @-@

century timber @-@ framed farmhouse , which is Grade II listed . Pallingham Quay Farmhouse , another Grade II listed building dating from the 18th century , is on the west bank of the river just before its junction with the Arun Navigation cut . Below the junction , the river is tidal .

Continuing southwards , the river passes the gallops which are part of Coombelands Racing Stables , situated on the eastern bank , and Park Mount , a motte and bailey dating from the time of the Norman conquest . It is one of the best @-@ preserved monuments of this type in south east England . The river is crossed by Stopham Bridge , a fine medieval stone bridge built in 1422 @-@ 23 . The centre arch was raised as part of the improvements made to the navigation in 1822 . It is a Grade I listed structure , and also a Scheduled Ancient Monument . It was damaged by army lorries in the Second World War , but has been repaired , and the heavy traffic on the A283 road was diverted onto a new bridge just upstream of it in the 1980s .

Below the bridge is a small island , after which an artificial cut built to avoid the circuitous route of the River Rother Navigation heads westwards . The river now discharges over a weir at the site of the former Hardham corn mill to join the Arun a little further downstream , and the junction is followed by another small island . Hardham lock was necessary because of the drop in levels caused by the mill , and the branch through Hardham tunnel headed due south a little further up the Rother . Exploration of the tunnel was described by an article in Sussex County Magazine in 1953 , when both ends were accessible , and again in 2012 , when only the southern end was explored . A waterworks has been built over the bed of the canal at the northern end , and the tunnel mouth is within the site . The river continues in a large loop to the east . The Arun Valley railway line crosses it to reach Pulborough railway station . There is another island , with the A29 road crossing both channels . Pulborough Brooks nature reserve is to the east of the loop , and the course then meanders westwards to Greatham Bridge . The bridge consists of eight low elliptical arches , two taller arches , a cast iron span over the navigable channel , and a solid ramp to the east . Although its construction suggests that it is medieval , most of the arches were erected in 1827 .

On the west bank of the river below the bridge is Waltham Brooks nature reserve . Coldwaltham lock , on the branch through the Hardham Tunnel , is still marked on modern maps , and the section from the lock to the river still holds water . Just to the north of Amberley , the river is crossed by the Arun Valley line again at Timberley Bridge . At the village of Bury , the West Sussex Literary Trail joins the western bank and another footpath joins the eastern bank . The next bridge is Houghton Bridge , close to Amberley railway station . The river splits into two channels here , and the bridge spans both . Similar to Greatham Bridge , it looks medieval , but was built in 1875 . There is a solid section on the island between the channels , with a single arch over the eastern channel and four arches over the main river . The chalk pits which provided trade to the navigation are now the location of Amberley Museum & Heritage Centre , a 36 @-@ acre (15 ha) site with many items of industrial heritage on display .

The river follows an " S " -shaped course , the northern loop encircling the village of North Stoke and the south one encircling South Stoke . Immediately to the south , the old course passes under the railway line , but a new channel was cut to the west of the railway . On the west bank is the hamlet of Offham and Arundel Wetland Centre , a 65 @-@ acre (26 ha) haven for birds which is run by the Wildfowl & Wetlands Trust . The market town of Arundel is to the west of the river . It has a castle build on a motte , the construction of which was started in 1068 . It is owned by the Duke and Duchess of Norfolk . The present building consists of many different components , dating from the late eleventh century through to the nineteenth , and is Grade I listed . Two bridges span the river here , the first on the original road through the town , while the second carries the A284 Arundel Bypass . The final section is crossed by a railway bridge , built in 1908 , and the A259 road bridge , which carries the road into Littlehampton on the east bank . It discharges into the English Channel between the East and West Piers .

Littlehampton and its harbour were guarded from naval attack by Littlehampton Redoubt on the western bank at the mouth of the river , completed in 1854 , which is now screened from the open sea by Climping sand dunes . This fort replaced a seven @-@ gun battery on the east bank , which was built in 1764 .

= = Points of interest = =