

= Covering of the Senne =

The covering of the Senne (French : Voûtement de la Senne , Dutch : Overwelving van de Zenne) was the covering and later diverting of the main river of Brussels , and the construction of public buildings and major boulevards in its place . It is one of the defining events in the history of Brussels .

The Senne / Zenne (French / Dutch) was historically the main waterway of Brussels , but it became more polluted and less navigable as the city grew . By the second half of the 19th century , it had become a serious health hazard and was filled with pollution , garbage and decaying organic matter . It flooded frequently , inundating the lower town and the working class neighbourhoods which surrounded it .

Numerous proposals were made to remedy this problem , and in 1865 , the mayor of Brussels , Jules Anspach , selected a design by architect Léon Suys to cover the river and build a series of grand boulevards and public buildings . The project faced fierce opposition and controversy , mostly due to its cost and the need for expropriation and demolition of working @-@ class neighbourhoods . The construction was contracted to a British company , but control was returned to the government following an embezzlement scandal . This delayed the project , but it was still completed in 1871 . Its completion allowed the construction of the modern buildings and boulevards which are central to downtown Brussels today .

In the 1930s , plans were made to cover the Senne along its entire course within the greater Brussels area , which had grown significantly since the covering of the 19th century . The course of the Senne was changed to the downtown 's peripheral boulevards . In 1976 , the disused tunnels were converted into the north @-@ south axis of Brussels ' underground tram system , the premetro . Actual purification of the waste water from the Brussels @-@ Capital Region was not completed until March 2007 , when two treatment stations were built , thus finally cleansing the Senne after centuries of problems .

= = The Senne in Brussels = =

At the beginning of the 19th century , Brussels was still in many ways a medieval city . The royal quarter in the upper town , inhabited mainly by the nobility and the richer members of the bourgeoisie , was upscale and modern . The rest of the city , however , in particular the lower town , located in the western half of the Pentagon , was densely populated and industrial , characterized by an illogical street layout , back alleys , narrow streets , and numerous dead ends .

The Senne river split into two branches at Anderlecht , penetrating the Pentagon , the former site of the second city walls , in two places . The main and more southern arm entered through the Greater Sluice Gate , near today 's Brussels @-@ South railway station . The smaller northerly arm entered through the Lesser Sluice Gate , near today 's Ninove Gate . The courses of the two traced a meandering path through the city centre , forming several islands , the largest of which was known as Saint Gaugericus Island . The two branches met up on the north side of Saint Gaugericus Island , exiting the Pentagon one block east of Antwerp Gate . A man @-@ made arm , called the " Lesser Senne " (French : petite Senne , Dutch : kleine Zenne) continued on the borders of the Pentagon in the former moat , outside the sluice gates . It followed the Charleroi Canal before rejoining the main part of the Senne north of the city .

The Senne had long since lost its usefulness as a navigable waterway , being replaced by canals , including the Charleroi Canal . The Senne had always been a river with an inconsistent flow , often overflowing its banks . In times of heavy rainfall , even the sluice gates were unable to regulate the flow of the river which was often swollen by numerous creeks flowing down from higher ground . Making matters worse , within the city the river 's bed was narrowed by encroaching construction due to demographic pressure . The supports of numerous unregulated bridges impeded water flow and caused water levels to rise even further , exacerbated by a riverbed of accumulated waste .

During dry periods , however , much of the Senne 's water was diverted for the needs of the populace of the city as well as to maintain the water level in the Charleroi Canal . This left a flow too

feeble to evacuate the filthy water , leaving the sewage , garbage , detritus and industrial waste that had been dumped into the river to accumulate in the stagnant water . The Senne , which a witness in 1853 described as " the most nauseous little river in the world " , had become an open @-@ air sewer spreading pestilential odours throughout the city . Early in the second half of the 19th century , Brussels saw numerous dry periods , floods and a cholera epidemic , caused as much by the river itself as by the poverty and the lack of hygiene and potable water in the lower city . This forced the governments of the Province of Brabant and the City of Brussels to act .

= = Attempts at purification = =

The first studies and propositions to clean up the river date back to 1859 , and during the following years , many different commissions of engineers were assigned to examine possible solutions . Dozens of different ideas were submitted , many of which were completely unfeasible . Several of them proposed diverting large amounts of cleaner water from other rivers upstream to dilute the Senne , while greatly improving the drainage system in the city . Other proposals involved diverting the main course of the Senne completely to the Lesser Senne , which would then be enlarged and thus more useful for boat traffic and mills . Others considered any sort of sanitization impossible , and proposed covering the Senne without greatly changing its course . Among these was a proposal to double the size of the underground drainage tunnels , creating space for a subterranean railroad tunnel . The idea was ahead of its time , but would be implemented a century later with the North ? South connection .

The municipal council chose the proposal by architect Léon Suys , submitted in 1865 , which had the backing of mayor Jules Anspach . The plan involved suppressing the secondary arm of the Senne by closing the Lesser Sluice Gate . The main branch would be channelled into underground tunnels , to be placed directly beneath a long , straight 30 m (100 ft) wide boulevard , stretching from the Greater Sluice Gate to the Augustinian church (now De Brouckère Square) before splitting into two . One branch was to head towards the Brussels North railway station and present day Rogier Square , the other towards Antwerp Gate , thus forming a long , narrow " Y " shape .

Anspach 's backing of Suys ' proposal was a calculated decision , as he had radical plans to transform the city . Anspach saw the proposal as an unexpected boon , as it allowed him to accomplish several of his goals at once . It had long been his ambition to transform the impoverished lower city into a centre of business and commerce , suitable for a modern capital . He wanted to attract the middle class , most of whom had left the dingy downtown for the cleaner suburbs , including the Leopold Quarter (now often called the European quarter) and Avenue Louise , causing a large loss in tax revenue for the city . The elimination of the numerous alleys and dead @-@ ends in the lower town in favour of a large , straight , wide , open @-@ air boulevard , linking the two rapidly growing train stations , seemed both a necessity and an opportunity to beautify the city and improve both traffic circulation and hygiene .

= = Controversy and opposition = =

The Belgian Parliament had recently passed a law allowing the expropriation of privately owned land by the government when the land was to be used for the ' greater good . ' This could be done even if the project was still speculative in nature , and allowed for more land to be taken beyond what was strictly necessary for a project . The city expropriated large swathes of the lower town , counting on reselling the land for a profit , which , after the project was complete , would be on a grandiose modern boulevard in an upper @-@ class neighbourhood . The selling of land after the completion of the project was seen as a way of financing the project itself . That the poorer residents of the lower town were forced away into other already overcrowded districts or into the surrounding suburbs did not trouble the upper classes very much , as the displaced residents did not pay taxes or have the right to vote .

Even after Suys ' proposal was officially adopted , Anspach faced strong opposition to the project . This opposition came first from engineers who felt that the covering was incompatible with Brussels

? s geology , would accumulate potentially dangerous gases and would not be able to handle enough water to prevent floods . Others opposed to the project complained about the high taxes resulting from its high cost , poor compensation for seized property and the lack of public input into the project . The press accused Anspach of being responsible for demolishing Brussels ' old town , and published numerous caricatures mocking him .

A liberal , Anspach feared the weakness and rigidity of the government and therefore gave the work of covering the river to a private British company , the Belgian Public Works Company (the English name was used) , which was created for the task . However , partway through construction , it was forced to relinquish control to the city of Brussels after an embezzlement scandal in which a company director allegedly attempted to steal 2 @. @ 5 million francs from the company . Anspach only barely kept his office in 1869 by @- @ elections .

= = Construction = =

Excluding the important sewers built upriver and downriver in the adjacent suburbs , the covered section itself was to be 2 @. @ 2 kilometres (1 @. @ 4 mi) in length . Constructed from bricks , the covering was to consist of two parallel 6 m (20 ft) wide tunnels , and a set of two lateral drainage pipes , each taking in waste water from its respective side of the street .

The contract was signed on June 15 , 1866 and the expropriation of the first 1 @, @ 100 houses was completed in a few months . The work began on February 13 , 1867 . There were several technical difficulties that delayed the covering , many of which were due to the geology of Brussels , though they were not as bad as some engineers had forecast . The embezzlement scandal also caused a significant delay in construction , largely due to the change in control . The project was completed in 1871 , with the municipal council ceremonially opening the reconstructed sluice gates on November 30 .

= = The new central boulevards = =

The series of boulevards created by the project ? Hainaut Boulevard (now Maurice Lemonnier Boulevard) , Central Boulevard (now Boulevard Anspach) , North Boulevard (now Adolphe Max Boulevard) , and Senne Boulevard (now Émile Jacqmain Boulevard) ? were progressively opened to traffic from 1871 to 1873 .

The opening of these new routes offered a more efficient way to get into the lower town than the cramped streets of rue du Midi / Zuidstraat , rue des Fripiers / Kleerkopersstraat and rue Neuve and helped revitalize the lower quarters of the town . In order to accomplish this revitalization and attract investment , public buildings were constructed as part of the Léon Suys project including the Brussels Stock Exchange . The vast Halles Centrales / Centrale Hallen , a good example of metallic architecture , replaced unhygienic open @- @ air markets , though it was torn down in 1958 . The monumental fountain that was to break the monotony of the boulevards at Fontainas Square was abandoned for budgetary reasons .

The construction of private buildings on the boulevards and surrounding areas took place later . The middle class continued to prefer living in new suburbs rather than the cramped areas of the city center . The high prices of the land (expected to finance part of the construction costs) and the high rents were not within the means of the lower classes . Life in apartments was no longer desirable for residents of Brussels , who preferred to live in single family homes . The buildings constructed by private citizens had difficulty finding buyers .

To give builders an incentive to create elaborate and appealing facades on their works , an architecture competition was arranged in which twenty buildings built before January 1 , 1876 would win prizes . The first prize of 20 @, @ 000 francs was awarded to Henri Beyaert who designed the " Hier ist in den kater en de kat " (Loosely , " House of Cats ") on North Boulevard . Nonetheless , it took another 20 years , until 1895 , for buildings to solidly line the boulevards .

The former Augustinian church , built at the beginning of the 17th century in the baroque style , was the only remaining part of a convent destroyed in 1796 by French revolutionaries . After having been

used as a Protestant church from 1815 to 1830 , it subsequently saw use as a concert hall , a commercial exchange , and a post office . At the center of de Brouckère square , the church ' s façade was intended by Léon Suys to be one of the focal points of the new boulevards . The work to cover the river , which nearly surrounded the church , preserved the integrity of the building at great trouble and expense , but the church was finally demolished in 1893 , its style no longer popular with the people and its presence unsuitable for the area . The church was replaced by a fountain dedicated to the memory of Jules Anspach . The facade of the church , however , was preserved , being disassembled and moved to serve as the façade for the St. Trinity Church in the suburb of Ixelles .

= = Diversion and treatment = =

Although the original covering of the Senne resolved sanitary problems and flooding in Brussels ' old city , this was not the case in peripheral areas . The Senne was still very polluted , despite work done to the sewers and spillways in the canal . The drainage into the canal was not able to completely stop the floods that regularly affected certain outer areas of the city .

In 1930 , a group was created whose objective was to channel the Senne into subterranean tunnels for nearly its entire course through the Brussels metropolitan area . This was done in order to expand the benefits that the covering achieved in the old city . In the centre , the course of the river was to be changed from the central boulevards to the peripheral boulevards of the small ring . The project , delayed by war and the work being done on the North - South connection , was only finished in 1955 .

The disused channels of the central boulevards later facilitated the construction of the north - south line of the premetro , which opened in 1976 . The conversion of the existing tunnels to metro tunnels ensured that there was minimal disruption on the surface . Some of the former pipes also served as storm drains . The Anspach Fountain was transferred to the Quartier des Quais / Kaaien .

Actual purification of the waste water from the Brussels @-@ Capital Region was not completed until the 21st century , when two purification stations were built . The south station treats refuse water from 360 @, @ 000 inhabitants , which is about one third of the polluted water , and lies on the border of Anderlecht and Forest . The north station , completed in March 2007 , is located near the border of the Brussels @-@ Capital Region , between the Senne and the Charleroi @-@ Willebroek Canal , near Buda Bridge . A portion of the cost was footed by the Flemish Government , as 7 of the adjacent municipalities lie within the Flemish Region . This station is capable of treating the water of 1 @, @ 100 @, @ 000 inhabitants and should finally be capable of fully purifying the Senne , which had long caused much of the pollution of the Scheldt river .