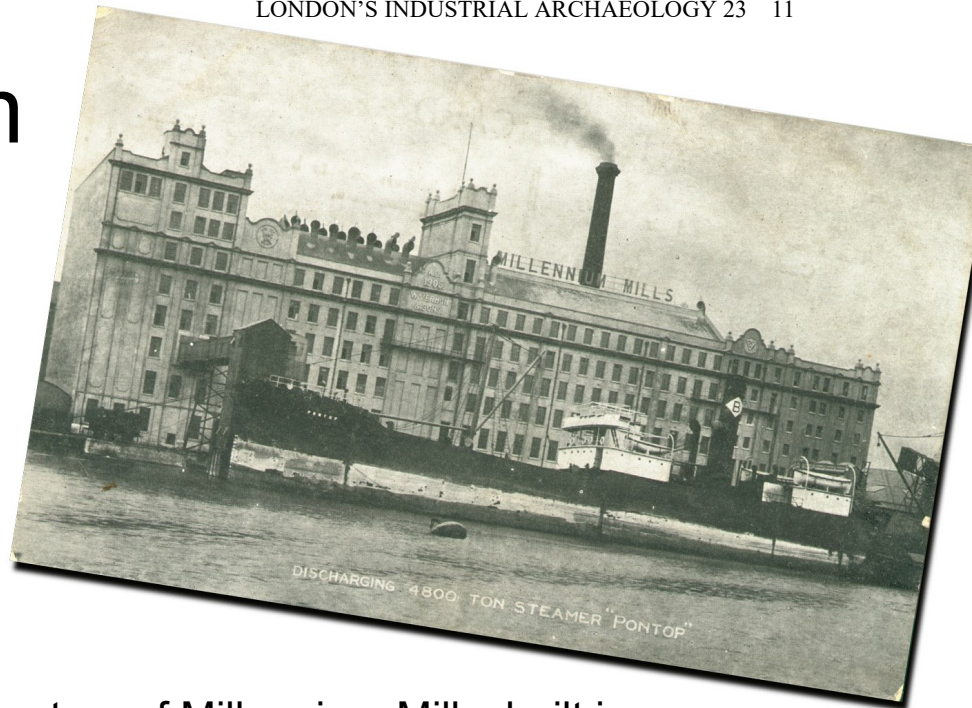


Millennium Mills: the giant flour mill that lingers on



Mark Chalmers tells the story of Millennium Mills, built in Silvertown in east London in the early 20th century, and the wider flour industry across London

I first visited Silvertown in 1994, while the Docklands Light Railway was under construction. It was a still, sunny day when I disembarked at Cyprus, but a cold breeze blew across Royal Victoria Dock, which stretched away towards the horizon like an inland sea. As an architecture student, I was keen to see Olympia & York's development at Canary Wharf on the Isle of Dogs; at that point, the Royal Docks lay beyond the active edge of redevelopment. The quaysides had been mostly cleared, but some buildings stood out in the distance: giant flour mills which seemed remote and inviolable.

Fifteen years later, I returned to Millennium Mills, which was the last survivor of the cluster of granaries built during the early years of the 20th century. I paused on the platform at Pontoon Dock station and looked towards the hulk of Millennium Mills: it stood as a pale mass of concrete, its glittering panes of broken glass sparkling as they caught the light.

The Royals

The Royal Docks occupy a pivotal place in the evolution of global trade. In 1847, the engineer George Parker Bidder (1806–1878) completed a railway from Stratford to North Woolwich through the marshy Plaistow Level, which opened up the area to development. When it opened in 1855, a series of superlatives was coined for Victoria Dock. Covering 36 hectares, it was the largest man-made expanse of water in the world, and also the first dock purpose-designed to handle iron-hulled steamships.¹

The Victoria Dock Company equipped its new dock with a variety of innovations including hydraulic power and electric telegraph lines. It was accessed from the Thames through deepwater locks with hydraulically-powered gates. The dock had its own railway system, and it was the first to be connected to the national railway network, via the North Woolwich branch of the Great Eastern Railway. After several decades of development, the 450-hectare Royal Docks complex – comprising the Victoria, Albert and George Docks – had become one of the most significant ports in the world. As the Port of London Authority noted,



This page: North and west elevations to Millennium Mills in 2023, viewed from the Royal Victoria Dock footbridge. In the background, demolition work is underway at the former Rank Premier Mill. Opposite page: South elevation to Millennium Mills in 2009, viewed from Pontoon Dock station on the Docklands Light Railway. The remains of Pontoon Dock itself are in the foreground. Pictures: Mark Chalmers

during their heyday the Royals acted as the warehouse of Empire, importing raw materials including wine, tobacco, wool, sugar, meat, dairy goods and grain, then exporting a range of manufactured goods.

The site that later became Millennium Mills began life in 1855 as an empty quayside. By the late 1860s, a series of small warehouses had been built along the southern side of Victoria Dock: from east to west, named Warehouses M, R and Q. A few years later, marine engineering emerged alongside the wharves and transit sheds. Pontoon Dock on the south quayside opened in 1858 as the Victoria Graving Dock, which enabled a ship to be moored inside a hollow iron pontoon, then raised out of the water using hydraulic jacks for repairs to take place.²

The pontoon system was patented in January 1857 by Edwin Clark, and although successfully upgraded a couple of times, Clark's lift became obsolete as the increasing length and tonnage of ocean-going steamships overtook the space available. The Victoria Graving Dock Company went into liquidation in 1889. After extended negotiations the dock was bought by the London & St Katherine Dock Company in 1897.

The grain boom

Since the London & St Katherine Dock Company already owned a conventional dry dock at the neighbouring Royal Albert Dock, it immediately began dismantling the lift machinery. In 1898, the London Grain Elevator Company began to build corrugated-iron silos to store grain imported from North America, and Pontoon Dock found a new purpose. Meantime a series of much larger warehouses had taken up the southern side of Victoria Dock, with Ware-

houses Nos 3 to 8 occupying the footprint that Millennium Mills later took up.³

Late 19th-century Britain struggled to produce enough grain to feed its rapidly growing urban population, and that issue became particularly acute in London. From the mid-1860s, the growth in grain imports was exponential, particularly high-protein North American grains that were ideal for bread-making.

Imports of wheat from Canada and the United States increased thirtyfold between 1865 and 1900, and the mass production of flour became imperative.⁴ The use of imported grain was accompanied by a shift from stone-milling to roller-milling, since the newly developed roller mills were able to deal with far larger quantities of grain. Britain's developing taste for white bread was another factor; roller mills can readily produce white flour, but traditional millstones produce only wholemeal. Thanks to roller mills, flour milling was industrialised and white bread became readily and cheaply available.

The Co-operative Wholesale Society (CWS) was the first of the major milling companies to establish a mill here, with the opening of its Silvertown Confectionery Mill in 1901. Joseph Rank's Empire Mills, west of Pontoon Dock, opened in 1904, quickly followed by Rank's Premier Mills, built east of Pontoon Dock on the site of warehouses Nos 1 and 2, and completed in spring 1905. Both were designed by architects Gelder & Kitchen of Hull.⁵



Vernons of Birkenhead

Soon afterwards, CWS's and Rank's competitor Vernons began to plan a new mill next door to the Premier Mills. The predecessor of William Vernon & Sons was originally established in 1823 at Fole in Staffordshire by William's uncle John Vernon. During the 1880s, William Vernon (1835–1919) was joined by his own sons, John H Vernon, William A Vernon and Thomas T Vernon, and they built a flagship Millennium Mill at West Float, Birkenhead, in 1899, along with mills in Cardiff and Cambridge. The next step was to break into the southern English market.⁶

Why "Millennium"? An advertising campaign run by Vernons in *The Times* during 1914 explained that the company's most successful product was renamed Millennium Flour after winning the Miller Challenge Cup at the 1899 International Bakers Exhibition. It was selected from "the best wheats of the world", then grain was mechanically sifted with an air blast, "to separate dirt, chaff and broken grains", scrubbed with hot water, then dried in an immense purifying plant.

Millennium Flour was marketed as a health food. It contained "all the absorbable phosphates" but none of the husks and unabsorbable constituents of wheat. In other words, none of the bran which nowadays makes wholemeal bread so healthy. Isn't it strange how tastes and nutritional advice change? Millennium Flour proved particularly popular in coal-mining districts, where it was known to make "beautiful white bread sandwiches".

Vernons' other specialities were Dryad Flour, which was dehydrated for export to the tropics, and Millennium Oat Flakes, which were produced at Millennium Wharf, an oatmeal mill built by Vernons in 1918 close to Waterloo Bridge.

Thanks to its early adoption of roller milling, Vernons became market leader in white flour, and in developing a mill at Pontoon Dock, it followed an established pattern where

knowhow and capital were drawn southwards to London. Joseph Rank's firm was founded in Hull in the East Riding of Yorkshire; William Vernon's company began in Birkenhead in Cheshire; and Henry Simon developed and built roller milling machinery in Stockport.

There's a close parallel in the sugar industry, which grew up along the southern side of the North Woolwich Road. Abram Lyle travelled to London from Greenock to construct a sugar refinery at Plaistow Wharf; James Duncan also came from Greenock to build his own sugar refinery nearby at Clyde Wharf; and James Keiller arrived from Dundee to build a preserves factory at Tay Wharf.

All were canny entrepreneurs who utilised established trade networks to exploit the London market. In effect, they made inward investments into what would now be known as an Enterprise Zone – with a crucial difference. In Victorian times, development was left to privately-held dock companies; in the late 20th century, control was vested in the public London Docklands Development Corporation (LDDC) and its successors.

John Clarke, architect

Meanwhile, plans for Vernons' new mill beside Pontoon Dock moved ahead. The London & India Docks Co was formed in 1901 when the London & St Katharine Dock Co acquired the East & West India Docks Co.

Negotiations with the new company, now owner of the Royal Victoria Dock, concluded with Vernons signing a 99-year lease on the land on 3 February 1904. The rental was £250 for the first year, then £2,500 a year for the remainder of the term. Negotiations concluded with the provision of an electricity supply for the mill.⁷ The architect John Clarke began to design



the complex while the missives were being drawn up. Millennium Mills in its first iteration was a reinforced concrete-framed building with concrete spandrel walls, designed by Clarke, whose office in Castle Street, Liverpool, handled all William Vernon & Sons' construction work.

John Clarke FRIBA (1852–1936), chosen for his experience designing flour mill buildings, was already known to the Vernon family, who came from nearby Birkenhead. It's



Left, above: Pneumatic grain handling equipment on an upper storey of the granary building in 2009. Grain was transported between the mill's different processes using pneumatic tubes which helped to suppress dust and prevent dust explosions.

Left: A travelling bogie on the top storey of the granary, which filled the grain bins which in turn fed the purifiers, screens and roller mills. The traveller was made by Spencer & Co of Melksham, Wiltshire, which later became part of GEC-Elliott Materials Handling. Pictures: Mark Chalmers

worth setting out Clarke's background as a pioneer of industrial architecture since, along with the architects Gelder & Kitchen of Hull who designed Joseph Rank's mills, he was responsible for the architectural evolution of the industrial flour mill.

Clarke designed W&R Jacob's biscuit factory at Aintree and St Paul's Eye Hospital in Liverpool city centre, both around 1912, but his specialism was flour mills. Clarke designed some of the largest flour mills in Britain and Ireland, including the reconstruction of Albert Mills in Liverpool, claimed to be the first British mill built for the roller process. Clarke was also one of the pioneers of reinforced concrete, and he worked closely with engineering company L G Mouchel, a practice which, in conjunction with the French engineer François Hennebique, built an early reinforced concrete flour mill for Weaver & Co in Swansea in 1898.⁸

Millennium Mills, Mk 1

Clarke adopted the Mouchel-Hennebique system for the first version of Millennium Mills, which I'll refer to as Mk 1. Concrete can bear the high structural loadings imposed by wheat processing machinery, and its fire resistance counters the risk posed by flour's flammability. The mills were carried on a grid of reinforced concrete piles, sunk into the soft sediments of the Plaistow Level.

The Granary at Millennium Mills was built entirely from reinforced concrete, although the screen room and mill buildings both had reinforced concrete structures with maple floors. The granary wing on the eastern side contained 64 grain silos fed by an elevator and conveyor belts. Above the silos lay a storey of three different heights where the grain was received; and below was a sacking room. A screen room stood between the granary and the mill buildings, and the landmark was a 35m-high tower, at the top of which were water tanks supplying the sprinkler system and wheat-washing tank. A boiler house,



*Top: Looking across in 2009 from the granary to the animal feeds tower, which is partly clad in profiled metal cladding. Middle: Some of the mill's remaining grain purifier machinery, made by Henry Simon of Manchester, on one of the upper storeys of the granary building in 2009. Bottom: A middle storey of the granary building in 2009, now largely stripped of equipment other than a solitary roller mill made by Henry Simon of Manchester
Pictures: Mark Chalmers*

chimney shaft and engine room sat to the rear, with a seven-storey warehouse wing to the west.⁹ The concrete was rendered internally in Keene's cement and externally in Portland cement and sand render; the warehouse had concrete slab floors with a granolithic concrete finish. Keene's Cement is a hard-polished lime plaster: before and after the Second World War, Keene's and its cousins Siraphite B and Parian Cement were popular as wall finishes in hospitals and industrial buildings, thanks to their durability. Today, they're no more than names from history.

The mill's roof was constructed from reinforced concrete, except for the screen room and mill buildings which had roofs of pitch pine, lined with Willesden Paper, a waterproofed cardboard, boarded and slated. That seems an odd specification, given the flammability of wheat flour, but just like Keene's Cement, Willesden Paper is another long-forgotten building material – in this case superseded by mineral roofing felt.

Roller milling

Millennium Mills was planned around a process: in this case, the flows of wheat and flour through the building. Dressing machines were on the upper floors; purifiers, sacking off areas and bins on the floors below; break, middling and flour bins on the floors below that; and roller mills on the first floor. The ground floor contained the driving gear for the mills: a large cross-compound steam engine built by Carels Frères of Ghent, Belgium.

Roller milling is sometimes called the gradual reduction system, and it can take up to 30 minutes to reduce wheat to flour. The machinery consists of opposing pairs of power-driven cylindrical rollers which run at different speeds, in order to mill the grain with a shearing action. By contrast, in traditional milling, wheat is dropped between revolving millstones and the break-down happens quite rapidly, which millers describe as "sudden death".

At Millennium Mills, grain was moistened and passed through a series of break rollers, then sieved to separate the fine particles of flour. This left the middlings, semolina or farina, with coarse particles of bran and wheat germ diverted elsewhere. The roller process gave rise to several streams which flowed up and down the mill, and the flour made several passes through smooth reduction rollers before being sent through purifiers and dressing machines. In the final step, flour, bran and wheat germ were re-combined to produce a wide range of different flours.

This first version of Millennium Mills was actually two mills in one. Two completely independent units sat back-to-back, divided by a fireproof concrete wall. These mills were known as "No 1 facing North" and "No 2 facing South". Each was six storeys high, carried on reinforced concrete beams and connected at either end by open stairways. The two plants were equipped by Henry Simon, a Stockport company, and together had a capacity of one hundred 280lb (125kg) sacks of flour per hour.

The rapid development of roller milling in Britain was largely thanks to Henry Gustav Simon, a Silesian who settled in Manchester in 1860. In 1881, he was credited with building the first completely automatic roller flour mill in the world, for McDougall Brothers, a predecessor of Rank Hovis McDougall. Simon installed seven major roller mill plants between 1881 and 1884, and in 1899 his company equipped the Millennium Mills at Birkenhead for Vernons.

Meanwhile Clarke's plans for Silvertown were signed off in June 1904 and construction began in 1905. Work on site was overseen by William A Vernon, the principal's son, and the

new Millennium Mills opened in 1906. On completion, the newspaper *Milling* described the buildings as “palatial”; they were among Europe’s largest mills of the time. The buildings, together with their machinery, were valued for insurance purposes at £300,000.

This first iteration of Millennium Mills was designed at a turning point in architectural history, when novel construction techniques, such as the Hennebique system of reinforced concrete, were in search of a suitable aesthetic. The mills were designed in a stripped-back Queen Anne style; the plain facade was modelled with pilasters, string courses and mouldings, and featured several Dutch gables plus a distinctive gambrel roof.

The Silvertown explosion and Millennium Mills, Mk 2

Despite the efforts of Vernon, Clarke, Mouchel and Simon, Vernons’ flagship mill lasted only a decade in its original form before war intervened. In 1914, the Ministry of Munitions decided to utilise the nearby Brunner Mond chemical factory, on the south side of North Woolwich Road, for the production of trinitrotoluene (TNT) high explosive. The Brunner Mond factory lay around 500 metres south-west of Millennium Mills, and by 1917 the site was making explosives for Britain’s war effort.

On the evening of 19 January 1917, Vernon’s mills were badly damaged by a huge accidental TNT blast at Brunner Mond’s factory. No 2 Mill and a large portion of No 1 Mill along with the screen room took the brunt of the blast and were totally destroyed. The grain silos and flour warehouses were also affected, although the western wing of Millennium Mills survived the explosion. Three of Vernon’s employees were killed, and another 15 injured in the blast.

In its aftermath, Vernons relocated staff to Birkenhead and, while the reconstruction of Millennium Mills began immediately, it was a slow process. Intense heat from the explosion had cracked the concrete and made the steel reinforcing bars brittle, so in the end most of the mill had to be demolished, and Vernons decided to build a new, larger complex on the site.

To carry the expanded Millennium Mills, which I’ll call Mk 2, further reinforced concrete piles were driven into the soft alluvium of the Plaistow Level. The granaries were rebuilt along similar lines to the original mill – but a new laboratory, drawing office and sample bakery were erected alongside, with a garage for motor lorries and also engineering and joinery workshops. The second version of Millennium Mills was completed and re-opened in 1919.

By then, William’s eldest son, John H Vernon, had been elevated to baronet and now led the family firm. While the mills were being rebuilt, he took the first steps to amalgamate William Vernon & Sons with Spillers. In 1920, this arrangement became official and Vernons merged with Spillers in the biggest flour-industry merger of its time.

Spillers had an equally long-established flour-milling business, originally founded in

“ From the flour mills, where several hundred girls had been at work, came flying showers of millions of tiny particles of light as though a sweeping storm of sleet had become incandescent. No doubt these tiny specks were the glowing ashes of a myriad grains of wheat carried up into the sky by waves of flame. It was like a golden rainstorm.”

*J J Betts, former fireman, Account of the Silvertown Explosion*¹⁰

1829, which subsequently expanded into the production of dog food and animal feeds. As an aside, Winalot dog biscuits were launched in 1927 and first manufactured here at Millennium Mills. The Spillers name was chosen to front the company, but numerous members of the Vernon family sat on the board of directors, and the new amalgamated company acquired Millennium Mills as part of the deal.

Millennium Mills, Mk 3

In 1933, Spillers rebuilt Millennium Mills on an even grander scale than Vernons had before them, again using architects John Clarke & Son of Liverpool and engineers L G Mouchel. By now, Clarke's son, Percival John Clarke, had joined his father in practice and described himself as a "consulting mill engineer and architect".¹¹

This third iteration of Millennium Mills (which I'll call Mk 3) had a floorplate of just under half a million square feet (around 45,000 sq m). It was ten storeys high, constructed using a reinforced concrete frame with brick spandrels under the Crittall-type steel windows. After the 1933 rebuild, Millennium Mills was Europe's largest flour mill, and further grain silos were completed in 1939. These were 35 metres high, octagonal in plan and also built from reinforced concrete. The 20 squares between the 33 octagonal bins, known as "interspace bins", were also used for storage.¹²

The inter-war period was a high point for industrial architecture in London. A line of Art Deco factories was built along the Great West Road and Western Avenue, including Wallis, Gilbert & Partners' Hoover factory and now-demolished Firestone factory, along with the Gillette factory which was designed by Bannister Fletcher – who is arguably better known today for his mammoth architectural history book, "A History of Architecture on the Comparative Method". The 1930s also saw the construction of new power stations on the Thames, including Bankside and Battersea, which were both designed by Giles Gilbert Scott.

Yet while many of these buildings were architecturally forward-looking, the interwar development at Millennium Mills hints at a previous era, its stripped-back elevations decorated with pastiche Dutch gables. John Clarke may have been technically progressive in his adoption of reinforced concrete and roller milling, but he – or perhaps his client – was stylistically conservative. This is a duality we still see today, where the utilitarian expression of an industrial building often masks the nature of what goes on inside.

Millennium Mills Mk 3 fared no better during wartime than its original iteration. Many port mills became bombing targets during World War Two, and the Royal Victoria Dock was bombed heavily on 7 September 1940. Both Spillers' Millennium Mills and the neighbouring Premier Mills were damaged by the Luftwaffe; two silos and the animal feed building survived the bombing.

Millennium Mills, Mk 4

In June 1946, Spillers approached engineers L G Mouchel to organise a further reconstruction of Millennium Mills, again working with architects John Clarke & Son. The New Mill and Warehouse were planned in 1949 and the granary at Millennium Mills was back in full operation by September 1953. Wilfred Vernon explained at the opening ceremony: "I think it is important that industrial buildings which may last a century, and which must be functional, must not be eyesores." The re-opening coincided with the final lifting of wartime controls on the



The pediment to the south elevation of Millennium Mills in 2009, which consists of a reinforced concrete dentile course, with the lettering picked out in vitrified red fireclay tiles. This façade was largely hidden until the demolition of the mill's C silo in the 1990s. Picture: Mark Chalmers

supply of flour.¹³ By now there were three separate mills within a contiguous set of buildings. A and B mills plus the warehouse were in the central building of 1953 and were operated as flour mills. C mill was an animal feeds production plant housed separately in the western wing, which dated from 1906 and 1933. The eastern end dates from 1951 and is part of the 10-storey silo and dryer house which abuts Rank's Premier Mill warehouse, the glum-looking brown brick shell next door.

The building that Wilfred Vernon opened was again constructed using a reinforced concrete frame with brick spandrel panels. Architecturally, the external expression was a stripped-back version of 1930s Art Deco, with vaguely Egyptian dentiles running along the silo heads, and the name, Millennium Mills, emblazoned across the parapet in letters two metres high composed of red precast tiles bonded into the superstructure.

It's worth explaining how the 1950s Mk 4 iteration of Millennium Mills operated, compared to the 1900s Mk 1 version. Milling on an industrial scale requires giant-sized equipment, and Spillers was arguably the most technically innovative of the major flour millers in the UK. The post-war reconstruction of Millennium Mills consisted of a totally mechanised, automatically-controlled, pneumatically-powered mill.¹⁴

Wheat was unloaded from ships moored alongside the concrete dolphins on the southern wharveside of Royal Victoria Dock using pneumatic grain elevators. From there, it climbed to the headhouse on the top storey of the granary, where it began its gravity- and pneumatic-powered journey. The roller mills were located on the higher levels, with sifters and other machinery on the floors below. Along the way, the wheat was cleaned, riddled and chaff was sifted out. By designing a mill this way, gravity can assist the pneumatic fluidisation system which pushes grain along using compressed air.

The grain ran through pairs of chilled iron rolls and was gradually reduced; after that, it passed through purifiers which sifted and graded the flour. By the 1960s, sophisticated electromechanical equipment ensured that the flour was uniform, meaning that no further sifting

was required. A stream of fine white flour went one way and the outer shell or bran went another, ending up in the eight-storey high C silo in the courtyard to the south. After the reopening of Millennium Mills, the grain storage silos could hold 36,000 tons of wheat, equivalent to approximately seven weeks' milling.

The Vernons were still involved: William Michael Vernon became chairman and chief executive of Spillers in 1968. The Henry Simon company also maintained its connection throughout the mill's life. The machinery still in situ when Millennium Mills shut in the early 1990s was emblazoned "Simons", although it contained a rather more sophisticated set of roller mills than the original fit-out. Meantime, the final piece of construction at Millennium Mills saw the windowless steel-framed infill between the south-western wing and the main block, built in 1957.

Decline

Between 1953 and 1980, weekly output at Millennium Mills reached 3,000 tons of flour, but technological progress continued. The breakbulk cargo once unloaded manually by dockers was replaced by containerisation, which led to larger ships with a deeper draught than the Royals could accommodate. In 1969, a new grain terminal was constructed at Tilbury in Essex, which spurred Spillers to build a new flour mill there.

The Royal Docks were gradually run down over the course of the 1970s, and this process accelerated with the creation of the London Docklands Development Corporation (LDDC) in 1981, which forced industrial firms to move out in preparation for redevelopment. Like Clark's hydraulic lift, the Royal Docks had become a victim of progress. By 1981, with the closure of the docks to shipping, Spillers ceased to import grain by ship. Nonetheless, Millennium Mills continued working and, in its latter years, it produced flour mainly for Tunnel Refineries at nearby Greenwich. In 1992 Spillers Milling moved the last of its operations to Tilbury, and Millennium Mills finally closed in 1993, ending almost nine decades of production on the site.

The mills may have stopped milling, but a good deal was left behind – and it survived surprisingly well in the still atmosphere of the sealed-up buildings. The smell of bran lingered long after the building was decommissioned; period signage remained on the walls, much of it sign-written; pipework stretched across the milling floor like metal sinews; holes had been rent in the floor where giant pieces of equipment were salvaged, and doors-to-nowhere left where adjoining structures had been demolished. Our fieldwork revealed that much more equipment remained above the sixth storey, including line shafting with pulleys and belts plus the large electric motor that drove them. Test reports, load cards and the occasional flour sack bearing the Spillers name still lay in shadowed corners when we visited the mill in 2009, although Spillers lost its independence firstly in 1980 to Dalgety, and then to Tomkins, also the parent of Rank Hovis.¹⁵

Millennium Mills' rooftop provided a panoramic insight into the Royal Docks of the 21st century. Where transit sheds once stood, the massive ExCel exhibition centre now sits on the northern quayside of the dock. The Thames Barrier and associated park lies to the south, surrounded by dense apartment blocks. To the east, you're virtually looking down the centre line of London City Airport's runway, and to the west is the curve of the Millennium Dome, with Canary Wharf in the distance. All those are products of regeneration during the 1990s and 2000s.

With the 1981 closure of the Royals, the quaysides and buildings began to take on a strange new life. First came architect Nigel Coates, whose Arkalbion project of 1982 proposed carnivals, casinos and fun palaces for the Docks. Coates and his students at the Architectural

Association also proposed an Isle of Dogs Parliament, modelled on the Doge's Palace in Venice, to regenerate the derelict docks in a radical way.¹⁶

In 1985, film-maker and former Monty Python contributor Terry Gilliam adapted the former CWS mill nearby as a set for his dystopian film *Brazil*. The mill interior became the Kafkaesque Department of Records, a vast typing pool where the character Sam Lowry toiled each day. The mill's deserted corridors became the Expediting Department, and its stairwells served as Shangri La Towers, the Buttle family's tower block. Gilliam recognised the visual drama of what had been left behind. In 1987, Gilliam was followed by another film-maker, Derek Jarman, whose avant-garde feature *The Last of England* captures something of the post-apocalyptic feel which the empty docks took on before redevelopment began. *The Last of England* borrowed its name from Ford Maddox Brown's oil painting of emigrants leaving Dover on a boat, departing for a new life.

The Last of England involved one week of shooting in November at the Royal Docks, an area Jarman described as "miles of desolation with the odd post-modern office building". Jarman's film culminates with the characters dancing on the roof of Millennium Mills, and ends with refugees leaving the dockside at Millennium Mills, floating off westwards along the Thames in a small boat.¹⁷

The writer and psycho-geographer Iain Sinclair characterised the use of Millennium Mills in Jarman's film as having "been christened by William Blake and delivered by Albert Speer", a deliberately provocative pairing of the English Romantic poet with Adolf Hitler's favourite architect. Sinclair writes that Jarman "saw the downriver reaches of Silvertown, with its abandoned flour mills, as a site for dervish dances and the rituals of a punk apocalypse".

Years later, I discovered Iain Sinclair's book, "Lights out for the Territory", where Millennium Mills is a landmark on his own journey down the Thames. Sinclair may not have attempted to get inside the mills, but he is fascinated by the stories and memories entombed within their walls, which provide an ideal locus for his psycho-geography.¹⁸

Soon after Jarman released *The Last of England*, the French electronic musician Jean-Michel Jarre had the exterior of Millennium Mills painted white to form a backdrop for his 1988 son-et-lumière show, *Destination Docklands*. The concert showcased Jarre's concept album *Revolutions*, which dealt with the transition of the Industrial Revolution to the information age: themes which resonated in the abandoned Royal Docks.

The mills were regularly used as a backdrop for pop music videos, starting with "Ask" by The Smiths, which was filmed by Derek Jarman in 1987 on the north side of Royal Victoria Dock. That was followed by "The Box" by Orbital, "Fluorescent Adolescent" by the Arctic Monkeys, "Take Back the City" by Snow Patrol, "Build A Fire" by Lamb, and "Every Teardrop Is a Waterfall" by Coldplay.¹⁹

In 2009, Millennium Mills became a location in the television series *Ashes to Ashes*, where it evoked a cityscape before the Millennium Dome dominated the East London skyline. *Ashes to Ashes* tapped a seam of nostalgia for the Eighties, an era which left swathes of the Docklands lying redundant. Sometime around then, urban explorers found their way inside the abandoned buildings. Inspired to record what they could before the mills were demolished, their unofficial industrial archaeology captured Millennium Mills in stasis. The internet forums where they post their photos and videos allow anyone to experience the mills vicariously, and their access route, including the so-called Leap of Faith, became something of an urban legend.

Millennium Mills' aura grew in popular culture thanks to the artists, filmmakers, musicians and explorers who have a shared fascination with abandoned buildings. But who is the less

deceived? The explorers who wander like Lost Boys in and out of the ruins, feeling sentimental about an industrial past they never really knew? Or the film-makers who produce nostalgia for mass consumption, conjuring the past from folk memories of The Sweeney and Top of the Pops?

Silvertown Dock

It's remarkable that anything remains at Millennium Mills today, given three decades of development proposals. The LDDC began the regeneration process even while the mills were still active. The corporation prepared a draft development framework for the Royal Docks in 1985, following which an ambitious masterplan of 1987 by architects Conran Roche envisaged that both Millennium Mills and the CWS Mill on the eastern side of Pontoon Dock would be retained and converted to new uses.

After it closed in the mid-1980s, the adjacent CWS Mill was acquired by the LDDC for conversion into a luxury hotel. Working with developer Heron and contractor Mowlem, Conran Roche's Royal Victoria South masterplan included over 4,000 homes, 140,000m² of offices, plus industrial space, retailing, a Futurescience complex, an arboretum, hotel and public open spaces along the quaysides.²⁰

Following the Conran Roche masterplan, Form Design Group developed an alternative scheme which consisted principally of housing. Neither masterplan was implemented, but another followed. In 1989, the entire 48-hectare site between Royal Victoria Dock and North Woolwich Road was masterplanned by Tibbalds Colbourne Partnership (TCP), which proposed a new watersports centre, facilities including a health centre and playgrounds and up to 3,000 houses some of which formed a giant crescent that hinted at the New Town in Edinburgh or Bath's Royal Crescent.²¹

Again, the regeneration plan suggested that the CWS Mill and Millennium Mills should both be converted, and it also contained the germ of the idea which became Thames Barrier Park. That did eventually go ahead, but the TCP masterplan for the mills wasn't implemented, so Millennium Mills lay derelict while the brief was re-thought, and the CWS Mill was razed a few years later. In parallel with the officially-sanctioned masterplans, unsolicited schemes also emerged, including an imaginative Dadaist collage by Neil Spiller of Spiller Farmer Architects.²²

When Millennium Mills closed in 1993, it was the last of the granaries in the Royal Docks to shut down. The LDDC proposed that the four 1930s pneumatic grain elevators on the quayside should be preserved – but they were demolished, regardless. The B and C silos were demolished next, along with the bulk of the neighbouring Rank and CWS mills. The freestanding D silo to the south is Grade II listed, so it escaped demolition, along with the granary of the Millennium Mills.²³

A new Millennium

In 2001, five consortia bid for the opportunity to masterplan an £800 million mixed-use scheme on a site centred on Millennium Mills. This was the fourth masterplan for the site, and the first of a new millennium. The 16-hectare Silvertown Dock project was the largest brown-field site on offer in London at the time. The consortia were shortlisted by the London Development Agency (LDA), the economic development arm of the Greater London Authority, and joint-venture partner Newham council. The winning bid came from London and Southern, a

regeneration company set up by developers Jack Jacobs and Maurice Pearce, supported by developers Silvertown Quays Ltd, the landowner LDA and a Japanese firm, Kajima Urban Development International (KUD). London and Southern's consortium included five sets of architects: Terry Farrell & Partners, Paskin Kyriakides Sands (PKS Architects), Maccreeanor Lavington, Scott Brownrigg & Turner and Jestico+Whiles.²⁴

The scheme was billed as one of the largest urban regeneration projects in Europe, which would create 4,900 waterfront homes and 400 loft apartments plus shops and restaurants in Millennium Mills itself, along with a hotel, offices, a school and community buildings.

Silvertown Quays

The Silvertown Dock project ground through the planning process during the first half of the 2000s, and was renamed Silvertown Quays. By 2007, the now £1.5 billion masterplan had received approval, and PKS Architects were working on a detailed scheme for the refurbishment of Millennium Mills. The first phase would have seen the demolition of the eastern and western wings, leaving only the main block of Millennium Mills plus the south-western extension as a standalone tower. Work was due to start imminently – then the great financial crash happened, and the project stalled in 2009.

Despite the failure of several masterplans, why has Millennium Mills remained attractive as a regeneration site? Often, converting redundant industrial buildings isn't viable because they sit in a context of decline and low land values, so demolition is considered the only economic option. The Royal Docks demonstrate the opposite issue: with the proximity of Canary Wharf and investment in infrastructure such as the Docklands Light Railway, land values have risen over the past 40 years to a point where the land is almost more valuable left un-developed, as an appreciating asset.

Battersea Power Station was another longstanding post-industrial hulk on the riverside which had lain unused for decades, but regeneration there was completed in 2022 following a decades-long battle to save it. Millennium Mills is its equal as a giant piece of industrial archaeology, one of a rapidly diminishing number of post-industrial sites along the Thames.

The pattern for converting wharfside buildings into flats is well established. During the 1970s, Bermondsey's disused warehouses and docks became a draw for artists, film-makers and designers, who were able to rent cheap spaces to use as studios. Buildings such as Butler's Wharf attracted artists such as the film-maker Derek Jarman – whom we met earlier as the director of *The Last of England*. Bermondsey subsequently became part of the LDDC's Urban Development Area (UDA), then regeneration moved downstream.

During the 1980s and early 1990s, St Saviour's Wharf, Thames Tunnel Mills, New Concordia Wharf and Hays Galleria were converted from warehouses into apartment blocks. Meanwhile, Butler's Wharf, Cinnamon Wharf, New Crane Wharf and Coventry Quay were rehabilitated by Conran Roche – which we also met earlier, as the original master-planners at Millennium Mills.

In 2009, having seen no progress on the Silvertown Quays project, the LDA took back Millennium Mills from the KUD consortium. A "meanwhile use", dubbed London Pleasure Gardens, sprang up in the mill's grounds: a modern-day interpretation of the Vauxhall Gardens intended to coincide with the 2012 Olympics. Due to last for two years, the music and arts event space went into administration after only five weeks. All that remains is a 10-storey high mural, painted by the street artist Shepard Fairey on the eastern gable of the mills.²⁵

In 2012, a new regeneration scheme was launched by the Silvertown Partnership, a consortium comprising Chelsfield Properties, First Base and Macquarie Capital. An outline planning application was submitted in 2014; then asbestos remediation was carried out during 2015. The mill interior was stripped of machinery, and a portion of the building was demolished during 2017. It looked like Millennium Mills would finally be redeveloped – and then things went quiet once more.

In 2019, Newham council approved yet another revised set of proposals, this time from joint developers Lendlease and Starwood Capital, which took over the site in 2018. Under the current £3.5 billion scheme, land around the mills will provide 3,000 new homes, new squares and gardens, plus a new pedestrian bridge across the dock. Architects Allford Hall Monaghan Morris (AHMM) are working on the conversion of Millennium Mills itself, and a fresh planning application was lodged in November 2022. Meanwhile the neighbouring Rank Premier Mill was demolished in 2023, and the conversion of Millennium Mills is now scheduled for completion in 2030.

Thirty years after closure, several masterplans and many sets of architects later, the same scenario seems destined to repeat itself. Yet abandoned buildings are implicitly valuable because they provide a window into the past: they catalyse our sense of time passing as history is laid down, then swiftly destroyed. Once they've been abandoned, time and weather ravage our workaday buildings of stock brick and slate. But Millennium Mills is anything but typical of buildings in London. Thirty years after closure, its Hennebique frame and concrete walls have endured. Thanks to the solidity of John Clarke's concrete structure, the giant mill lingers on – so far, seemingly immune to demolition or regeneration.

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Notes and references

- 1 Edward Hollamby (Ed.) *Docklands Heritage: Conservation and Regeneration in London Docklands* London: London Docklands Development Corporation, 1987
- 2 Ordnance Survey 25 inch County series map. *London (First Editions 1850s) XLVIII* Surveyed 1867, published 1869
- 3 Ordnance Survey 25 inch County series map. *London (Edition of 1894-96) LXXX* Revised 1893 to 1894, published 1897
- 4 Robert Carr 2014 *Roller flour milling, white bread and the Millennium Mills*, Industrial Archaeology News, Issue 169, Summer 2014
- 5 Ordnance Survey 25 inch County series map. *Essex (New Series 1913-) n LXXXVI.14*: Revised: 1914, Published: 1916
- 6 *W Vernon and Sons Ltd. – Where Millennium Flour is Made*, Birkenhead: Privately published by W Vernon and Sons Ltd., no date (c1918)
- 7 Minutes of the London and India Dock Company January 1901–February 1904. Port of London Authority Archives.
- 8 Antonia Brodie (ed) *Directory of British Architects 1834–1914, vol.1*, London: Bloomsbury Academic, 2001
- 9 Donald Insall Associates *Millennium Mills: Heritage Assessment for The Silvertown Partnership* March 2015
- 10 Graham Hill; Howard Bloch *The Silvertown Explosion: London 1917*. Stroud: Tempus Publishing, 2003
- 11 IMechE Associate proposal form of P J Clarke London: Institution of Mechanical Engineers archive IME/ 7/ 39/ 1/ 216
- 12 Grain Silo at Royal Victoria Dock, *London Concrete Society Journal*, vol 34, 1939 (pp 360-362). London: Concrete Society
- 13 Spillers brochure, c. 1955 London: Privately published by Spillers Milling
- 14 Glyn Jones *The Millers: A Story of Technological Endeavour and Industrial Success, 1870-2001*. Lancaster: Carnegie Publishing, 2001
- 15 Observations from site visit to Millennium Mills, August 2009
- 16 Nigel Coates *Arkalbion* London: Architectural Association, 1984
- 17 William Pencak *The Films of Derek Jarman* North Carolina: McFarland & Co, 2002
- 18 Iain Sinclair *Lights Out for the Territory* London: Granta, 1997
- 19 Will Jennings *Regeneration Songs: Sound of Investment and Loss from East London* London: Repeater Books, 2018
- 20 *Conran Roche, Architecture 1981–1987* London: Privately published by Conran Roche, 1987
- 21 Elizabeth Williamson & Nikolaus Pevsner *London Docklands: An Architectural Guide* London: Penguin Books, 1998
- 22 Brian Edwards *London Docklands: Urban Design in an Age of Deregulation* London: Butterworth Architecture, 1992
- 23 Building Magazine, 2001, Issue 13 *Five in race for London's biggest brownfield prize*
- 24 Silvertown Quays: Silvertown Quays Newsletter, January 2005
- 25 Lee Mallett *Opportunity Docks* Property Week magazine, 19 November 2010