

150
YEARS:



ST PANCRAS
INTERNATIONAL



Welcome

I love St Pancras – which is just as well, because I'm blessed to spend a large part of my working life there. Much of my time nowadays is spent not at a keyboard, but networking with those who run, govern and regulate our railways. And as they are mostly based in London, that's where I head on most days, via East Coast expresses from Peterborough.

Until November 2007, when St Pancras International opened, I frequented a network of cafes, restaurants and pubs for these meetings. Since 2007, I have increasingly used Searcys, Carluccio's or the Betjeman Arms pub dining room, to the extent that I now describe St Pancras International (SPI) as 'my London office.' Sometimes, I even catch trains there!

I'm delighted that HS1 chose *RAIL* in which to launch its prestigious 150th birthday celebrations and this free extra magazine is a great starting point for those wanting to know more about SPI's future, celebrate its past – or enjoy using it today.

Leaving my VTEC train, I can now glimpse SPI's clock tower, through the clean end screen windows of Cubitt's twin-arched trainshed at King's Cross, beautifully refurbished by Network Rail. Step out onto the spacious square (which replaced the ghastly 1970s King's Cross concourse) and morning sunshine bestows a warm glow upon SPI's beautiful red brickwork:

it always lifts the spirits. I always glance up to the roof, where, just right of the clock tower, the statue of Britannia lords it over the Midland Railway's lesser Great Northern neighbour!

The Midland Grand Hotel (now the Renaissance) was horribly expensive to build. To cap soaring costs, the MR board cut back the principal floors from five to four during construction and scrapped all the statues planned for the row of elaborate canopied pedestals lining the first floor, which have always been empty. But it kept Britannia: corporate nose-thumbing was prevalent even in 1868!

Despite the cutbacks, the MR used promotional literature and advertisements it had already produced when it intended to build the full five floors intended by Gilbert Scott – on which four floors rise to the roofline, rather than the three actually built. This artwork looks extremely odd in terms of proportion.

SPI radiates the value of every penny of the £800m it cost to reconfigure the shabby and down-at-heel station left by BR for the 21st century – not only for continued Midland Main Line use, but also for domestic Southeastern Hitachi 'Javelin' high-speed trains – and, SPI's jewel in the crown – the 300kph Eurostar services to Paris and Brussels, now in their second generation with the e320 sets gradually replacing the original Alstom TGV-based Class 373s.

I often muse (and marvel) over my coffee at

Carluccio's, looking around the full 689ft length and 100ft-plus height of Barlow's magnificent train shed, that at not much over two hours, I'm closer in journey time to Paris than I am to Preston. Hopefully, more international operators will soon serve SPI, giving access to an ever-increasing European network.

I could talk all day about this Grade 1-listed masterpiece which, unusually, was the work of two designers – engineer William Henry Barlow, who designed the trainshed, and architect George Gilbert Scott, who designed the Midland Grand Hotel. That we regard their joint efforts as a unified whole is testament to the success of their collaboration. All the more ironic then that the hotel and trainshed are two quite distinct structures and are actually physically separate. Look above the 'Lovers' statue and you'll see that the shed stands a few metres away from the hotel's back wall, with its ranks of bedroom windows. Indeed, there's a glazed screen on the end of the trainshed. Gilbert Scott insisted on this as he had visited the older Charing Cross, where the trainshed butts onto the hotel. This allowed smoke, steam, smuts and noise to directly enter bedroom windows, and he wanted to spare Midland Grand guests this contamination.

This is one of many fascinating details about St Pancras International and the Renaissance Hotel. Look at the beautiful mosaics now visible along the top of the walls in the trainshed – obscured for decades by soot

and grime from steam and diesel trains. Glance at the brickwork and the wafer-thin close mortaring – a skill which had to be re-perfected during refurbishment. It's commonly known that the columns supporting the station were needed to allow the MR to approach the terminus by bridging over Regent's Canal rather than expensively tunnelling beneath it, as the GNR had done next door at King's Cross. But check out the 25 massive arches of Barlow's trainshed – the largest enclosed and unobstructed space on the planet when it was built. These arches are pitched at 29ft 4in – double the spacing of the columns beneath – yes, the beer barrel really is the basic unit of measurement for the entire station.

In an era when rising costs are still a concern, ponder the MR's dilemma as it approached London in the 1860s with its £10.7m main line from Leicester. The hotel costs were ultimately £437,335 – nine times more than the cost of the Great Western Royal Hotel at Paddington and more than 14 times the cost of the £30,000 Great Northern Hotel next door!

Small wonder the opening of the hotel was deferred by the MR until 1873, five years after the station opened, in 1868. Indeed, the hotel wasn't fully complete until 1877. By 1935, it was outdated and obsolete and was closed by the London Midland & Scottish Railway, which converted it into offices. BR

continued this use after 1948 and it wasn't until 1988 that the last BR workers moved out, when St Pancras Chambers lost its fire certificate. It had survived BR's 1966 plan to close and demolish the entire station in order to redevelop the site and in the early 1990s one of BR's last acts was to make the building weatherproof, ensuring it survived again to become the international terminal of today.

When the MR board decided the railway would go over the canal instead of under it, creating the undercroft, the directors unwittingly configured their magnificent terminus for a use in the 21st century they could never have conceived. That the station survived long enough to fulfil that international function is an exciting and absorbing tale. If you'd like to read more there's a superb little paperback by Simon Bradley, or a rather more academic offering from the late Professor Jack Simmons, both of which are well worth reading.

In the words of Professor Simmons: "There is no other building in London, or anywhere else, that embodies more precisely the achievements of mid-Victorian Britain..."

"St Pancras station is a building that exercises the force of life itself."

Indeed it does.

Enjoy!

Nigel Harris
Managing Editor, *RAIL*



IN PARTNERSHIP WITH **RAIL**

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Managing Editor: Nigel Harris
Assistant Editor: Richard Clinnick
Contributing Writer: Paul Stephen
Production Editor: Mike Wright
Art Editor: Charles Wrigley
Sub-Editor: Richard Hampson
Managing Director: Tim Lucas

ADVERTISING

Account Director: Julie Howard

Protect, enhance and grow

Managing and developing St Pancras is a matter of nurturing both its form and function, as Chief Executive Officer of HS1 Ltd **DYAN CROWTHER** explains

Processing almost 50 million passengers a year is a major challenge for any large station, not least one so steeped in history as St Pancras International.

And yet passenger numbers are only set to rise, with all four of the station's train operators (Eurostar, East Midlands Trains, Southeastern, Thameslink) enjoying continued growth, and expanded Thameslink services to new destinations including Cambridge and Peterborough due to commence later this year.

Current proposals for Crossrail 2 include an interchange with St Pancras International that could be operational by the early 2030s, while a second international operator is expected to join Eurostar well before then, adding more footfall to what is already one of the UK's busiest stations. St Pancras also continues to be the busiest station on the London Underground network.

Managing this growth is the job of HS1 Ltd, which has a 30-year concession to own and operate High Speed 1 and its stations until December 2040. As the steward of St Pancras International, it is also responsible for protecting its world-famous Victorian architecture for future generations to enjoy.

HS1 Ltd must not only provide sufficient capacity and modern facilities, but sensitive enhancements to the fabric of the unique and much-loved 150-year-old station.

As Britain's top-rated station for passenger satisfaction for the last seven years (according to Transport Focus' National Rail Passenger Survey), HS1 Ltd must also ensure that passenger growth does not have any detrimental impact on the overall passenger

experience, and its successful retail and cultural offerings.

Dyan Crowther, Chief Executive Officer of HS1 Ltd, says: "We have three strategic aims; protect, enhance and grow. The 'protect' element is key as it's an iconic Grade I-listed station with a powerful wow factor for visitors, and we take that responsibility very seriously. On the other hand we look after a customer base that has evolving demands, which is where enhancement comes in.

"It has free-to-use toilets, it was the first station to offer free Wi-Fi in the UK, and we are working to expand 4G coverage, three simple examples which demonstrate how everything we do is about giving customers exceptional service on an everyday basis.

"The train services from the station continue to evolve, and there are many future opportunities which could enhance the passenger experience. But we are keen to protect the cachet of St Pancras while at the same time acknowledging that enhancement is not a dirty word, because that is what the travelling public wants."

For its third strategic aim HS1 Ltd is predicting that passenger numbers will almost double to 80 million by 2040. To accommodate this, work started in May 2016 to develop a station masterplan designed to resolve capacity problems while maintaining the station's top spot in terms of passenger satisfaction.

The masterplan outlined a range of costed options that will now be further developed and presented to key stakeholders and the board of HS1 Ltd, building on the close collaborative relationship with its train operating customers, of which the company is



HS1 Ltd's public art offering at St Pancras International pays homage to cultural influences old and new: Martin Jennings' 8.5ft statue of famous poet Sir John Betjeman, who saved the station from demolition in the 1960s, is backed by a giant set of Olympic Rings that graced the station for 18 months before the 2012 Olympic Games were held in London. JACK BOSKETT.

very proud.

Crowther adds: "As stewards of the station we need to make sure we can support all of our train operating customers, while making sure that St Pancras International is still the destination of choice - we can't take our reputation for granted. We have to continually scan the horizon for opportunities and risks - and then address them.

"We've already worked with Eurostar on a revised queuing arrangement, for example, because passengers used to queue in the Arcade shopping area, which affected the experience for other customers. We also obtained approvals for more e-gates in the international area to speed up security checks so that Eurostar can still advise passengers to turn up just 30 minutes before departure while at the same time introducing a new fleet of e320s that introduces more passenger capacity in specific time slots.

"We've also done lots of work in the last two years on our masterplan to make the best use of space and create opportunities, while at the same time recognising that we are a commercial organisation."

Further capacity-enhancing measures are set to be announced in due course, but Crowther says that her organisation is committed to preventing problems rather than responding to them as they emerge.

She adds that the best results will be created by working in partnership with TOCs, and so the drawing up and implementation of the masterplan will be a two-way process, with HS1 Ltd placing much value on the advice and suggestions of its direct customer base.

"If we can put the expansion elements in now, rather than doing it in the future when we know we'll have less capacity, it will mean a much better outcome for customers. All of our masterplan ideas have been created from the

bottom up with the TOCs, and they have had full input into what mitigation measures there might be and when we'd look to initiate them.

"We're waiting to see what happens with the new East Midlands and South Eastern franchises (due to commence in August 2019 and April 2019 respectively), but we're quite excited about having the opportunity to engage on a medium-term basis with those operators and we've got some very clear views on how we'd expect the bidders to work with us so far as the masterplan is concerned.

"We could take a heavy-handed asset manager view, but we've got to do it in a way that supports them and their customers and provides a seamless transition towards having more capacity in future."

Crowther stresses that there will also be no change in HS1 Ltd's commitment to developing its popular public arts and cultural offerings so that the station continues to be a

top choice destination not only for passengers but for people with different purposes, and those who wouldn't normally decide to visit a railway station.

This diversity will help secure its reputation for many years to come as not just a 150-year-old wonder of Victorian engineering, but as the UK's premier 21st-century transport hub.

"We've succeeded in that by being quite particular about who we work with, and our team works very diligently in the selection and identification of display pieces. It's also an opportunity to bring in the local community and take on an educational role, which we will always want to do because it's one of our defining features.

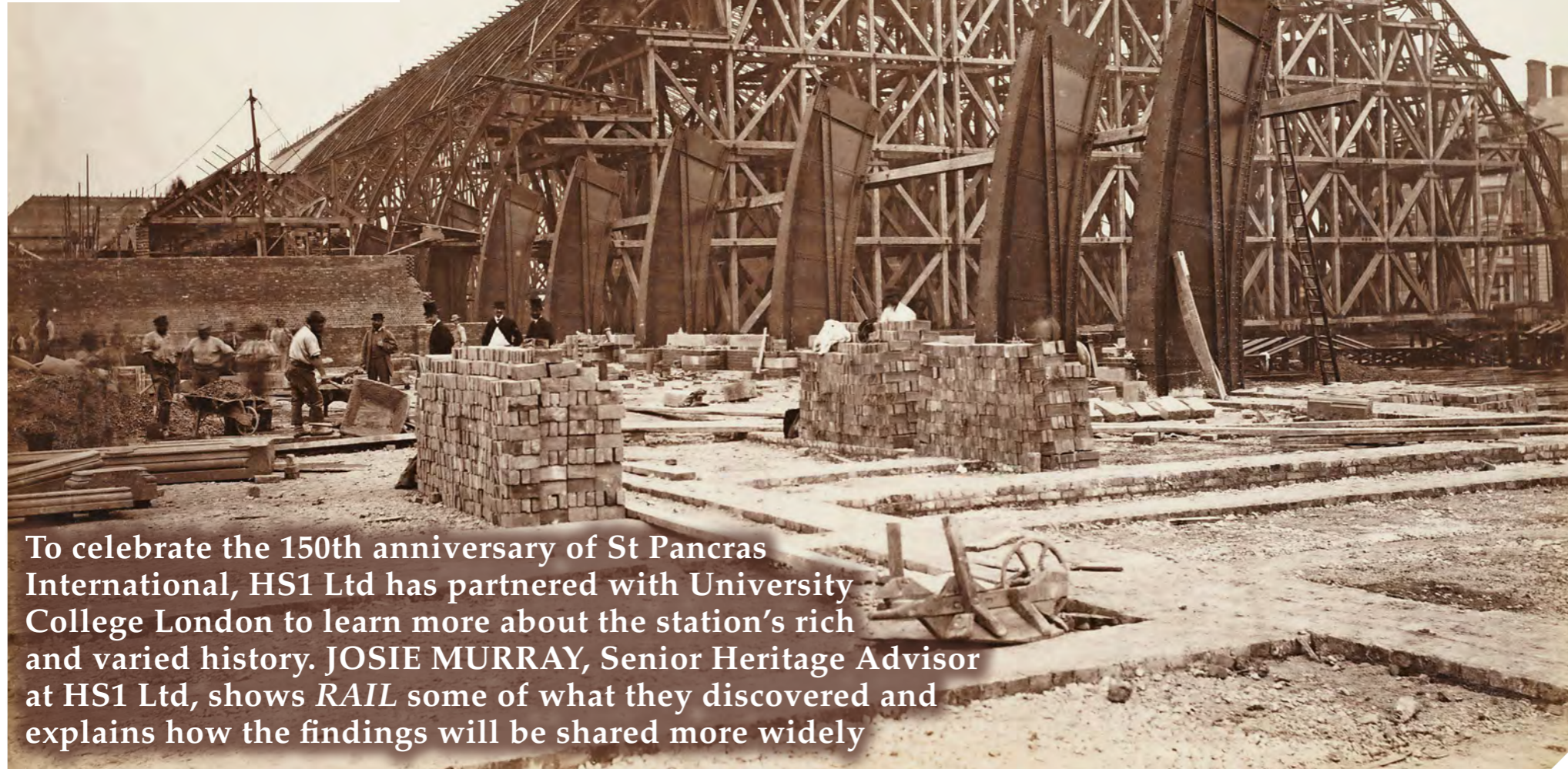
"The art and the music is what really helps to give the station its soul and its sense of community. Our customers, whether passengers or visitors to the station, are our greatest advocates, long may that continue." ■



“ We can't take our reputation for granted. We have to continually scan the horizon for opportunities and risks - and then address them. ”

Dyan Crowther, Chief Executive Officer, HS1 Ltd

A most sacred station



To celebrate the 150th anniversary of St Pancras International, HS1 Ltd has partnered with University College London to learn more about the station's rich and varied history. JOSIE MURRAY, Senior Heritage Advisor at HS1 Ltd, shows *RAIL* some of what they discovered and explains how the findings will be shared more widely

When St Pancras Station opened in October 1868, its arched trainshed designed by William Henry Barlow became famous for being the largest single-span roof in the world.

Built as a statement of intent by the Midland Railway Company (MRC) as it sought to outshine the neighboring stations of its competitors on Euston Road (at Euston and King's Cross), successive generations have marvelled at its architectural elegance and neo-gothic splendour ever since.

But the history of this wonder of Victorian engineering has also been an extraordinary tale of survival. Having endured the German air raids during two world wars, British Rail then proposed to demolish it as traffic declined in the 1960s.

Thankfully, these latter efforts were

successfully resisted by a well-publicised campaign led by the poet laureate John Betjeman and architectural historian Nikolaus Pevsner, so that a bright new future could

Who was St Pancras?

According to the Roman Catholic church, St Pancras was born in Phrygia (in modern day Turkey) in around 290AD. The 14-year-old orphan was brought to Rome, where he converted to Christianity. He was beheaded for refusing to renounce his faith in 304AD by the Emperor Diocletian.

It is thought that Pope Vitalian sent his relics to England to spread Christianity, including to St Pancras Old Church in Camden, from which the railway station takes its name.

emerge for the station in 2007 when it was reborn as the UK's rail gateway to Europe, following an £800 million restoration.

For railway and architectural historians, much has already been documented about the physical construction and fabric of the cathedral station. The original drawings for the Barlow trainshed and the George Gilbert Scott-designed Midland Grand Hotel and station frontage are a matter of public record, as is the choice of building materials which were of the highest quality and designed to showcase the best products that the East Midlands towns and cities served by the MRC could offer.

But in order to dig deeper into the twists and turns of the St Pancras story and to uncover previously unreleased historical material, station owner and operator HS1 Ltd joined forces with students and academics from

University College London (UCL) in March 2017.

At UCL the project was led by Professor Margot Finn, chair of Modern British History, who with Dr Chris Jeppesen co-ordinated a team of more than 30 student volunteer researchers. Meanwhile, advising from HS1 Ltd was its Senior Heritage Advisor Josie Murray. She explains: "St Pancras International is

“ Without beer, we would have a very different St Pancras. ”



Josie Murray, Senior Heritage Advisor, HS1 Ltd

Work continues to erect the trainshed at St Pancras which, at 689ft long, 100ft high and 243ft wide, was the largest single-span roof in the world at the time of its opening in October 1868, and dwarfed its nearest rivals at Cannon Street (190ft wide) and Charing Cross (166ft). NATIONAL RAILWAY MUSEUM/SCIENCE AND SOCIETY PICTURE LIBRARY.

150 years old and we wanted to celebrate that history by connecting and engaging with our customers to reveal and share its stories.

"The station was built and operated by an innovative company but has suffered many challenges in its history, not least being bombed in both world wars. It has been through periods of underinvestment and near-dereliction only to be saved from demolition by people who were very passionate about it. Following its listing at Grade I in 1967 and its subsequent regeneration, it is now being celebrated again as a masterpiece.

"As guardians of the building we know quite a lot about the infrastructure, building and materials, but we don't know a lot about the human stories and the social history of the station. It's the people who built it, worked in it and cared for it that create those stories, which is a big part of why we wanted to do this project with UCL."

Using access to archives from the British Library, National Archives, London Transport Museum, National Railway Museum, London

Metropolitan, Midland Railway Study Centre and UCL itself, the finished project details 150 stories, facts and images reflecting the station's remarkable history.

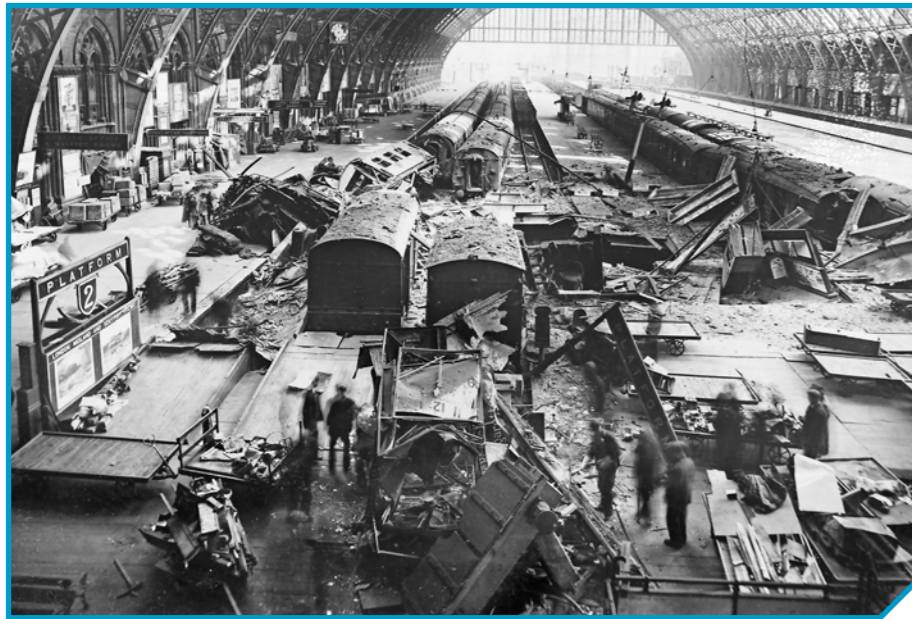
It focuses on five key themes; the history of the station's landscape and architecture, changing railway technology over the ages, personal stories behind St Pancras International, the social evolution of the St Pancras area and the ways in which posters and advertising have been used to capture the imagination of passengers.

Murray adds: "We agreed from the outset that these were the five areas which are most underrepresented in the records we have and that it would be a project of exploration, because we didn't know what would be available. But UCL did a fantastic job collating and organizing the information and it gave the students an opportunity to work on a live research project and develop extra-curricular skills. Very importantly, it is also about inspiring the next generation of people who are going to look after buildings like St Pancras."

Turning her attention to the project's findings, Murray says that a wealth of valuable material from the station's earliest days was available to the researchers. The first unexpected finding emerged from a series of photographs taken in the 50 years that followed its completion, which offers a



One of the lesser known facts about St Pancras International is that the MRC's former goods depot at Somers Town became known as RAF St Pancras for two weeks when the first ever landing in the centre of London by a fixed wing aircraft was made on May 3 1969. An RAF Harrier 'jump jet' made a vertical landing at the disused coal yard, in preparation for the Daily Mail Transatlantic Air Race between London and Manhattan a few days later. ALAMY.



→ new perspective on the type of journeys that were being made.

They show that more than a century before the first Eurostar service departed to the continent from the station in 2007, passengers were already using the station for international journeys and not just domestic travel, as had been widely assumed.

“We found a lot of material from the time of construction; there are lots of contemporary newspaper accounts and a series of photos taken by the Midland Railway Company’s officially commissioned photographer. It’s a fantastic record and it really shows off the scale and majesty of the space, which relied heavily on the endeavours of man to build.”

“Then we have lots of individual photos of people leaving on journeys from St Pancras. A lot of people went to Australia or New Zealand via Tilbury, including the England cricket teams. There are also accounts of Americans coming into Liverpool and then down to St Pancras to stay at the hotel.”

Murray says that the photographic resource is sadly not as rich during the First World War, when the station was damaged by an air raid in 1918 and a number of people lost their lives.

Photos have survived from the Second

William Henry Barlow

Born in 1812, William Henry Barlow joined the newly formed Midland Railway Company in 1842 and became consultant engineer in 1857 following the retirement of George Stephenson. A Fellow of the Royal Society from 1850 and an active member of the Institution of Civil Engineers, he was involved in many of the landmark projects of his day, including the 1851 Great Exhibition at Crystal Palace and the completion of the Clifton Suspension Bridge in 1864 following the death of its designer, Isambard Kingdom Brunel, in 1859.

Barlow was responsible for the

Like much of London, St Pancras suffered heavily during the Blitz, when five bombs fell on the station during a German air raid in May 1941. NATIONAL RAILWAY MUSEUM/ SCIENCE AND SOCIETY PICTURE LIBRARY.

World War, however, that vividly show the scale of damage inflicted by German air raids, but also provide evidence that railway operations largely carried on as normal while repairs were being made.

Murray says that the biggest challenge posed to the research team was the absence of contemporary information about the storage of beer, which was a fundamental factor in the design of the station. The decision to build the platforms above ground level was made to enable the railway to cross the Regent’s Canal to the north, but would also accommodate the storage of beer produced by brewers in Burton-on-Trent, particularly Bass and Thomas Salt.

“Without beer, we would have a very different St Pancras, but unfortunately the Bass archives aren’t in an accessible form and we’d love to know more,” she reveals.

The project also unearthed interesting evidence of a darker side of St Pancras when it

construction of the Midland Railway’s southern extension from Bedford to London, including the magnificent trainshed at St Pancras which he designed with Rowland Mason Ordish and William Henry Le Feuvre.

His standing in the profession led to his subsequent appointment as a commissioner of the Board of Trade inquiry into the collapse of the River Tay railway bridge near Dundee in 1879. Barlow led the design of the replacement bridge and checked designs for the Forth Bridge near Edinburgh before he died at the age of 91, on November 12 1902.

Sir George Gilbert Scott

Born in 1811, George Gilbert Scott was a Gothic revivalist architect chiefly associated with cathedrals, churches and workhouses. He is credited with the design or adaptation of more than 800 buildings.

Having already designed a number of iconic buildings, including the Albert Memorial and the Foreign & Commonwealth Office in London, he beat ten other architects to win the commission to build the station and hotel buildings at St Pancras in January 1866. At £315,000, Scott’s designs were the most expensive, but achieved the company’s objective to outdo all other London termini. Financial savings later dictated the removal of one of the floors from the frontage designs before the Midland Grand Hotel opened in May 1873. He was knighted by Queen Victoria in 1872 and died on March 27 1878.

exposed some rather less edifying aspects of railway development in the mid-19th century.

This includes a campaign by MRC to acquire freeholds in the parish of St Pancras from 1859-1860, and several years before permission was granted to begin station construction.

At that time, parts of St Pancras, notably Agar Town were considered a malodorous



“It’s about inspiring the next generation of people who are going to look after buildings like St Pancras.”

Josie Murray, Senior Heritage Advisor, HS1 Ltd

slum which was due to poor quality housing, lack of infrastructure and overcrowding.

The location of the Fleet sewer, and gas holders built by the Imperial Gas & Coke Company, steered the MRC towards choosing these estates bordering on to Euston Road as the site of their station where 3,000 homes would need to be demolished.

Murray says that the MRC was a poor landlord to the residents of these houses before they were demolished, and that their occupants were evicted without compensation.

The MRC also dismantled St Luke’s Church on Euston Road and built a replacement in Kentish Town in 1868/69. The dismantled church was rebuilt in Wanstead. The approach lines to the station cut through the old St Pancras graveyards and were built with scant



Students from UCL’S History Department and staff from HS1 Ltd gather for the launch of the St Pancras International historical research project in March 2017. HS1 LTD.

regard for the human remains interred there.

“It suited MRC that Agar Town was considered a slum by writers of the day and that its demolition was justified as few lamented its clearance in 1866,” argues Murray.

“They also had to bring the line through a burial ground which had closed in 1854, but had been very intensively used as the cemetery of the parish church. More than 7,000 bodies were exhumed but it wasn’t handled with much sensitivity. There was a huge outcry before they were reinterred in a new St Pancras cemetery at Crouch End in North London.”

The historical material discovered by the project will now be used to support St Pancras International’s 150th anniversary year with a series of exhibitions throughout 2018.

It will be displayed according to different themes in key locations around the station.

“2018 is about celebrating St Pancras International: the people, the place and the journey. We know that a lot of our regular users are interested in the station history but don’t necessarily have a lot of time to investigate further, so we’ll present it near to the platforms and in the main part of the station itself. We’ll also use our website and social media, and other forms of engagement such as regular station tours, and there might be some audio podcasts.

“One of our first themes will be Transformation, which is about trying to get people to stop for a moment and take a good look at the station because, when you consider the technological innovations embedded in the fabric of the station, they’re not just from the 19th century but the 20th and 21st too.

“We will follow that up with other themes, such as Women in the Railway and the unsung heroines who kept it open during both world wars. There will also be a Goods and Trade theme, because when it opened in 1868 the station wasn’t really about passengers but goods and freight. There were at least three beer trains a day from Burton, and we know that in 1862 MRC was bringing in 18% of London’s coal (800,000 tonnes per year).”

For fans of the station, Murray says that the anniversary year will not mark the end of the research project and that there is still a lot of material to investigate.

As the project continues to uncover more mysteries, it will provide a valuable snapshot in time of one of the UK’s most historically significant stations, and is not to be missed over the next 12 months. ■

Navvies work on the site of the station undercroft which will be used to store barrels of beer from breweries in Burton-on-Trent. The spacing of the 688 cast iron columns that support the train deck above was dictated by the size of a standard beer barrel. NATIONAL RAILWAY MUSEUM/ SCIENCE AND SOCIETY PICTURE LIBRARY.



Regeneration

On November 6 2007, Her Majesty the Queen re-opened a newly refurbished St Pancras International, marking a new and exciting chapter in the history of the world-famous cathedral-like station.

Costing £800 million and involving more than 5,000 individual contractors, the three-year transformation of William Barlow's great trainshed into an international terminus not only resurrected a grand old station that had fallen into severe disrepair, but provided the catalyst for several billion pounds' worth of regeneration in the surrounding area.

Among the select group of officials who greeted the Queen and HRH the Duke of Edinburgh on their arrival at the royal opening ceremony was Rob Holden, who was Chief Executive of London and Continental Railways (LCR) at the time.

LCR was the company formed in 1994 to revamp the station as part of its wider £5.8bn project to build a new 68-mile Channel Tunnel Rail Link (CTRL) through London and Kent, which was subsequently rebranded as High Speed 1 when it opened in 2007.



“You felt like you were working on a project that you would want to tell your grandkids about.”

Steve Kay, UK Infrastructure Operations Manager, Bechtel

HS1 Ltd Chairman ROB HOLDEN reveals how vision, investment and ingenuity in the St Pancras project have paid immeasurable dividends

Holden is now Chairman of HS1 Ltd, which commenced a 30-year concession to own and operate High Speed 1 in November 2010.

He vividly recalls his first visit to St Pancras with LCR in 1996. The cavernous station was much more lightly used then, and in a state of slow decay following many years of neglect under British Rail.

“The place was full of diesel fumes from the handful of trains that served the Midland Main Line and the roof was a mixture of glass and corrugated iron,” he says. “You couldn't see the sky because the glass was covered in many decades of accumulated soot.

“Only about half of the platforms were in use and the undercroft, which had never been open to the public, was a venue for drug use and prostitution. I had feelings of trepidation

because, as well as all of that, the building was a complete nightmare; things were always falling off the roof and maintenance costs were a big concern.”

The station closed in 2004 and work began. Midland Main Line trains were diverted into a temporary station nearby until the restoration was completed, three years later.

Holden says that the hardest challenge of the refurbishment was the short amount of time made available to LCR and its delivery partners to complete the works, following a decision made by government several years earlier to split the £5.8bn CTRL project into two consecutive stages, rather than one.

The construction schedule had been revised in 1998 when LCR required additional capital to fund CTRL, which was raised by issuing government-guaranteed bonds. Phase 1 was opened in September 2003 between the Channel Tunnel and Fawkham Junction in North Kent before work commenced on Phase 2.

He explains: “The most difficult issue was created when LCR had its financial difficulties in 1998. It was always recognised that the

The vast roof at St Pancras International was fitted with 18,000 panels of self-cleaning glass between 2004-2007 to replace the sheets of corrugated iron crudely erected by British Rail to reduce maintenance costs. BECHTEL.

The project director's view

Steve Kay is UK Infrastructure Operations Manager at Bechtel, which led the engineering consortium tasked with completing the construction of HS1 and the refurbishment of St Pancras International in 2007.

Between 2006 and 2008 he was project director, the man responsible for taking it through testing and commissioning through to handover and completion.

Kay says that many of the plaudits for the station redevelopment go to the highly visual improvements that were made, such as cleaning up the brickwork and re-glazing the station roof. But some of the most significant achievements were made behind the scenes in areas that are much less obvious to station users.

He says: “All of the station systems, including railway operations, communications links and security feeds, needed to be fed into a central data network that was off the scale in terms of what we'd seen before at railway stations. For example, there were 200-300 CCTV cameras and PA speakers which all needed tying into the station control room. The system was designed so that if any help point button around the station was pressed the nearest CCTV camera would automatically focus in on it. It doesn't seem much now but that was fairly cutting edge at the time.”

As a Grade 1-listed building of national historic interest, Kay also remembers the painstaking sensitivity with which the renovation was approached, to comply with strict conservation principles. Key design and construction decisions were made in

refurbishment of St Pancras would be one of the most time-consuming elements of building the railway and then, all of a sudden, we were given less time to build section two.”

What were the biggest engineering challenges? Holden points to the poor condition of some of the original ironwork which had deteriorated far more than anticipated since being erected in the 1860s. The project designers also had to find an innovative way to remove sections of the raised deck at track level in order to open up the undercroft beneath without undermining the structural integrity of the vast 240ft by 100ft trainshed roof.

“We weren't able to fully understand the scope of the job until we'd undertaken some intrusive surveys of the station. Corrosion



43096, 43119 and 56110 stand at the London end of St Pancras on September 1 1991. Plans to transform it into a modern terminal for HS1 were announced by London and Continental Railways five years later. PAUL BIGLAND.

conjunction with English Heritage, while original materials were reused or salvaged where possible.

Almost a million red bricks were sourced from the same part of the East Midlands as the originals, and new roof slates purchased from the original quarry in Wales. Meanwhile, ironwork was recoated in paint that was carefully matched with the original sky blue colour used by the Midland Railway Company 140 years earlier.

He adds: “You couldn't even drill a hole without permission from English Heritage and, if you ignored that, you could go to prison. But you didn't need the threat of

prison because you felt like you were working on a project that you would want to tell your grandkids about, and so we regularly held things up to get the proper permissions. I sit in there now and I can remember individual bricks because it was that personal to get it right.

“The big payoff for me was creating a legacy for how engineers will be looked at in another 150 years. When we design and build in the UK the rest of the world watches. The next challenge will be HS2, and that's when I think the rest of the world will once again point and say ‘we want one like that!’”

had been causing serious damage to the ironwork of one section that had been hit by a bomb in the First World War, and that wasn't discovered for quite some time.

“The other issue of concern was how we could go about excavating holes at platform level to allow natural light to filter down to the ground floor, where lots of the shops are now. In the original design the ends of the main iron roof spans were tied together beneath the platforms to form what was then the world's largest single-span structure. Breaking into that required some intricate calculations and a lot of new high-tensile steel cables to make sure the whole thing didn't fall down.”

But for Holden the most satisfying aspect of the refurbishment has been the extent of the regenerative effect it has had on the

surrounding area. Since 2007, the reopened St Pancras International has helped stimulate the development of new hotels, restaurants, offices and apartments across the previously derelict King's Cross neighbourhood, which now supports more than 12,000 jobs at some of the world's largest companies, including Google.

He concludes: “When LCR had to seek financial assistance from the Government in 1998, people talked about the project's benefits in a certain order of priority. Benefits to international and domestic travel were ranked first and second and regeneration was a poor third. In fact, I remember the Department for Transport being criticised by the Public Accounts Committee for arguing that regeneration would be as high as £0.5bn, but we've since gone on record to say that it's been at least ten times that.”

“Imitation is the sincerest form of flattery, and St Pancras is upheld as an example in so many ways. Prior to 2007 you only came here to get on a train. Now there are many reasons to come here. The mix of usages is what I'm most proud of, rather than any particular physical feature.” ■



“The building was a complete nightmare; things were always falling off the roof and maintenance costs were a big concern.”

Rob Holden, Chairman, HS1 Ltd

Destination station

HS1 Ltd's Commercial Director WENDY SPINKS explains to RAIL why St Pancras is so much more than just a terminus

St Pancras International emerged from its £800 million redevelopment between 2004-2007 as much more than just a gateway for domestic and international travel.

In addition to its status as a main line station and its stunning Victorian architecture, there is an extraordinary array of retail, social and cultural attractions to be enjoyed by commuters and visitors alike.

From well-known high street retailers to a wide selection of places to eat and drink, St Pancras International has set a benchmark for how to enhance the passenger experience, and demonstrated how major stations can be destinations in their own right.

The formula has now been extended to several other major stations in the UK, including King's Cross, Birmingham New Street and Euston, which have all had their concourse areas transformed within the last decade. The next will be London Bridge,

which will be home to 80 retail units when its development is fully completed in spring 2018.

But despite these attempts to replicate the success of St Pancras International elsewhere on the network, the station is yet to be beaten in terms of passenger satisfaction levels and is consistently ranked top of the bi-annual National Rail Passenger Survey for Network Rail-managed stations (see panel).

And no other station comes close to matching its vibrant arts and cultural programme, which underpins the appeal of St Pancras International as a 'destination station'.

Station owner HS1 Ltd has invested considerable time, energy and resources into promoting the station as a venue for a host of events taking place throughout the year.

Artworks range from the famous statue of Sir John Betjeman by Martin Jennings and Paul Day's 'Meeting Place' statue (known to many as 'the Lovers') on the upper level of the concourse, to Conrad Shawcross's dramatic



With 100,000 sq. ft of retail space, most of St Pancras International's wide selection of high street stores and independent boutiques can be located in the Arcade area, and offer anything from convenience purchases for commuters through to tax-free shopping for international travellers. PAUL BIGLAND.

National Rail Passenger Survey:

Overall satisfaction scores for Network Rail-managed stations (Autumn 2012-Spring 2017)

St Pancras International	95%
London King's Cross	94%
Glasgow Central	91%
Manchester Piccadilly	91%
Reading	90%
Liverpool Lime Street	89%
London Liverpool Street	87%
London Paddington	87%
London Waterloo	87%
Edinburgh Waverley	86%

SOURCE: TRANSPORT FOCUS

redevelopment] shows that you absolutely can. There needs to be a bit more planning and consideration into how things work, however, for instance when we launched WiFi in 2013.

"The iron columns in the Arcade shopping area interfere with WiFi, which is an example of how original materials do not always work with modern requirements. Even so, we still managed to provide a system that was powerful enough to host 7,000 people all streaming an HD movie at the same time.

"As a management team at HS1 Ltd we have to be creative but we have this magnificent asset, so making extra efforts to find solutions to these issues is worthwhile."

Spinks says the key to the continued success of St Pancras International will be in the choices it provides to users. By seamlessly mixing retail space with operational areas such as ticket offices and information boards, an inclusive environment has been nurtured so that shopping, arts and culture increasingly complement and integrate with the departure areas of the station.

She concludes: "If people don't want the retail or cultural offering, we have created an operational environment that allows them to go in and out quickly, but we equally recognise that people who commute are generally time-poor, so the opportunity to shop, eat and drink or do some work can now be done conveniently at the start or end of their journey.

"Gone are the days when all you could get was a sandwich and a coffee if you were lucky - we've set the standard much higher and others have followed because that's what consumers want at a time when more and more people are travelling. Railway stations have become the new high street for people who travel a lot." ■

'Terrace Wires' installation that was suspended high in the air from the roof of the trainshed in 2017.

The station's close link with former Poet Laureate Sir John Betjeman is also celebrated by the annual Betjeman prize that aims to inspire the next generation of poets. It is sponsored by HS1 Ltd, St Pancras International and Eurostar, and regularly attracts more than 3,000 entrants.

For fans of live music, St Pancras International has hosted performances by some of world music's biggest names, including John Legend and Ed Sheeran.

On a more day-to-day basis, visitors can hear impromptu performances on the station's two public pianos, which are freely accessible in the Arcade and main concourse for all to play and enjoy; Sir Elton John surprised and delighted visitors with a performance there in 2016.

The station also has a free-to-use jukebox located near to the Southeastern platforms, featuring a library of 57,000 songs to choose from.

It is this diverse range of offerings that makes St Pancras International such a special and unique place, explains HS1 Ltd's Commercial Director Wendy Spinks.

"It is a stunning building, but it's ultimately what we do to bring it to life that's important. A building is only a building at the end of the day, so it's got to live and operate, and we need to do the things that make that possible.

"Whether it's the retail outlets, the places you can go to grab a glass of champagne before your train, or somewhere just to sit and listen

to people playing the pianos, these things are what make all the difference to the station."

She adds: "We are bold enough to do things that other stations haven't and we continue to innovate, just like the Victorians did in their day. We have great arts programmes and we give people who use St Pancras International the opportunity to see them, which makes things just that bit more inspiring during the drudgery of the daily commute."

St Pancras International also chose to focus on its retail and cultural offering for two other important reasons.

As the UK terminus for Eurostar services it needed to help the operator gain market share from airlines, while large-scale redevelopment of the station's surrounding area has also turned the transport hub into an amenity for the rapidly growing local community.

This includes the 67-acre King's Cross redevelopment to the north of the station on previously derelict wasteland, known as 'the railway lands'. It is now home to more than 50 new buildings, including 2,000 new homes and a large workforce for companies such as Google that have chosen to relocate to new office space there.

"Our customer base is diverse," says Spinks. "We have domestic passengers to places like the East Midlands and Kent, but we also have international services to European destinations. That means that service levels and the station experience absolutely need to compete with the finest of modern airports. This is ultimately what Eurostar is up against,

so we need to deliver.

"If you think about what is happening on St Pancras' doorstep, it's been transformational and there's a lot more choice of where to go for food or drink. There are also a lot more people living and working in the area which makes the station a great place for them to have their lunch or to pick up a gift."

HS1 Ltd also put a lot of thought into how to reconcile the provision of 21st century passenger requirements with protection and respect for the original station structure (it's been Grade 1-listed since 1967).

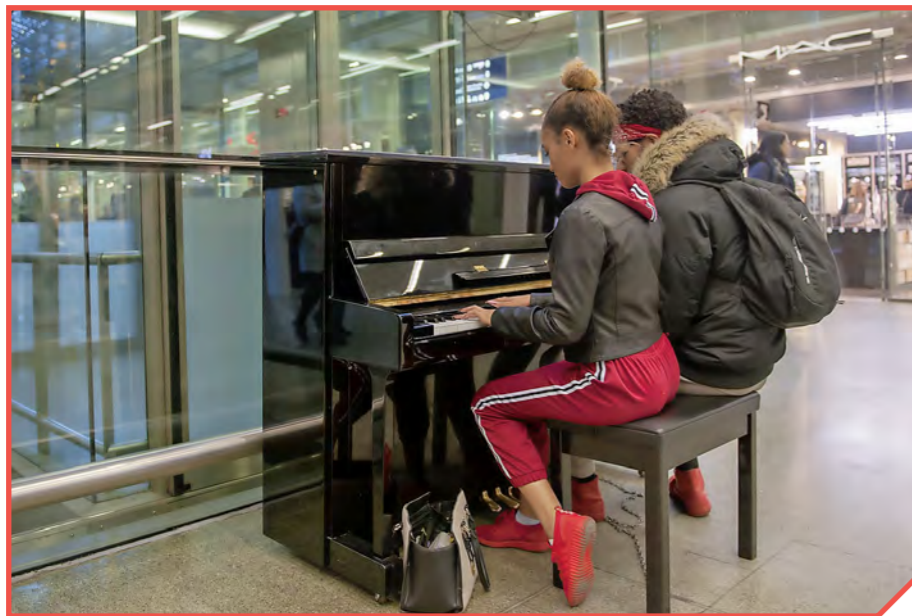
Spinks recalls one particular instance where a successful outcome was reached despite the serious limitations posed by the historical fabric of the station.

"It would be easy to assume that because the station is Grade 1-listed we can't do anything, but what we've achieved [from the



"It is a stunning building, but it's ultimately what we do with it to bring it to life that's important."

Wendy Spinks, Commercial Director, HS1 Ltd



St Pancras International received its first public piano in 2009 to encourage spontaneous live music. There are now two and they've attracted a variety of players, from amateurs having music lessons to live performances by Jools Holland and Sir Elton John. HS1 LTD.

A celebrated station



1. For 18 months, a giant set of Olympic Rings hung in St Pancras International to mark the London Olympics in 2012, becoming one of the most recognised symbols of the Games in the Capital.

2. In 2016, the illustrator of Roald Dahl's classic children's books Sir Quentin Blake treated visitors to a one-off live drawing session at the station.

3. David Batchelor's Terrace Wires installation from 2014 'Chromolocomotion' created an explosion of colour over the Grand Terrace.

4. 'Cloud: Meteoros' by Lucy and Jorge Orta was the first of the Terrace Wires series of art pieces to be suspended from the trainshed roof when it was installed in 2013.

5. Superstar singer-songwriter John Legend surprised station-goers on National Piano Day in 2017 by giving a brilliant off-the-cuff performance.

6. The famous St Pancras International clock was reconstructed by the original company, Dent & Co., and hangs in the apex of the famous Barlow shed once more. The original timepiece, commissioned when the station was first built, was sold by British Rail in the 1970s but unfortunately broken while it was being removed.

7. The Sir John Betjeman statue was designed by Martin Jennings to celebrate the man responsible for saving St Pancras International from the threat of demolition in the 1960s. ALAMY.

HS1 Ltd and RAIL present a series of images that perfectly capture how St Pancras International is not just a major travel hub, but constantly provides a celebration of music, culture and heritage.

All photography: SAM LANE PHOTOGRAPHY



St Pancras stories

To celebrate St Pancras International's 150th anniversary, station users were asked to share their interesting stories from both the past and present. Here is just a small selection



NICK EFTHIMIOU, PIANO PLAYER AT ST PANCRAS

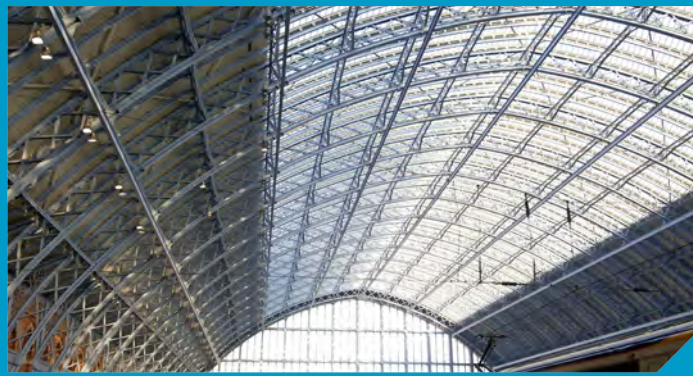
I started learning to play the piano when I was eight and was lucky enough to end up training at the Centre for Young Musicians in Pimlico. I'm now a music teacher and come to St Pancras several times a week to play the pianos. I've even used them to practise on before going to interviews! I love the pianos at the station because it's through them that I've met so many of my friends. There's a growing community of musicians here and I now see it as my second home.



SAM LANE, RESIDENT OF ST PANCRAS CHAMBERS

I can scarcely believe I am about to celebrate my sixth year actually living in the heart of London at St Pancras. A desire to live in the capital during the Olympics in 2012 led to an internet search, where we stumbled across an apartment to rent in the magnificent former Midland Hotel. I essentially live behind the clock and have an amazing view of this wonderful station.

Every day there is something new to see, hear or touch. If ever I need to lift my spirits I take a walk through the station and I always spot something new and interesting. I listen to the good (and the not-so-good) players on the pianos and reminisce over some of the amazing things I have had the privilege to photograph here. There is nowhere in the world I'd rather be.



DON ASHER, SON OF ST PANCRAS STATION ROOF REPAIR TEAM MEMBER, SECOND WORLD WAR

In WWII my father was drafted in as part of the team to repair the bomb damage to St Pancras International's trainshed roof. He told me that every time the sirens sounded for an air raid they had to come down off the roof, but by the time the all clear had sounded they had often only just managed to get to platform level, so in the end they just stayed up on the roof and carried on working.

I also once knew a gentleman called Roland Hoggard who was a passenger train guard with British Railways and had always been interested in repairing clocks. Roland said that the clock at St Pancras had been sold to an American in the 1970s and, just by chance, Roland's train came into the station the day it had been dropped and smashed while being removed. He asked whether he could have it and managed to move all of the clock pieces into the guard's van and take it home to Thurgarton, Nottinghamshire, in one trip.

When St Pancras was being rebuilt, London & Continental Railways contacted Roland and asked whether they could have the clock back, to which he replied "you're not having it". However, he did agree to let them photograph it and measure it. The rest, as they say, is history.



KEITH MARSH, FORMER EMPLOYEE AT BRITISH RAIL

I wonder how many readers know that British Railways had a sales office in North America? Sales were booming and the old reservations system needed speeding up, so a small office was opened in what was known as St Pancras Chambers on the penultimate floor of the wing that contained the Grand Entrance. Access to the office was provided via the Edwardian lift - complete with its own operator. No automation here.

Upstairs we shared a corridor with the reservations section of British Transport Hotels. At around 1000, a gentleman would knock and enter with his trolley, silver coffee pots and biscuits, dressed as if he had just left the 'Master Cutler' on Platform 1. And then of course there was afternoon tea... Now THAT was the way to run an office!