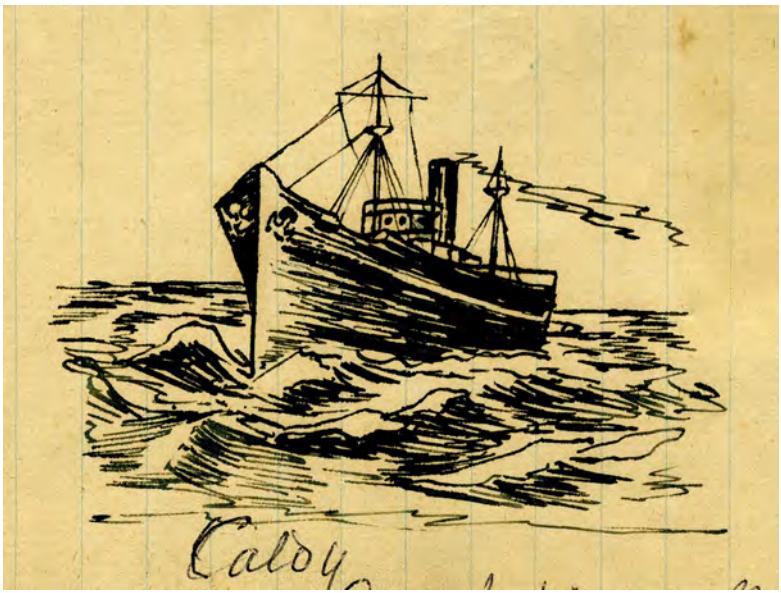
NORTHAMPTONSHIRE INDUSTRIAL ARCHAEOLOGY GROUP

Newsletter 165 – January 2023



NIAG's newsletter is published four times a year in:-
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Next issue: APRIL 2023 for which all copy must be received by **15 March 2023** please.

Articles: around 1200 words please and accompanied by good quality photographs/drawings, etc. where possible. Shorter items always welcome – from one photo with caption upwards – if in doubt please contact the editor who will do his level best to talk you into becoming a contributor!

Front cover illustration: *S.S. Caldy (pen & ink drawing by Harry Winckle)*

News, reviews, information.....

Stanwick makes the national headlines!

One Jimmy James, a long-time resident of Stanwick, is still in possession, and a daily user, of a Morphy Richards toaster given to his parents as a wedding present in December 1949 *(the very month of my birth – ed.!).* Any piece of equipment of that age has need of the occasional overhaul and Mr. James's toaster is no exception …..... fortunately, a long-established electrical repair shop is situated in nearby Rushden and about every seven years the toaster is taken in for a refurb.....as Mr. James rightly says, better to spend £20 every now and again on a known performer than risk a modern day import that may or may not outlive its guarantee!

LNWR lodging house, Far Cotton

This building seems to have gone under the radar for most of its existence. It was originally stables apparently, and is shown as such on a 1882 map of the railways in the area. As a lodging house would originally have served the nearby LNW engine shed at Bridge Street, but that closed in 1881 *(and burnt down in mid-1922 – see October 2022 newsletter – ed.)* with the opening of the 'new' shed further towards Blisworth. It would not however have been used by local crews, but those working in on trains from much further away. Kelly's Directory for 1890 has it listed as "LNW railway lodging house for drivers, firemen and guards" with Mrs. Mary Howe as "housekeeper" and by 1898 Mrs. Emily Jane Winn was in charge and had been promoted to "matron" – she stayed there until after 1924, when she was replaced by Hannah E Richardson, and then in 1940 by Rachel Matthews. B.R days saw an upgrade to a "Staff Hostel" status (although I doubt whether the accommodation improved!) and the seemingly well remembered Mrs G M Gadsden was in charge and was still there in 1964 – it must have closed with the shed a year later. In my treasured Northampton shed engine arrangements books for 1949 and 1957 there are no obvious indications of which foreign crews lodged there. However, in both years there were night runs to Manchester, leaving at 7.58pm, and booked for "Longsight crew" so they would certainly be candidates, particularly as on Mondays the train was booked for a Northampton crew which indicates that either Longsight men didn't stay the weekend (unlikely!) or there was not a working bringing them down to Northampton. Other possibilities are a few jobs marked for "Colwick crew" going back to their base in Nottingham who might just have lodged there. The was a long-time connection between Northampton and Colwick engine sheds; they were both LNWR establishments and crews worked through on the coal traffic from Nottinghamshire. Northampton was the 'parent' shed after 1925, and the Northampton shedmaster had control of Colwick LNW shed (not to be confused with the larger Great Northern Railway shed in the same area). Colwick LNW however closed in 1932. I wouldn't be surprised if Colwick men lodged at Northampton as it was a good 'halfway point' on the run to London.

Barry Taylor 11.8.22

Anglian Water to build two new reservoirs

Anglian Water is proposing the construction of two new reservoirs, one in The Fens in north Cambridgeshire and one in South Lincolnshire, at a cost of £3.3bn. The

water company says the plans have been under development for 10 years and will be ready for a detailed site-selection study this autumn. It is said that the new reservoirs between them will provide enough water for about 750,000 homes and protect the environment by allowing Anglian Water to take less water from rivers and underground aquifers in the region.

Charles Bage and the Ditherington Flax Mill, Shrewsbury

Charles Bage, a Derby-born architect, was commissioned by two prospective mill operators of Shrewsbury in the 1790s to design a fire-proof structure 1,750' x 36' in floor area for their business. Bage had connections to a local ironmaster, William Hazledine, and the two men came up with the idea of basing their design around an iron frame, something never even attempted before anywhere in the world. Their structure fulfilled the mill operators' remit and gave rise to many imitators to the extent that Bage later become known as the 'grandfather of all skyscrapers'. His 'prototype' building, used as a maltings in later years, had become derelict (though never a victim of fire) by 1987 and was near collapse in 2005 when it was purchased by English Heritage who put into effect a £28M restoration project which is now all but complete. Visitors have been able, from September 2022, to tour an exhibition of the building's history, engineering and subsequent influence on architecture worldwide and visit a cafe on the ground floor whilst the upper floors of the building are to be let out as office space. Tickets cost £7.50 or £6 at concessionary rate. https://www.shrewsburyflaxmillmaltings.org.uk for more information.

'Footplate and Signal Cabin' by Norman Marlow

It is quite possible that your editor is the last person on earth to have discovered this book but if not then allow me to recommend it to all members! The author was brought up in Desborough and from an early age was passionate about railways, particularly the driving of their locomotives and the control of their comings and goings, hence the book's title. Upon reaching man's estate he became a classics lecturer but continued with his researches into railways, culminating in the writing of this book. The writing style befits his 'day job' and he managed to secure the services of, to me, another unsung hero in the form of photographer Helga Tye, also employed as a press photographer by the Kettering Evening Telegraph. Ten of the fifteen photographs are by Miss Tye, all in Northamptonshire. The frontispiece itself, containing as it does three distinct facets of railway practice, is worth the purchase price of

Kettering Jct. box and Cambridge branch, 1953 approx. © Helga Tye

the book – so much so that I am reliably informed it formed the basis of an illustration in a Thomas the Tank Engine book! During World War 2, he so impressed the LMS management with his knowledge of signalling that they employed him as a relief signalman all over their system in the county which in itself seems quite an achievement! Published by George Allen & Unwin in 1956, copies are available in the second hand book trade at not unreasonable prices.

New Oder-Havel canal boat lift

A new boat lift on the Oder to Havel canal linking Berlin and Poland is a major engineering feat and was opened on 4 October 2022. The lift hoists boats 120 feet to enable travel from the Polish port of Szczecin to the German capital. The spectacular engineering feat in Niederfinow, eastern Germany, measures 440 by 150 feet and the stands 180 feet tall. It is located around 30 miles from Berlin and takes just a few minutes to hoist boats to the higher level. Constructed to replace a lift commissioned in 1934 that is no longer sufficient for modern maritime traffic, the building process was not plain sailing, being delayed by almost eight years by late deliveries, a supplier going bankrupt, worker shortages and the coronavirus pandemic.

Dawe's Twineworks, West Coker (a short distance SW of Yeovil)

The AIA has announced that the winner of our Community Engagement award for 2022 is the Dawe's Twineworks in West Coker, Somerset following an earlier grant in 2015. Although the works ceased operating in 1968, it retained all of its original 19th-century machinery, which led to it being granted heritage protection through Grade II* listing. Following compulsory purchase by the local council in 2005, local residents set up the Coker Rope and Sail Trust to conserve the site and create a visitor centre with the aid of an HLF grant. Vanessa Ruhlig, convenor of the award panel, explained: 'Volunteers have worked hard to share their passion for the site with others across their community through open days, hands-on school visits, the village magazine, and on social media. It has become a valued space for the local community to meet, which was particularly important during the covid pandemic, and continues to host events including a local Arts Festival.' Museum open 4th Saturday every month; free entry but donations much appreciated. Webpage: http://www.westcoker.net/home-page/ropewalk/

The last Lockheed Constellation to land in Northampton?

What a ridiculous notion, BUT.....if any member remembers The Clipper coffee bar in a basement on the corner of Wood Hill and St. Giles Square, beneath the Oliver Adams bakery-cum-cafe, or even frequented the venue, then they may not be *quite* so sceptical of the title to this item! Operating dates of the business were 1947 to 1961 but those in the know will recall that it was fitted out like the interior of a propeller-driven airliner, the windows giving on to aerial photographs of the 'passing' scene, the waitresses were kitted out as air stewardesses and entered and left by a door as from an airliner and marked “STEWARDESSES PANTRY”! Possibly the best suggestion of trans-ocean air travel to be gained from patronage of the cafe came from the seats – certainly from an airliner of the era and purportedly from a redundant Lockheed Constellation. The venue was, it is said, very popular for a number of years until a relatively small fire put paid to the unique décor and that was curtains for The Clipper, sometime in the early 1980s I am given to understand. Apparently, when the Oliver Adams bakery and chain of shops came to grief in 2017 there were still recognisable remains of The Clipper's interior and, in an interview with the Daily Telegraph in October 2022, a former World War 2 Mosquito navigator on Pathfinder duties, Ken Oatley, now aged 100, mentioned The Clipper which he managed for a while – 'flying' he said 'was in his bones!' The name, The Clipper, was borrowed from the Boeing Clipper, a long-range flying boat and about the largest plane of its time in regular service which, in turn, was from 1938-1948. Only 12 examples were built of which 9 served with Pan American Airways. It could cross the Pacific Ocean non-stop and achieved legendary status amongst crews and passengers.

'Water and Steam Mills of Northamptonshire' by Hugh Howes and published by NIAG in October 2022 (card covers; 99 pages inc. many maps and photos)

This book, lovingly written and profusely illustrated from start to finish, has been a while in the making but the wait has proved to be fully worthwhile. It is a fascinating read, in the course of which we learn that in excess of 25% of the nation's flour is now produced in our county – that by dint of there being five nationally known milling companies in our midst along with an ideal grain growing environment and transport links second to none. The reader is provided with an insight into the history and development of milling machinery and buildings as well as a comprehensive gazetteer of Northamptonshire mills, thereby enabling further research.

Production standards, as have become the norm for NIAG publications (*despite my worst efforts – ed.!*), are, as far as I can see, unassailable and the book would grace any member's bookshelf, all at a members'-only price of £12 + postage, if needed, which represents a considerable saving over shop price, let it be said. Contact Terry Waterfield or Peter Perkins for details.

Welland Viaduct walk, Harringworth

Third time lucky! After the walk was cancelled in 2020, due to the covid pandemic, and in 2021, when nobody turned up because of torrential rain on the day, the sun shone on 1 July 2022 and those present enjoyed a warm and sunny evening with the viaduct making an impressive sight in the evening sunshine.

NIAG members enjoying a sunny field visit for once!

It was built by the Midland Railway which was a provincial railway and moved large amounts of coal traffic from the counties of Nottingham, Derby York and Leicester to, mainly, London. The original route was via Leicester and Rugby then over the tracks of the LNWR. After a few years the MR decided to build a line from Leicester to Hitchin and thence over Great Northern Railway metals to Kings Cross.

The Leicester and Hitchin line opened in May 1957 as a twin-track-only route and was cheaply built with severe gradients at Braybrooke and Sharnbrook. MR traffic was frequently held up by the GNR so the MR built their own line into London from Bedford, opening in 1868. However the twin tracks of the route created their own bottlenecks and the gradients built in further delays to all services.

The lines were partially widened to four tracks, via the Wymington loop and tunnel and Sharnbrook summit in the late 1870s. A direct route to Nottingham from Glendon Junction was also constructed by the Midland, avoiding Leicester and also the Braybrooke gradient. The Melton Mowbray to Nottingham section was 17 miles long and opened to goods traffic in November 1879 and to passengers some three months later. Passenger services were eventually withdrawn in November 1968 and the line was closed entirely as a through route.

The Manton to Glendon section, which goes over the Welland Viaduct, is around 16 miles in length and opened to goods traffic in January 1880 and passengers in that March. It closed with the Melton to Nottingham line and for many years was only used as a diversionary route but now accommodates two services each weekday from Melton Mowbray to St Pancras, except on Wednesdays when there is only one service in each direction. We saw one of these passenger trains en route to Melton whilst

studying the viaduct. Regular freight services (mainly of cement or aggregates) still use the line.

The viaduct, as built, is longer than originally intended at 1,275 yds., to save on amount of fill needed for embankments. There are 82 arches of 40 ft. span, some standing 70 ft. above the valley floor. The 81 piers are six feet thick with 10 double thickness 'block piers'. First bricks were laid in March 1876 and the final arch was keyed on 5 July 1878. 'The Builder' magazine of 20 July 1878 stated that 'the foundations of the piers and abutments are of concrete, some of a considerable depth. The hole of the structure is of bricks manufactured on the site, with Derbyshire gritstone springers, string courses and copings; the arches and spandrels are all covered with two coats of asphalt. The first brick was laid in March 1876 and the first arch commenced in June 1877. It had been pushed on with such great vigour that the arches were finished in the first week of July 1878. The whole of the brick and stone work were completed by the end of 1878 / early 1879. The work contains 30,000,000 bricks, 20,000 cubic yards of concrete and 19,000 cubic yards of stone.' The number of bricks seems to be guesswork as other sources give 15 and 20 million as totals. As we saw on our visit, much of the original red brickwork has now been replaced with longer lasting blue brickwork.

Contractors for the line were Lucas and Aird, London and a Mr. Lorden sub-contracted the viaduct brickwork (a modern day street name in Harringworth marking his efforts). As well as this viaduct the Manton to Glendon route necessitated four tunnels, those at Corby (1,926 yds.), Seaton (206 yds.), Glaston (1,849 yds.) and Wing (353 yds.). The only station on the route remaining open to passengers is Corby, closed twice in its lifetime but now with a half-hourly electric service to London. Closed stations served Geddington (closed 1 November 1948), Gretton (18 April 1966) and Harringworth (1 November 1948). Part of the former Melton to Nottingham route is now used as a test track and has overhead wire and also London Underground 4 rail electrification systems installed.

Following our inspection f the viaduct we crossed fields and followed a quiet road to the former Seaton station. This stood on the now closed line from Market Harborough to Peterborough, the station closing on 6 June 1966. For many years it hosted a car breaking business but the site has now been tidied up and looks quite presentable. Many former railway buildings remain and look to be in good repair, including the footbridge at the platform ends, next to the road. From here we returned to our cars, taking time to make a final inspection of the viaduct's northern end.

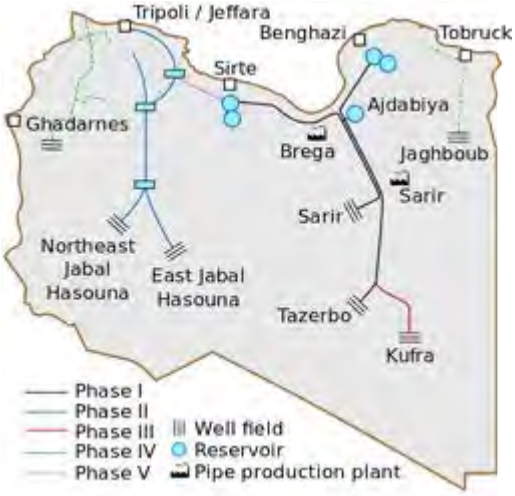
Mick Dix

Libya – The Great Man-made River

95% of Libya is desert, which in turn is about 20% of the Sahara desert's total area. Most of the country's population lives along the Mediterranean coast in the modern towns of Tripoli (the capital), Sirte and Benghazi. There is evidence of cities and previous cultivation inland, dating from the ancient Greek, Roman and Garamantes times but much of this has been lost under the northward rolling sea of the Saharan sands. Nowadays rain falls on only 5% of Libya's surface.

By the mid 20th century the supply of water to the country's population was becoming very fragile. Various solutions were investigated including desalination and a pipeline from Europe. Fresh water delivery by sea tanker and a pipeline from the Nile were also discussed but were all deemed too expensive.

In the early 1950's fate took a hand when oil exploration began. This search for oil initially found water, and water in huge quantities. Its presence had been known about for centuries, but had not been previously taken as a serious option because of its great distance (around 1000 miles) from main population centres. Now, however, not only did the Libyans have their own water but with the successful outcome of the oil exploration they had petro-dollars to pay for its transportation. The water was contained in the Nubian sandstone aquifer system which in effect consists of four natural underground reservoirs, approximately 700 miles across by 4 miles deep with a potential capacity of around 5000 cubic miles. It is the largest known fossil aquifer in the world, and spreads beneath the modern day countries of Egypt, Chad, Sudan and Libya and the water contained there is estimated to be between 13,000 and 30,000 years old. At the time of the Romans the interior of what we now know as Libya was the home of the Garamantes people, a remote though civilised people who had their own written language and stone built cities; the modern town of Jarma was their capital, and they had had an army of cavalry and charioteers.



The people were farmers of the desert and had converted large areas of

arid desert into agricultural land. Irrigation on a large scale was achieved by a “qanat” system, originally developed in Persia, that had spread across much of the middle east by this time and is still used in much of this area to this day. It consists basically of locating a natural water source at a higher level than the area to be cultivated, then tunnelling an aqueduct downhill to where the water is required, with access holes every 30 feet for maintenance. These tunnels (foggaras) were about 2 feet wide by 5 feet high & often stone lined. They had the advantage of being underground and therefore could not be covered in with blown sand and nor was evaporation much of a problem. The channels were low maintenance and not easily destroyed in times of strife. This system was so successful that it is estimated that the Garamantes had constructed more that 1800 miles of such tunnels in the area now known as Wadi Ajal.

Their society died out about 660 AD when Islamic Arabs invaded the region, and when after using so much of the accessible water over possibly 600 to 800 years, the water table was dropping and the foggaras were drying up.

The Great Man Made River Project became a reality in 1984 when Colonel Muammar Muhammad Abu Minyer Al Qadhafi laid the foundation stones at the start of construction. He had come to power in 1969 during a nationalist socialist revolution with the intention of improving the living conditions of the ordinary Libyan. He predicted that this project would become the 8th wonder of the world. Thirteen hundred wells were drilled to a depth of between 1500 and 2000 feet at Sarir and Kufra in the south east of the country, and Murzug and Jabal Hasawanaia in the south west. Phase 1

was to construct a dual underground pipeline from two well fields in Tazirbu & Suris, from which water would be pumped to a holding reservoir at Ajdabiya. It began receiving water in 1989. From there the water was piped on in two directions, west to Sirte and north to Benghaji. This part of the system was capable of transporting 2.6 million cu yds. of water per day over 1000 miles. Phase 2, centred in western Libya, drew water from three well fields in Jabal al Hasawinah where it was piped to Tripoli. The system capacity was 3.25 million cu yds. per day. Phase 3 which was:- a) an expansion of phase 2 from a capacity of 2.6 to 4.8 million cu. yds. per day. b) to provide 180,000 cu. yds. per day to Tobruk. c) to provide a connecting link between phase 1 and phase 2 systems. The whole system

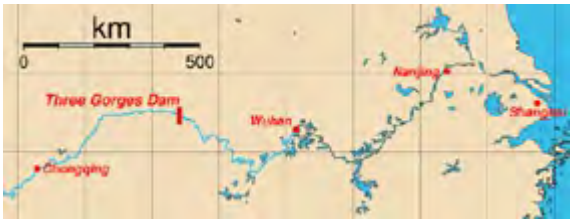
Pipeline sections en route to construction site

comprises 2500mls. of pipeline, in 23 feet pre-stressed concrete sections, 9 feet diameter, laid in filled trenches. There are 5 main holding reservoirs with a total capacity of 70 million cu. yds. Apart from drinking water it was envisaged that 130,000 hectares of land would become cultivated through irrigation. It was completed in 2009. In 2011 a revolution, followed by a civil war in which Colonel Qadaffi was killed, changed everything. Colonel Qadaffi had been the Libyan leader from 1969 and in the four decades of his leadership his international statesmanship was questionable – however within Libya he created universal free health care, contained cholera and typhoid, and raised the life expectancy of its citizens. As to whether the Great Man Made River Project will reach the status of 8th wonder of world, who can tell? Insecurity and anarchy have overtaken Libya since the fall of Qadaffi. At the start of the civil war (which lasted 7 months) in 2011 the UN bombed part of the pipe manufacturing plant at Brega after reports of

missiles being stored there. In September 2017 TRT World news reported that the deteriorating economy there had crippled water and sanitation plants across the country. Power outages, and shortages of water treatment chemicals, all due to lack of finance, were limiting the production of potable water. Reuters reported in 2019 that interruption of water supplies was common. Power grid and water control systems have been damaged. 101 well heads out of 479 in the western system have been vandalized for their copper content, reducing the daily flow rate down from 1.2 million cu. yds.per day to 1,000,000. Gunmen pressed officials to release detained relatives by forcing water workers to turn off supplies to the whole of Tripoli. This lasted for 2 days. In August 2021 Unicef reported that there was more vandalism reducing the water supply to 4 cities and that 60% of the project was at a standstill. Where did it all go wrong?

Ron Hanson

The Yangtze River Dam



The Yangtze (or Chang Jiang) is 3,960 miles long, rising on the Tibetan Plateau and flowing into the East China Sea just north of Shanghai. It has been navigable for moderate sized vessels in the past, up to the inland port of Chonqing for just under half that length. Near to its source it flows through deep gorges and its level can fluctuate drastically, particularly during Spring when the winter snows are melting. In earlier times this wild section of the river was made navigable by the use of armies of 'trackers' equipped with ropes and moving along the river on timber plank-ways cantilevered out from the walls of the gorges. During the early 20th century great efforts were made to remove rock outcrops from the river's course with explosives. As with all rivers, nearer the sea its course becomes much shallower and its valley much wider giving fertile growing conditions for 'the rice bowl of China' agricultural areas. By definition, this section of the river's course gives rise to extensive floods.

In the latter stages of the 20th century a hugely ambitious project was initiated for the river with three main aims: control of flooding, to facilitate navigation and to harness the river's power to produce electricity. Work started in 1994 on a dam to realise these aims. It would produce 10% of China's entire energy needs, stand 600 feet (height of the Post Office Tower in London) in height and the resultant reservoir would stretch back

410 miles (a bit more than the length of the English Channel). To make way for the project some 1.4 million inhabitants needed to be moved elsewhere; a 'service road' had to be provided across the valley by means of a 3,000 feet long suspension bridge just downstream of the dam and this was opened in 1996. To enable continuity of navigation, a double flight of five-ship locks for vessels up to 10,000 tons was constructed with, for smaller (up to 3,000 tons) craft a vertical lift, all to be raised by 370 feet.

Construction of the dam and its associated works was effected by the building of various coffer dams, alteration of land levels (both building up and lowering) and dredging out of the river level downstream of the dam to a depth of up to 160 feet to cope with the normal flow rate of 11,000 to 14,500 cubic yards of water per second. During construction, a concrete-mixing plant with a capacity to produce 100 cubic metres of product per hour at a final temperature of 7° centigrade was in operation.

I was fortunate enough to be able to travel through the area in 2002, before the dam closed the original course of the river and got a vivid impression of the vastness of the project and of its impact upstream of the site. Inhabitants who were to be forcibly relocated had first to demolish their own former abodes and dispose of the rubble thus produced. They were then moved to pre-allocated flats in high rise towers in newly built towns away from the new dam.

The whole project, including electricity generation, became operational in 2012. Some doubted the ability of any man-made structure to hold back the 50 billion cubic yards of water which the reservoir contains. In addition, pollution from the deserted villages, towns and factories behind the dam is now contained there rather than being flushed away by a natural flowing river. Also, a great amount of land erosion has taken place leading to an estimated 40 million tons of sediment also now being contained behind the dam. Serious landslides, involving loss of life, have also occurred with

some experts predicting that those evicted to make room for the dam may have to be relocated once more.

In spite of these consequences (some of them unpredicted) it can be said that the project's three main aims have been achieved – surges of melt-water have been contained by the dam and this has prevented downstream flooding of important agricultural areas; shipping going upstream to Chonqing has increase five-fold with the new locks and lifts, constructed around the dam; the hydro-electric plant with its total of 32 generators, each of 8,400 megawatts capacity, is serving a large area of the surrounding country with reliable and clean electricity, preventing the emission of 100 million tons per year of greenhouse gases.

From an engineering and industrial perspective the project must be seen as a massively bold and exciting project – it will be up to the Chinese government to address the environmental and social consequences....we will be following their progress on those scores with some interest. Meanwhile, I'm not so sure I would be prepared to live downstream of the dam!

(I wrote the above in June 2020 – within four weeks of having done so, Taiwan News [not China's best friend, it has to be said] reported that following unprecedented rainfall levels in the Yangtze basin the dam had unexpectedly had to open its sluices to relieve pressure on the dam and its infrastructure. This resulted in catastrophic flooding in Yichang, 30 miles downstream, and leads to doubts being expressed as to the dam's structural integrity, and this only 8 years after full opening. *[TV news reports in the UK showed these sluices discharging water at a phenomenal rate and stated that a considerable proportion of the contents of the reservoir had been expended to keep the structure safe – ed.]*)

Ron Hanson

A voyage through the Suez Canal in October 1914

(This account is from the personal log of merchant seaman Harry Winckle who was a distant relative of mine. From the way it is written it seems to have been the first time he had been through the canal and what a time to do so! He was a multi-talented man – artist, violinist, maker of intricately rigged, model sailing vessels, photographer. He lived the later years of his life in Yardley Gobion.)

"We arrived in Port Said today. It seems a nice place. There is an imposing statue of de Lesseps, the designer, on the side of the canal as we enter. The place is full of (troop) transports – we have passed 23. Some have troops for Marseilles and some going back to India for more. We have to tie up for about 4 hours while they get the searchlight and gear aboard. Every ship must have searchlight, dynamo and men to work them, boats for moving and men to manage them before going through the canal. I am not looking forward to it much; it is terribly narrow so that if you stand in the middle of the bridge you can see no water on either side, not a very nice prospect for steering as, if I put her in the bank it means stopping the traffic and mails of the world *('Ever Given' please note! Ed.)* This sounds rather awful but that is not all as we have to stop and moor for all the mails and transports so goodbye to sleep for a couple of days.

We managed to get away about 7.30. My first wheel 8-10; got halfway through with it safely then had to tie up for 3 or 4 more transports. Finished midnight and were just about to turn in when we heard we would have to stop in half an hour. Finished about 3.30. Half an hour of our watch below left just time to close our eyes then on again at 4. It is Sunday today but we shan't gain anything by it. Passed Ismalia, the half-way house, at 8.30a.m. And entered Lake Timsah where we had to anchor again.

Timsah means 'crocodile' in Arabic, probably taken from the shape of the lake. There is a fresh water canal running alongside the Suez up to this point but it leaves it here and runs off in the direction of what is supposed to be the land of Goshen. The Port Suez to Cairo railway has been running alongside us too a

little way; it is a sight to see the trains go rushing by on their journey.

Several ships anchored here with us including the Benmohr of Leith and another British India transport. Left the lake 1.30. Had another wheel 12-2 most of which I subsequently got out of and was very glad too; it is an awful job and I could scarcely keep my eyes open. There are a few fertile spots on the bank with a few date palms and acacias and a few miserable native huts of rushes, a change from the everlasting wilderness of sand. At 4.45 we reached the Bitter Lakes. They are supposed to be an old arm of the Red Sea and where a port used once to stand. We soon got through there and into the last part of the canal.

The banks of the canal are more solid here and higher too which saves a lot of dredging. It must be an awful job to keep the canal open where it is nothing but soft sand.

We reached Suez about 7.45 and got the searchlight gear, etc. unshipped by about 9 and we were at last able to get a sleep for about 3 hours. Up again at 12 when we were away down the Gulf of Suez."

(Harry's ship, carrying coal from South Wales to Aden, was the S.S. Caldy (4,221 tons; see front cover illustration). It had been built in 1913, about a year before he joined the crew, in Thornaby-on-Tees for Farrar, Groves & Co., London. After two changes of name and three of owners she eventually foundered off Redcar, barely 15 miles from where she was built, en route from Leith to the Black Sea in 1952.)

(Transcribed by Roy Sheffield)

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Marvel's Mill, Northampton – The world's first water-powered cotton spinning mill

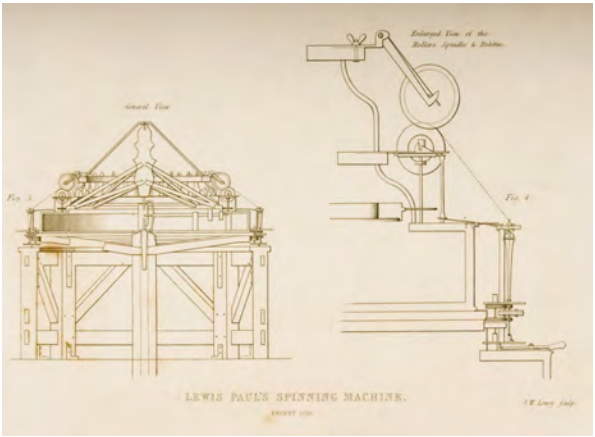
Cromford Mill was the world's first **successful** water-powered cotton spinning mill. But what of those mills that came before Cromford which were not entirely unsuccessful? In fact the original idea of using rollers to produce cotton thread without the use of human hands was born forty years earlier in the West Midlands.

Paul and Wyatt

Lewis Paul was the son of a Huguenot refugee whilst John Wyatt was the eldest son of a family of yeoman farmers from just south of Lichfield in Staffordshire. Paul and Wyatt were introduced to each other by Lichfield's most famous son, Samuel Johnson, who was related to Wyatt by marriage. He became an extremely influential figure in the story of roller spinning for the next thirty years. Johnson's correspondence shows that from 1738 onwards, he was advising Paul, Wyatt and their investors (many of whom were Johnson's friends) in connection with the "spinning rollers" and it is fairly clear that the idea of using rollers to make yarn came from Lewis Paul. John Wyatt makes clear the origin of the machine: "Thoughts originally Mr Paul's…..the calculation of the wheels, by which means the bobbin draws faster than those cylinders; this, I presume, was picked up somewhere before I knew him." Wyatt was employed to build the roller spinning machine and there is little doubt that Wyatt's skills and mechanical aptitude contributed considerably to the completed machine. The work on the spinning machine began in Sutton Coldfield between 1730 and 1733. Wyatt wrote to his brother that he was "shut in a small building near Sutton Coldfield" with his "little machine", spinning the first thread of cotton ever produced by solely mechanical means. Johnson was living nearby when this took place.

The cotton spinning mills

When the machine was complete Lewis Paul was granted a patent in1738. which contained details of two methods of roller spinning: The first used one pair of rollers from which the sliver of fibres was drawn out by the action of the rotating bobbin, which also inserted the twist. This seems to be the method adopted when constructing full size machines. The second specification is recognisable to those who know Arkwright's machine patented thirty years later. Paul's patent said, " Put betwixt a pair of rowlers, cillinders, or cones, (and then through) a succession of other rowlers, cillinders or cones,



Lewis Paul's spinning machine (patented 1738) from an 1830 lithograph

moving proportionately faster than the first (so as to) draw the rope, thread, or sliver, into any degree of fineness which may be required." As a result, investors were sought and mills were established. There were six mills which used Paul and Wyatt's machines, each with fifty spindles. An ongoing problem was that there was insufficient carded cotton to satisfy the machines. Carding (combing the fibres and forming them into a sliver) was being done by hand which was slow and labour intensive. Paul wrote to Wyatt in 1740 about carding outlining the principle of the cylinder card, which he later patented in 1748.

Timeline of the mills

Upper Priory Mill, Birmingham	1740/1 – 1744
Red Lion Street, Spitalfields, London	1740 - unknown
Cave's factory, Holborn, London	1740 - unknown
Marvel's Mill, Northampton	**1742 - 1761**
Touchet's Mill, Fazely Street, Birmingham	1744 - 1756
Pinsley Mill, Leominster	1744 – 1754

Marvel's Mill and Pinsley Mill were water-powered and Upper Priory was animal-powered whilst the Holborn factory was powered by hand. The power sources of the others are not recorded though it seems likely that Touchet's Mill would have been water-powered.

Upper Priory Mill

A machine was taken from Sutton Coldfield to premises in the Upper Priory area of Birmingham. Dr Johnson moved to a house next door to the warehouse at the same time which suggests he was closely involved with the project. The investors were friends or acquaintances of Johnson and a number of the investors subsequently lost considerable amounts of money. This mill only survived for around three years.

James Johnson's Spitalfields Mill

In 1739 licences for three machines were issued to James Johnson, a manufacturer of checks and stripes. His factory was set up in 1740 in Spitalfields, Wyatt putting the machines into working order. The power source for this mill is unknown though may well have been hand powered. There was insufficient carded cotton to satisfy the machines. It is not known how long this mill survived.

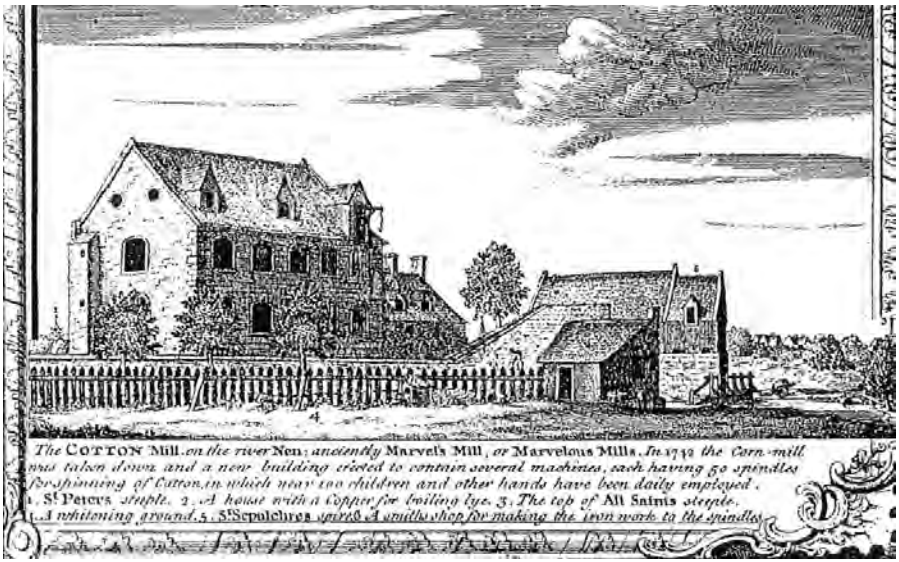
Edward Cave's Holborn Mill.

By 1740 Edward Cave had invested in the roller spinning enterprise, initially at Upper Priory and then his own mill in London. By the end of 1740 Cave

had a large factory (hand powered) containing five machines at Holborn. As Arkwright would do thirty years later, he sought a suitable site for a water-powered mill.

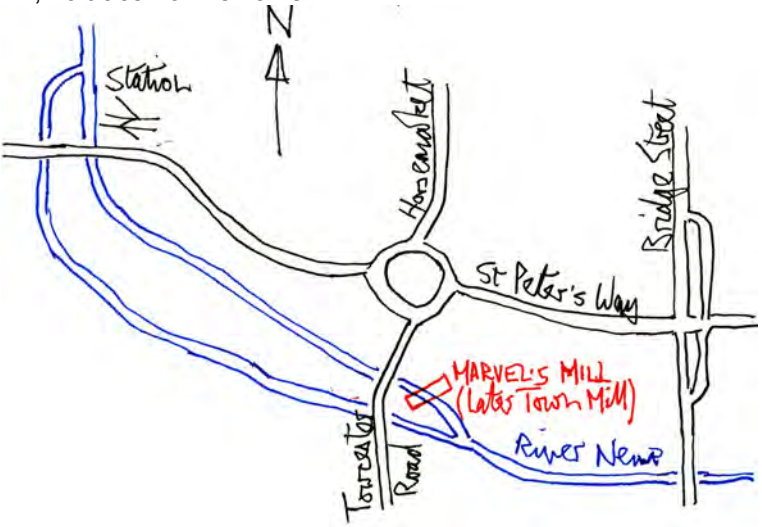
Marvel's Mill, Northampton

After looking at sites in Hampshire and Gloucester he settled on the site of an old corn mill on the River Nene in Northampton. The corn mill was demolished and the world's first purpose-built water-powered cotton spinning mill – Marvel's Mill – was built in 1742.



Nearly 100 children and other hands were projected to be employed at the mill. There were 5 machines of 50 spindles each. Outbuildings contained workshops for maintaining the machines and for boiling Lye for bleaching. Three tiers or management were installed by Cave: an "Operator", a Manager and a Foreman (who had previously worked at Upper Priory). Wyatt visited in 1743 and was not impressed "The Cards and Carding, extremely ill-managed." " The Dirt and Cotton spread ab' the Rooms and the Pathways near the mill is surprising." "The Superintendent seems a very indifferent Manager." He also noted that the prototype carding machine which had been built was not being used. By October 1743 only fifty hands were working there and the annual profit was projected to be £119. But Cave was writing very optimistically in 1745 and in 1746 the mill was described as fully functioning. Sadly, in 1754 – after 12 years of operation,

Edward Cave died and the mill passed to his brother and was let out for short periods to Lewis Paul and to Samuel Touchet. Various attempts were made to sell the mill and the machinery and it appears to have finally ceased being a cotton mill in 1761 after nineteen years of mostly profitable operation. It became a corn mill and briefly, between 1897 and 1906 after a steam engine was installed, a cotton mill again. It reverted to grinding corn and was used for other purposes later. Northampton Corporation bought the mill in 1927 and demolished it in the 1929 in order to prevent flooding in the town; no trace now remains.



Touchet's Mill

Samuel Touchet was a Manchester importer of raw cotton from the Levant. and was one of the major merchants of the pre-industrial Lancashire cotton industry. He, had licences to operate Paul's machinery from as early as 1742. and by 1744 had set up a second Birmingham mill, Touchet's Mill in Fazeley Street. Touchet made no profit from it and in 1756 the mill and its machinery were advertised for sale but must have been sufficiently encouraging to have later secured a lease on the Northampton Mill around 1754. His control of Marvel's Mill lasted until 1755.

Pinsley Mill

Daniel Bourn was another Lancastrian. Along with Lancashire investors he licensed spindles and operated a mill in Leominster, Herefordshire. It opened in 1744 and would seem to have been profitable but the whole building burned down in 1754. Bourn alone was said to have lost £1500 as a result of the fire.

What happened next?

By 1746 John Wyatt had left roller spinning. He went to work for Matthew Boulton in Birmingham and promoted a number of very successful inventions including a weighbridge and a lightning conductor. Lewis Paul continued to work in cotton spinning. In 1748 both he and Daniel Bourn obtained patents for carding engines.

1752 Marvel.s, Touchet's and Pinsley Mill in operation
Thomas Highs takes an interest in cotton spinning machinery

1754 Pinsley Mill burns down

1756 Touchet's Mill closes; Marvel's Mill put up for sale

1758 Paul obtained a second patent for an improved machine

1761 Marvel's Mill closed and broken up

1763 In the 1760s the Society of Arts, of which Johnson was a member, offered grants for the improvement of spinning machinery
Thomas Highs employs John Kay and begins working on a roller spinning machine which was similar to Paul's

1767 Kay ceases to work for Highs and builds a spinning machine for/with Arkwright

1768 The Society of Arts historian declares roller spinning to have reached its zenith with Paul's machinery and no further improvement is possible

1769 Arkwright patents his roller spinning machinery

Was there a direct link between Paul and Wyatt and Arkwright?

When Marvel's Mill was broken up the carding machine went to Lancashire but the rest of the machinery disappeared. There were only ten years between the end of Marvel's Mill and the building of Arkwright's mill at Cromford. Paul and Wyatt's technology was known in the Lancashire cotton industry. Thomas Highs''s work bridged the gap between the two. Is it simply coincidence that Highs's mechanism was very similar to that of Paul and Wyatt or did he have knowledge of the earlier machine?

Why were the early water powered mills unsuccessful?

Marvel's Mill lasted for nineteen, mostly profitable, years which indicates it was not without success. The life of Pinsley Mill only ended when it burned down. There is no doubt that there were technical issues with both spinning and carding which Paul and Wyatt did not solve. The major reasons for failure and lack of development were poor management and lack of investment. Could they have had Arkwright's success with more of both?

Philip Parkin of the Arkwright Society, and who kindly contributed this summary. June 2021 (by Zoom)

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Things watery.....

Two superbly researched articles by Ron Hanson and dealing with almost unimaginably huge engineering projects around water, one in China and the second in Libya, appear earlier in this issue of the Newsletter but here we get back to basics. It's easy to forget that what we now think of as simple technology and readily solved problems posed very large challenges to our forebears. These challenges gather around basic water supply issues, moving water from where it is plentiful, or can at least be readily obtained, to where it is needed either in large institutions, country houses, etc. or urban areas and keeping this supply free of harmful substances, bacteria and the like.

Sanitary water supplies

Cholera was a serious problem and gained its first foothold in England from the early part of the nineteenth century. People were migrating at an increasing rate into towns and cities, many living in predominantly unsanitary conditions in far too close proximity to others. Outbreaks of the disease became more numerous with tens of thousands succumbing between 1831 and 1854 with one such occurrence in Soho in London's West End. John Snow, a London surgeon with interests in many branches of his profession, believed the over-riding problem to be the dumping of sewage in rivers and other water courses along with same being dumped in cesspools close to where the populace had no option but to obtain water for their everyday needs from pumps or wells. He had, however, no proof to support this view.

In August 1854 the Soho outbreak started and Snow, who lived nearby, was ideally placed to make a detailed study of the circumstances. He plotted the

locations of all the 500+ fatalities from cholera in ten days on a map and realised straight away that almost all were within 250 yards of the Broad Street (now Broadwick Street)/Cambridge Street road junction which location housed a public access water pump. He worked tirelessly to determine the habits of the victims, whether by dint of living in the immediate area, using coffee shops/hostelries there, passing through, etc. One or two anomalies were regularised when Snow discovered that the local workhouse and a brewery on Broad Street suffered virtually no victims because both had private water supply arrangements not connected with the Broad Street pump. However, he still could not work out how the disease had got into the water from the pump in the first place.

Health officials meanwhile stuck to their view that cholera was caused by breathing vapours or a 'miasma in the atmosphere' whilst a local vicar, Rev. Henry Whitehead, avowed that it was caused by God's divine intervention. Whitehead did, however, unwittingly uncover the true cause – he interviewed a mother whose infant had contracted the disease from a different area entirely, washed its nappies in water she then dumped into a leaking cesspool some three feet from the Broad Street pump – the death toll from this one outbreak was 616 people. In spite of John Snow's sterling work it took another thirty years before a German physician, Robert Koch, determined that cholera was spread solely by contaminated water or food. Only then did local authorities in Europe and North America rapidly improve water cleanliness and prevent most further outbreaks of cholera so maybe we should look more kindly on the demands made on us by our respective water companies after all!.

A pump (not the original) stands in what is now Broadwick Street, off Wardour Street, to commemorate the service John Snow did the world and, better even than that, a pub adjacent to this monument is actually called The John Snow – can there be any greater accolade?!

Country houses

These, as we all know, come in all shapes and sizes and were developed and maintained by their owners largely determined by the depth of the pockets of the incumbents over the years.

All owners, though, would have realised the need for reliable and clean water supplies with various stratagems employed to realise these aims. Some were better placed both financially and geographically than others, of course. The Duke of Devonshire at Chatsworth, for example, benefits from the foresight of his ancestors and predecessors who selected a site for the house and its ancillary buildings and had the means and drive to have dug a number of lakes-cum-reservoirs in the hills above the house which would not only provide for all water needs for the house and estate but also have water to spare to provide for the most splendid series of cascades

culminating in an ornamental fountain capable of reaching a height of 300ft. This is powered purely by the pressure of water dropping 400 ft., through a 16” iron pipe, all for the pleasure of his family, friends and visitors!

Ram pumps

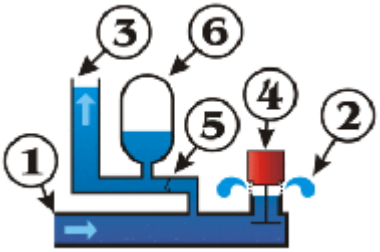
On the other hand, the final owner of Erddig Hall near Wrexham before it was taken on by the National Trust complained bitterly of the upheaval about to befall his then former home by the installation of mains water. His stated opinion was that the ram pump, which had served well several generations of his family, could easily provide all the water required at a constantly cool temperature. His parting shot was that mains water was largely made up of disinfectant!

Another, now National Trust, ram pump has the apparently impressive performance figures of being able to pump 2000 gallons a day with a rise of 250 ft. and over a distance of half a mile through 2” pipework. Its chamber measures 49” x 10” and the pump, dating from 1906, is situated at Emmett's Garden in Kent. It has recently been restored.

Being of a non-scientific bent, I can do no better than shamefacedly give you the Wikipedia definition of a ram pump (or hydraulic ram):-

“…….....a cyclic water pump powered by hydropower. It takes in water at one "hydraulic head" (pressure) and flow rate, and outputs water at a higher hydraulic head and lower flow rate. The device uses the water hammer effect to develop pressure that allows a portion of the input water that powers the pump to be lifted to a point higher than where the water originally started. The hydraulic ram is sometimes used in remote areas, where there is both a source of low-head hydropower and a need for pumping water to a destination higher in elevation than the source. In this situation, the ram is often useful, since it requires no outside source of power other than the kinetic energy of flowing water.“

Basic components of a hydraulic ram:
1. Inlet – drive pipe
2. Free flow at waste valve
3. Outlet – delivery pipe
4. Waste valve
5. Delivery check valve
6. Pressure vessel



The ram pump proper was invented and patented by Joseph Montgolfier, who also invented the hot-air balloon, in 1796 for raising water in his paper

mill at Voiron. His friend Matthew Boulton arranged for a British patent to be taken out in Montgolfier's name.

Quite a few years ago NIAG visited a site somewhere in the county where a ram pump was working, in anger, complete with distinctive 'thump', and we stood in its shed and watched it, or rather heard it, I suppose, but I cannot recall where it was – somewhere south and/or west of Northampton I think but without any great certainty – if any member knows the visit concerned I would be grateful to hear.....Richard O'Rourke was certainly there and possibly John Beswick as well, so pre-1998.

Public water supplies

Conduits and their often-associated 'houses' were a much older means of obtaining water supplies. Most, if not all, priories and monasteries made use of this system and, following the dissolution, their legacies provided water for a new set of landowners' mansions, etc. Holdenby, just north of Northampton, obtained its water from about a mile west of the House and the current Ordnance Survey 1:25000 map shows 'The Conduit' at NGR SP681680. A section of the conduit is thought to run eastwards towards the house from that location but peters out after a short run.

Geddington's Queen Eleanor Cross and conduit house nestled at its base

Parish and borough councils in earlier, less populous times were able to rely on this system and frequently had elaborate conduit 'heads' constructed to protect the immediate water source area and also when a change of direction was needed. Northampton's water supply came, in part, from a spring on the site now occupied by St Andrews Hospital in Billing Road, an area known for its springs as witnessed by references thereto in some of the house names thereabouts. Geddington also has a conduit house, now a scheduled monument, next to the Eleanor Cross in the centre of the village. The tanks fed from the conduit and used, at least, for domestic washing purposes for many years, can be seen, still in water, through grills next to the 'house'

Discovery of water supply tunnels formerly associated with the conduit system have many times given rise to fanciful theories involving the church, monarchs and even gunpowder plotters.....no NIAG member would ever give any of these theories credence, of course!

Some techniques of industrial archaeology: *Part 1 – overview and general principles*

There will be some members of NIAG who already know all about this topic, there will be some who do not wish to know anything about it at all but in the centre ground there may well be a few who, however long they have been members, have always thought to themselves: 'if only I knew more about how to tackle the subject I'd be able to get out there and make a big contribution to NIAG and the industrial archaeological world at large!' Well, alright, that may be over-egging things a little but it's easy to just drift along whilst wishing all the time to get more involved in the subject – here, members, is the first part of a mini-series to help to achieve that aim, even if you had not realised you wanted to!

As with most subjects, a good, possibly the only, way to get going is to find a framework to use in which all aspects can be allocated a slot thereby facilitating smooth and steady progress. Fortunately, NIAG's founder, long-time secretary and life president adopted and streamlined just such a system from the pure archaeology world very early in NIAG's history. The apparent inspiration for this emanated from an early NIAG member, John Ginns, who later moved away to Lincolnshire. John presented an illustrated talk to members, subsequently written up by Geoffrey Starmer in only the third issue of NIAG's newsletter. John's framework comprised of these headings:-

Locate / Survey / Select / Record / Preserve

Geoffrey, in his write-up, distilled these into:-

Locate / Reveal/ / Record / Interpret / Communicate

….and I, for my part, have amended them slightly, to:-

Locate & identify / Research / Record / Interpret / Communicate

So, off we go with the first heading, **Locate & identify**, and, to get off to a reasonably straight-forward start, let us choose the footwear industry as a topic. It goes without saying that a lot has been written about the footwear in most of its aspects and guises but we will pick one factory and that one is in Irthlingborough. We will assume that you, dear member, have, for your sins, been on a walk-about in that town. You have taken a route from the Cross, at the top of Church Street (car parking and toilet facilities readily available!), northwards on Finedon Road, first left into College Street then, not far from the Methodist Chapel, just into Victoria Street, you spot a building on your right adorned with the words 'Excelsior Boot & Shoe Works'. Your first objective has already been realised – you know that this

building was once a footwear factory. It is now split into flats, and was one of the earliest such conversions in the 1980s, but the shell of the structure has not changed very much at all. It is built on quite an awkward, sloping site, in effect being built diagonally into the prevailing lie of the land, but nevertheless displays the typical arrangement of such a factory of its time, in 1893, conveniently shown on a south-facing gable wall visible from Victoria Street, this arrangement being of three stories with as many windows as it was possible to fit in to cut down on gas-lighting expenditure – shoemaking concerns were mostly adept at that! Having got this far you jot down in your omnipresent notebook, or whatever passes as such in this electronic age, take a photograph or two on your omnipresent phone or your 'proper' camera and wend your way homeward to consider your next move. This would, in the good old days, have involved a visit to a decent sized library in your vicinity and a scrutiny of Kelly's and other directories for Northamptonshire from the known building date of your chosen subject, 1893 in this case. The purpose is to get a progression of any change of proprietorships from that date to the present. In this instance the owners/operators of the Excelsior Works in Irthlingborough were:-

1893-1908 J.P. Horn & O. Partridge
1908-1910 J.P. Horn & Sons
1910-1938 J.P. Horn & Sons Ltd.
1938-1955 Norton & Lawman
1955-1958 F. Norton & Son Ltd
1958- ?? Whitworth Bros. Ltd. (and referred to locally as 'the pea factory')
?? 1988 Shirlplass Ltd. (polythene bag manufacturers)
1989 Building converted into flats – single storey section in Scarborough Street demolished

The dates of change of entities involved were obtained from directories, local knowledge and other records.

The Directories also tell us that Mr. J. Hubert Horn lived in a large house in Finedon Road so was clearly successful as a businessman.....what they do not tell us is that your editor's paternal grandfather worked at the Excelsior works up to about 1920 (I think in the shoe room) and that his maternal grandmother was in service at Mr. Horn's house in Finedon Road for a period before 1919, when she got married!

Had there been no clue on the building as to its name and purpose you should, with a scrutiny of the area around and a modicum of good fortune, have been able to narrow down the options, eventually to the building you are interested in and get a name of a company in one or more directories. From there progress can be made in extending that nugget of knowledge in both directions, date-wise, by the use of earlier and later directories. That

process can sometimes become frustrating and if it still fails to produce any certainty you might need to try and find an IA Group or a local history society who may be able to help out and if that fails as well you might be down to asking passers-by – generally speaking, older folk are more likely to be able (and willing) to help, as we all know!

For the footwear industry and its companies, trade magazines can be a help but directories are more helpful in the first instance for nailing down a location – trade magazines, whilst interesting and useful once you've nailed down an address often seem to have assumed that by virtue of being in the same business, everyone knows where Joe Green's works is but, of course, t'ain't necessarily so !

(Next issue:* Research*)

The rise and fall of the Midland Railway in Northampton (Winter lecture 14 October 2022)

Railways came to Northampton in 1845, with the opening of the London & Birmingham Railway's Nene valley branch from Blisworth to Peterborough, which provided the town with its first station located in Cotton End, at the crossing of the main road to London; this was later to be known as Bridge Street. However, within a year the London & Birmingham had been subsumed into the London & North Western Railway (LNWR) empire, and for the next twenty years that company held sway in Northampton, also opening a second station in the town, close to the old castle, on a new branch from their Blisworth line to Market Harborough in 1859.

Northampton was a rapidly growing town at this time, with the boot and shoe and other light industries flourishing; as such it was a natural target for other railway companies, and the nascent Midland Railway (MR) in particular. The Midland company had its origins in the Derby and Nottingham coalfields but was ever keen to expand its horizons as far as London, and in 1857 had extended its grasp southwards from Leicester to Bedford and Hitchin, where an alliance with the Great Northern Railway took London traffic into Kings Cross station.

This new line passed through Wellingborough and crossed above the existing LNWR Peterborough line close to Little Irchester and the opportunity was taken to connect the two routes by means of a short spur. Initially this merely enabled the exchange of goods traffic, but the MR had bigger plans in mind, and quickly began acquiring land in the Cotton End district of Northampton, whilst also applying to Parliament for approval to

construct railways in that area. The Act was obtained in 1863 and the MR constructed a small siding off the LNWR line, allowing them to use what were known as ‘running powers’ over their rival's line from Wellingborough to access outgoing goods traffic from Northampton, and also incoming coal from the East Midlands, both rivalling the LNWR facilities just a short distance away.

Passenger traffic was the next target for the Midland, and they sought Board of Trade approval to open a small station within their new goods yard, but this was only allowed after the Midland agreed to modify their infrastructure to the required standards. The reason for the Midland’s reluctance soon became clear; they were already planning a larger passenger station closer to the town centre. This was to be constructed for the arrival of the Bedford & Northampton Railway’s new line for which Parliamentary approval had been received in 1865; the Midland were to work this line from opening for a 50% share of the profits. The new line, together with what later became known as St John’s Street station, opened in 1872 and provided Northamptonians with a new route to London, which could be reached in through carriages via Bedford in just over two hours, rivalling the best that the LNWR could offer via Blisworth. The LNWR then responded with the opening of their own new loop line from Roade to Rugby in 1882, which gave Northampton something of a direct main line service to Euston, and for the next forty years the status quo was maintained with the two companies sharing the Northampton traffic.

However, after the Great War Britain’s railways were ‘grouped’ into four large regional companies, and the Midland and LNWR became partners instead of competitors. This inevitably led to rationalisations, with Northampton by then having three stations, three goods depots and two locomotive sheds all under the same ownership. The Midland engine shed at Hardingstone Junction, serving the new line to St John’s Street, was the first to go, closing later in 1923. Restructuring of passenger facilities was also not far away, and St John’s Street station itself was closed in 1939, with trains being diverted to Bridge Street and Castle stations. This left just the former Midland Railway goods depot in Cotton End as a relic of that company.

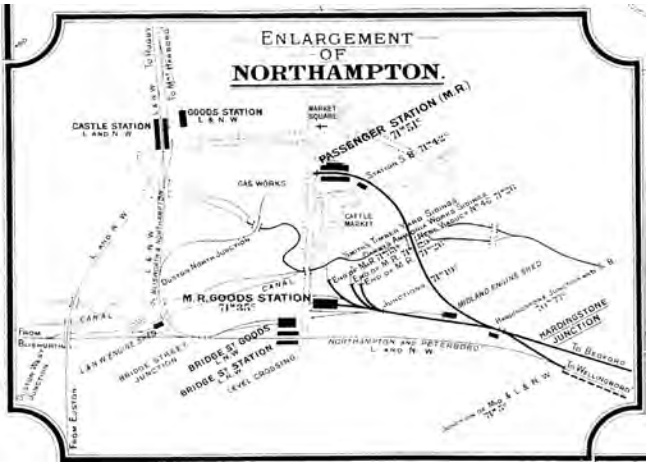
However, no further closures took place until the nineteen-sixties, when all of Northampton’s branch lines closed to passenger traffic, although this still left the three goods depots in operation. These facilities gradually contracted as rail-borne goods traffic dwindled away in the face of road competition, and although the branch lines had remained open to goods traffic for some time after loss of their passenger services, these were also soon closed down and the tracks had been lifted by the late nineteen-sixties. However, the Midland line to Bedford was retained as far as

Piddington to serve a military depot in Yardley Chase, with MOD locomotives picking up their own traffic from the remains of the Midland goods depot in Cotton End for a few more years. Eventually the Piddington facility was closed, but the Midland line proved to be a great survivor, and a length was retained as far as Brackmills on the eastern outskirts of Northampton, where two new industrial developments at least were provided with rail access. This too ceased around the turn of the century, finally bringing the tenure of the Midland Railway in Northampton to an end.

There are however still a few reminders of the one-time presence of the Midland Railway in the town, although their station at St John's Street and the goods depot in Cotton End have largely been obliterated by new developments. Fortunately, NIAG member John Downing was instrumental in securing listed status for the then near-derelict Midland engine shed, and this now stands, magnificently restored, as the Students Union headquarters in the centre of the Riverside Campus of Northampton University. A little further west the towering goods and grain warehouse of 1891 has also survived in the original goods depot area, transformed into modern office premises, and the adjacent office building, on the corner of the now-vanished South Bridge road, is also still extant although awaiting a new use.

Elsewhere the embankment and the abutments of the railway bridge over the Nene in Beckett's park are still evident, and somewhere in the undergrowth there may still be a few of the once numerous Midland Railway cast-iron boundary posts as a reminder of the one-time route of the line.

Talk and report by Barry Taylor



Midland Railway* [in bold] *in Northampton as at 1911

How things used to be – Northampton Electric Light & Power Co. tariff from 1940.....

TARIFFS.
(Scale "A").

RATES APPLICABLE TO THE BOROUGH OF NORTHAMPTON, AND TO BOUGHTON, DALLINGTON, DUSTON, HARDINGSTONE AND WESTON FAVELL.

(For other districts see separate lists of Tariffs.)

The authorised charge for Electricity is ninepence per unit with a minimum consumption of 15 units per winter quarter, and 10 units per summer quarter. Electricity for the following purposes is chargeable at this rate :—Large Circular Saws, Gas Compressors, Motor Generators, Large Lifts, Large Printing Machines, etc., etc. For other purposes Electricity will be supplied as follows :—

LIGHTING : **5d.** PER UNIT, FLAT RATE.

Optional Two-part Rate for Lighting and Heating for Shops, and other approved business premises :—A Fixed Charge of 20% per annum of the net Rateable Value up to £500, 10% of the excess of £500, plus $\frac{4}{5}$**d.** per unit for all electricity consumed ; Subject to special conditions.

Special Two-part Rates, alternative to the Flat Rate, are also available for Approved Clubs, Licensed Houses and Farm Premises, full particulars of which may be had upon application.

DOMESTIC USE : ALL-IN ASSESSMENT RATE :— $\frac{2}{3}$**d.** PER UNIT FOR LIGHTING, HEATING AND COOKING, SUBJECT TO CONSUMPTION OF QUOTA UNITS AT **5d.** AS UNDER (Lighting, Heating and Cooking are charged on one account and generally require only one meter) :—

Where the net rateable value of the house does not exceed	Quota units charged at the lighting rate of **5d.** Each Winter Quarter	Each Summer Quarter
£10	23	12
£15	31	15
£20	37	19
£25	44	22
£30	51	25
£40	64	32
£60	91	45
£80	117	59
£100	144	72

Intermediate values proportionately. Figures for higher rateable values upon application.

POWER USERS' LIGHTING :—

ALTERNATING CURRENT SUPPLY :—

Where the power consumption on the same premises is greater than the Lighting and not less than 2,500 units per quarter, Lighting Current will be charged at

For the first 200 units per quarter	**5d.** per unit
For the remainder	**1½d.** "

DIRECT CURRENT SUPPLY :—

Where the power consumption on the same premises is greater than the Lighting and the total units consumed for Lighting and Power is Lighting Current will be charged at

From 5,001/7,500 per quarter	3½d. per unit
" 7,501/10,000 "	3¼d. "
" 10,001/15,000 "	3d. "
" 15,001/30,000 "	2¾d. "
" 30,001/50,000 "	2½d. "
" 50,001/75,000 "	2¼d. "
" 75,001 and over "	2d. "

THEATRES, CINEMAS, ETC.:—Special rate, particulars of which can be obtained on application.

INDUSTRIAL POWER PURPOSES :—

On the basis of general use throughout the recognised factory hours obtaining in the district :—

ALTERNATING CURRENT SUPPLY :—

For the first 500 units in any quarter consumed on the same premises	1·75d. per unit	Subject to a Power Factor of not less than ·85.
For the next 25,000 " " " " "	1d. "	
For the remainder " " " " "	·9d. "	

DIRECT CURRENT SUPPLY :—

For the first 500 units in any quarter consumed on the same premises	2d. per unit
For the next 50,000 " " " " "	1·1d. "
For the remainder " " " " "	1d. "

The applicant undertakes not to use the Company's supply at any time as a stand-by to any other form of power or illuminant, or to use the current supplied at the above rate for driving any dynamo or other device used for supplying lighting, except with the written consent of the Company. Power circuits must at all times be kept entirely separate from any other electric circuit on the premises. This tariff may be refused in cases where the load factor is low. For extra high pressure supply, special discounts up to 20% can be obtained.

HEATING AND COOKING : $\frac{4}{5}$**d.** PER UNIT.

(Current for heating in connection with machinery or industrial work, heating where no lighting is installed, and accumulator charging is chargeable at the Power Rate.)

WATER HEATING : $\frac{1}{2}$**d.** per unit for storage heaters constantly connected under thermostatic control working independently of any other system of water heating. Applicable to private dwelling houses only when quota units have been consumed.

All the above rates are subject to a minimum charge of 6/3 each winter quarter and 4/2 each summer quarter.

DISCOUNT :—5 PER CENT. FOR CASH ON ALL THE ABOVE RATES.

METER RENTALS : Per quarter—5 and 10 amp, 1/-; 20 amp., 1/6 ; 40 and 50 amp., 2/-; 100 amp., 3/-; 150 amp., 4/-; 200 amp., 5/-. (3 and 4-wire meters are charged extra.)

SERVICE CHARGE :—Cable on private property and connecting are chargeable according to length and size required.

MOTOR RENTALS (D.C. and A.C. 3-phase) :—

	£ s. d.		£ s. d.
½ horse-power ...	19 0 per half-year	(Single-phase	1 2 6)
1 " ...	1 0 0 "	("	1 15 6)
2 " ...	1 5 6 "	("	2 4 6)
3 " ...	1 7 6 "	("	2 10 0)
5 " ...	1 19 0 "		
7½ horse-power			4 4 0 per half-year
10 "			4 13 6 "
15 "			5 8 6 "
20 "			7 13 6 "
30 "			9 13 0 "

Rentals payable half-yearly in advance.

All conditions and charges, unless specifically agreed otherwise, are subject to revision from time to time as may become necessary.

25-29 BRIDGE STREET, NORTHAMPTON. Telephone 183 (4 lines).

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