

The Hatcham Ironworks, New Cross

The locomotive works of George England & Co, and its subsequent history

by David Perrett & Oliver James

Even in Victorian times Pomeroy Street, New Cross would seem a most unlikely place to manufacture railway locomotives. It is some half mile from the nearest mainline railway and there is neither a rail connection nearby, nor is it near a canal. Yet between 1849 and 1872 George England and his successors manufactured over 150 locomotives in the Hatcham Ironworks and it was necessary to haul each one through the local streets using teams of horses en route to the customers. Most famous of all the locomotives built here were the double-bogie Fairlie locomotives, the type still working on the Festiniog Railway in North Wales. Surprisingly a substantial portion of England's works survived in engineering use until the 1980s and included some remarkable items. This article describes the surviving structure and relates it to other now demolished parts of the works as well as to the history of this remarkable Victorian enterprise.

The Early Years

George England, who was trained as an engineer in the Deptford workshops of John Penn, the noted marine steam engine maker, decided, when aged about 28, to strike out on his own as a manufacturer of screw jacks. He already held a Patent, No. 8058, dated 7th May, 1839, covering improvements in the design and construction of such heavy lifting gear. During 1839 he looked around for premises and settled on a vacant manufactory at Hatcham, an outlying and semi-rural hamlet in an area of south-east London, today better known as New Cross. The building, with house attached, belonged to Henry Duxford, a leather dresser from Bermondsey, who for the previous six years had been leasing it to a William Morgan. The site was between two parallel roads which run due south from the Old Kent Road; Pomeroy Street and Kender Street. An outline map of the district at the time is shown in Fig. 1.

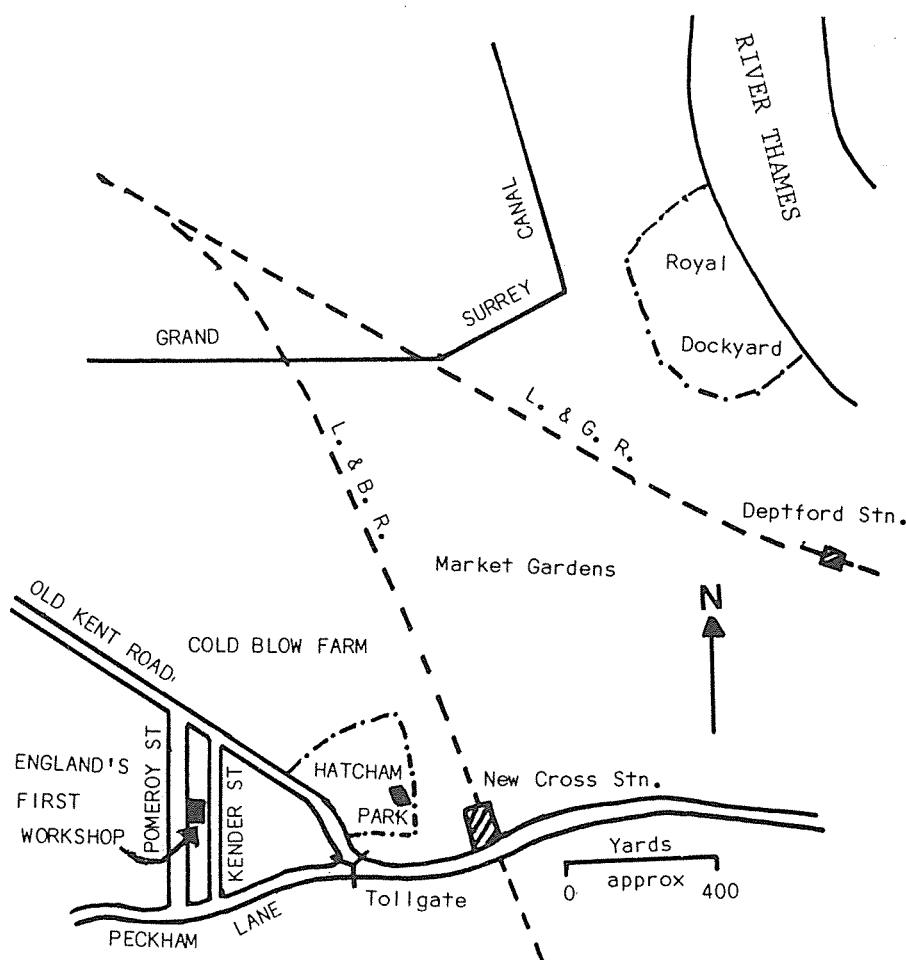


Fig. 1. Location Map of Hatcham Ironworks showing relationship to other forms of transport in c1850

2 *London's Industrial Archaeology*

As a result of the purchase of these premises George England's name appears for the first time in the local rate books as the occupier of the building in July 1840. It was these premises which were to become the nucleus of the Hatcham Ironworks. By 1846 the Post Office Directory carries an entry "Geo. England & Co. engineers and patent screw-jack manufacturers, Hatcham Iron Works, Old Kent Road".

The construction of locomotives appears to have started in 1849 when the first of a series of 2-2-2 well-tank engines was produced. The first documented engine was supplied in June of that year to the rather distant Dundee, Perth & Aberdeen Junction Railway but a more local order came from the London & Blackwall Railway (Fig. 2) in September. A later engine in this batch was exhibited at the Great Exhibition of 1851 together



Plate 1. *George England c1855 from a photograph in the Science Museum Library Archives (Crown Copyright)*

with an example of England's re-railing jacks (entry no. 484) about which the catalogue claimed that "... two men, with this simple machine, can re-instate the engine upon the rails in less than half the time 50 men could do without it". The locomotive named *Little England* (entry no. 5099 in Class 5) although only 13 tons in working order was claimed to run at 60mph and be suitable for express passenger work. It did, in fact win a prize medal from the jurors. On a personal level England was now a leading local business man involved with local affairs such as the Mechanics Institute. By 1853 he was sufficiently well known to be elected a member of the Institution of Mechanical Engineers (Plate 1).

Expansion

By now England was employing 43 workers in his modest premises and things must have been getting rather cramped as in 1853 plans for the expansion of the Iron Works were implemented. First a large two storey extension was erected to the south of the original workshop and on the Pomeroy Street frontage (Fig. 3). This building was still standing in 1982 having been in constant occupation by firms engaged in the engineering trades since its completion. It is dealt with in detail below.

(Plate 2) and at the back of the works and adjoining Hatcham Lodge on its north side a row of 18 houses for the employees was erected. These still stand and bear the original carved stone name-plate "Georgina Terrace". At the front of the works a tiny group of terraced cottages stood squeezed between the 1853 and the 1862 buildings with the entrance to the original 1840 workshop passing between them.

Contraction

George England, always an autocratic and rather irascible employer, suffered a strike by his workmen in 1865 after which only two further locomotives were produced. These were the now celebrated *Welsh Pony* and the *Little Giant* for the Festiniog Railway in North Wales. They were constructed to the design of C. M. Holland and they left Hatcham in 1867. At about this time it is recorded in the minutes of the Metropolitan Board of Works that England had made a building application for the manufacture of marine boilers and steam engines to commence at Hatcham. But the Iron Works was now nearing the end of its active life as an engine builder and there seems to be no evidence that the proposed departure into marine engineering was ever proceeded with.

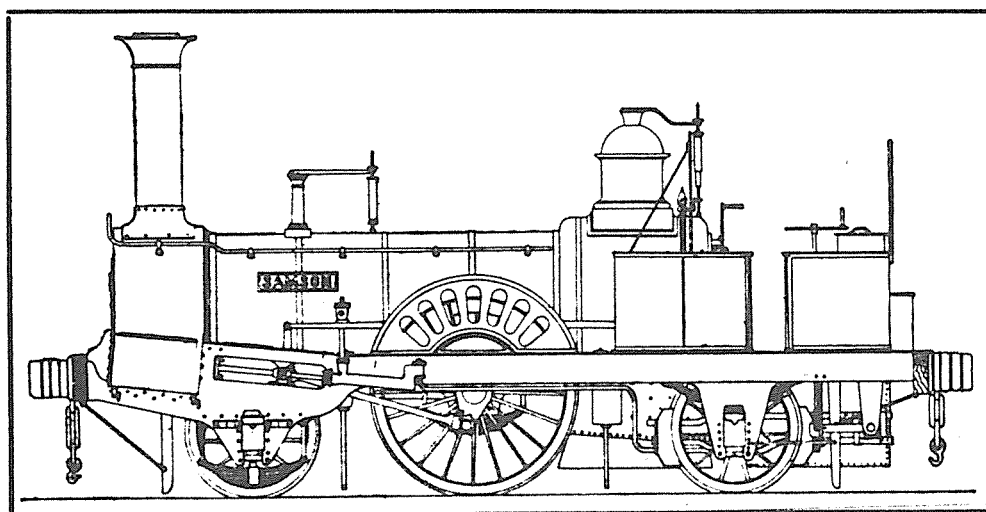


Fig. 2. George England 2-2-2WT locomotive 'Samson' supplied to the London & Blackwall Railway in 1850

England's son, George England, Junior, attained the age of 14 during 1858 and was articled to the firm. About the same time his father proceeded with the erection of a family house appropriate to his growing professional standing. This was Hatcham Lodge built on an acre of ground adjoining the south-east corner of the 1853 extension to the works. This house, now 56 Kender Street, still stands.

The firm continued to exhibit at national and international trade exhibitions; appearing at the 1855 Paris Exhibition and then at the 1862 International Exhibition in London (entry no. 1250 Locomotive and screw-jack). Such exhibitions led to a number of orders from abroad and after 1857 locomotives were supplied to railways in France, Flanders, India and, in particular, Australia. This work plus that from British companies led to a further large extension being added on the north side of the site in 1862. The Hatcham Iron Works had now reached its zenith. At the rear of the new northern extension was an oblong field, long known as the "Cabbage Patch", on which a locomotive test track was laid

There were some developments, however, as during the previous year England had attended the trials of the "Fairlie" Locomotive at St. Helens, which had been invented by Robert Fairlie (c.1831-1885) and who was in fact England's son-in-law. (The Fairlie locomotive it will be recalled consisted of two boilers and sets of motion arranged back to back on one main frame, thereby giving the engine a curious don't-really-know-where-I'm-going look.) As a result of this event a partnership was formed in 1869 consisting of Robert Fairlie, George England, Jnr., and J. S. Fraser (of the Great Western Railway) to take over the Hatcham works. George England then retired on grounds of ill-health, aged about 58. There is evidence to suggest that he survived until the 1890s and died in France since the deed of sale of Hatcham Lodge in 1895 refers to him as living in Caen, Normandy.

As mentioned above he was a man of uncertain temper; in 1858 he had been summoned before the courts to answer a charge of assaulting an apprentice and during the case it was revealed

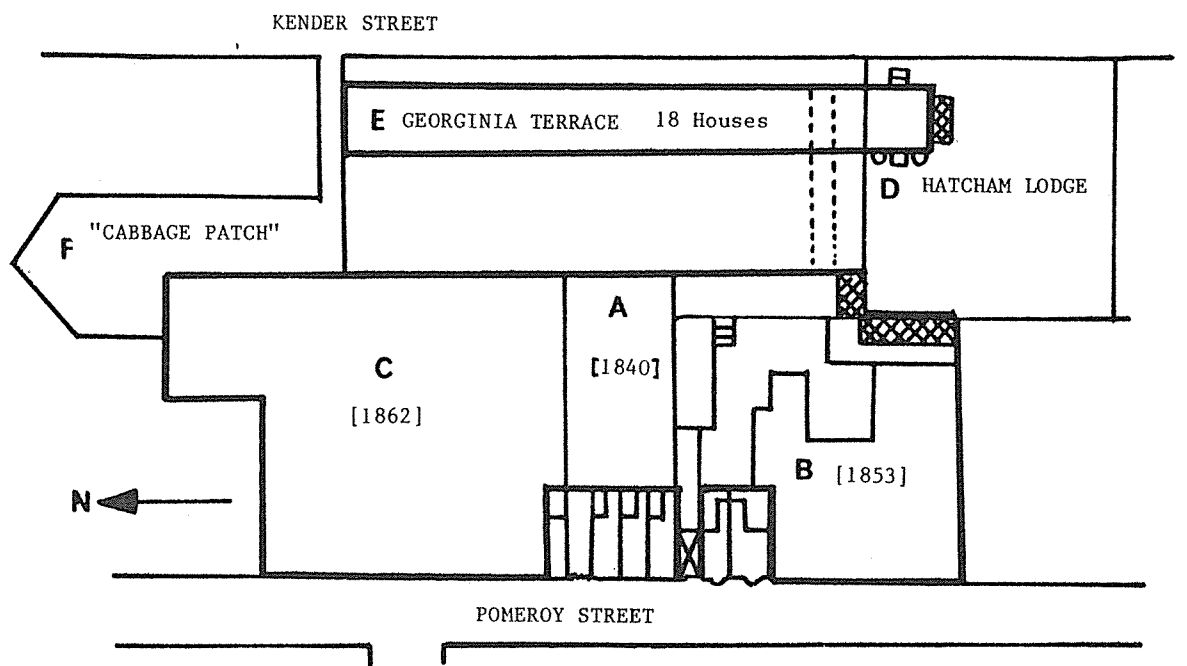
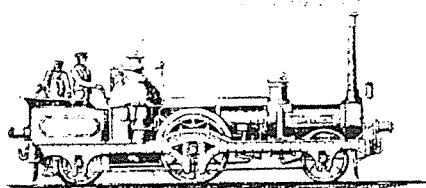


Fig. 3. Outline plan showing the final configuration of Hatcham Ironworks



G. ENGLAND & CO
ENGINEERS,
HATCHAM IRON WORKS,
S.E. A

Fig. 4. Three letterheads used at Hatcham: A) George England's from a letter sent to the Festiniog Railway in 1863. General Engine and Boiler Co. of B) 1901 and C) 1915. The frontage of the works in 1982 was the same as that shown in C, the coat of arms shown in B having gone

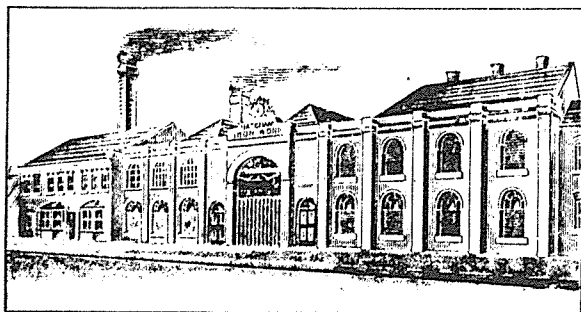
B

The General Engine and Boiler Co.,

ESTABLISHED 1873.

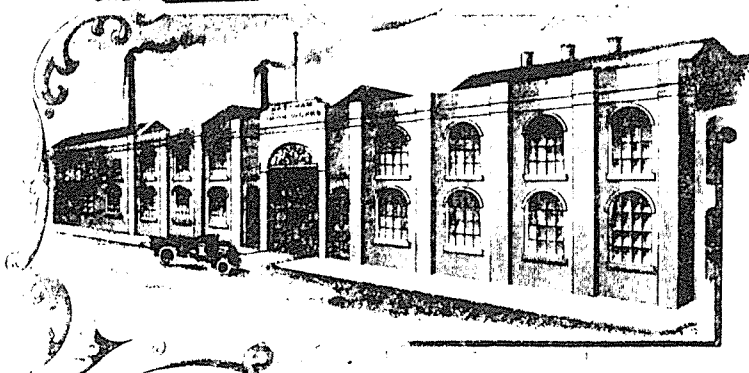
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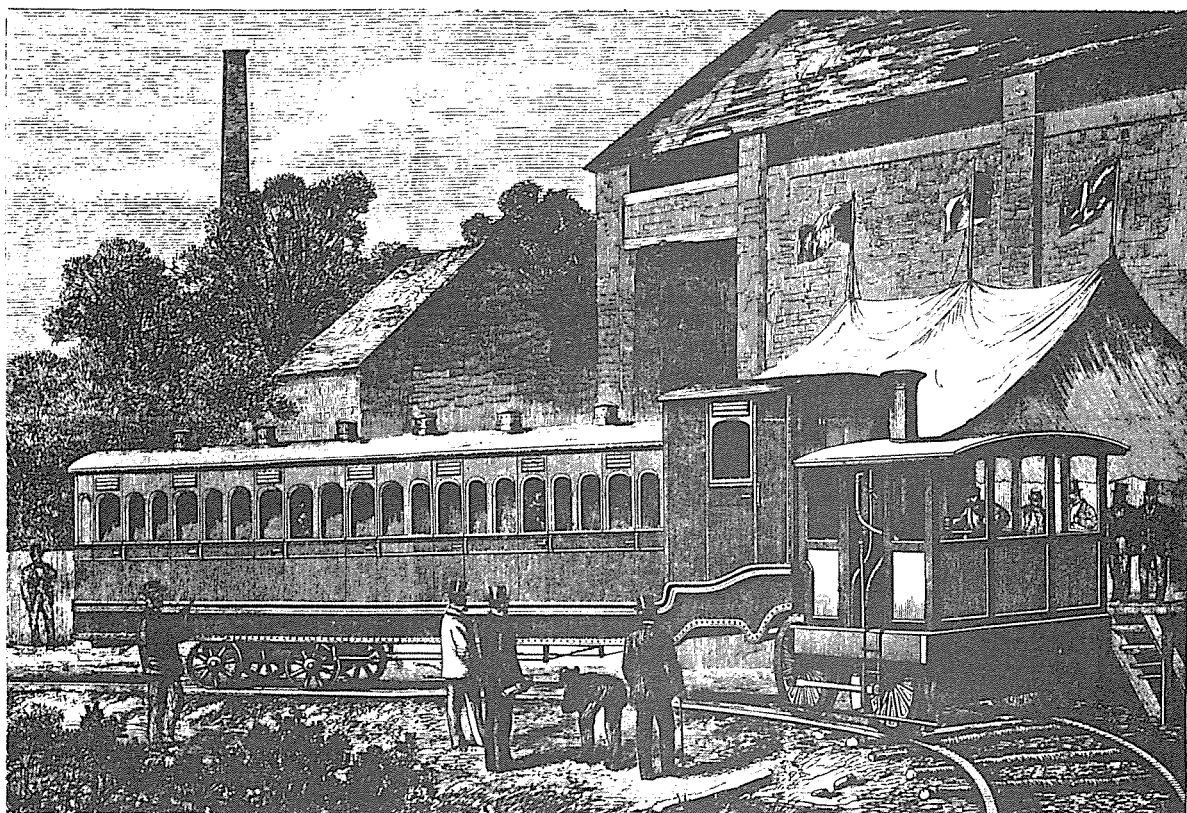


Plate 2. *The Cabbage Patch with the Fairlie Steam Carriage undergoing trials (from Illustrated London News Aug. 14th 1869)*

that this was by no means the first time such an incident had occurred. He had been appointed a Director of the Crystal Palace Co. Ltd., in 1857 but had been forced to resign in 1862 after adverse comment had been made about his private life. In the same year he had sued his newly married son-in-law Robert Fairlie for perjury! After this one is hardly surprised to discover that when his workmen negotiated an earlier finishing time of 4.30p.m. on Friday afternoons he maintained the time of the weekly wages pay-out at 5.0 p.m. so that the concession had no effect except, one imagines, to infuriate his workforce.

The new partnership which had acquired the business began trading under the title 'Fairlie Engine and Steam Carriage Co Ltd.', but was soon in trouble. Unfortunately George England, Jnr, died suddenly early in 1870 and it is alleged bankruptcy of the firm followed. The Works were closed and the contents sold in 1872 by which time the new company had only managed to produce five locomotives and a steam carriage.

Re-Development of the site after 1872

When the premises were sold various new owners acquired sections of the property which corresponded almost exactly with the elements of England's original building programme.

The 1840 Building Marked "A" on Fig. 2. 29 Pomeroy Street

This passed in 1882 to a Dr. Dick who started the Delta Metal Co., here and who remained in possession until 1905 when the business moved to Blackwall Lane in order to expand. Soon afterwards the empty accommodation passed to a firm of cardboard showcard manufacturers and became the Pomeroy Paper Mills. During World War II Messrs. Ryder and Davidson

acquired the premises for use as an extension to their light engineering works then heavily engaged on munitions production, etc., at 43a Pomeroy Street. This firm discovered the old foundry pits of Delta Metal still in situ and filled them in in order to provide a base for their heavy machine tools. Part of this 1840 building, too, was at some time sub-let to the Reliance Foundry Co., who were the last occupiers of the 1853 building (see below).

The 1853 Building Marked "B" in Fig. 2, 37 Pomeroy Street

At present (September 1982) this is the last surviving structure associated with the locomotive building works of George England and its future is now in some doubt. Early in 1981 when the last occupiers, Reliance Foundry, started to vacate the premises it was possible to briefly examine these buildings. It was this block that was taken-over by the General Engine & Boiler Company in 1872 after the closure of the Fairlie Company. The original ownership of the building is proclaimed on the south facing wall where at a high level a boundary stone marked 'G.E. & Co. 1853' survives. Later ownership is shown by an overpainted door-plate inscribed 'General Engine and Boiler Co. Registered Office'.

The buildings have a long frontage with three and four bays to either side of a main archway and facing west onto Pomeroy Street. The bays are separated by plain pilasters but the ornate coat-of-arms over the main entrance (Fig. 4) unfortunately disappeared early in this century. This gateway played an important part in the delivery of completed locomotives from the works. The removal of the engines which weighed about 30 tons is described by the well-known writer on railway subjects, Alfred Rosling Bennett in an article in the Railway Magazine of 1907.

Bennett, who spent his boyhood in New Cross in the 1860s, gives the following description, no doubt from personal memory:

The transport was managed by means of a heavy lorry mounted on four strong wheels, with very broad tread. Rails were laid on the lorry, and an inclined plane with rails upon it secured to the back so as to make a connection with rails upon the ground. When an engine was ready to be sent away the lorry was brought beneath the lofty arch facing Clifton Road, the wheels wedged, and the inclined plane fixed so as to connect with the rails in the erecting shop. The engine to be taken away, was hauled on to the wagon by means of eight horses pulling on the fall of a block and tackle. In this way the engine came up with great celerity, so fast, indeed, that it sometimes looked as if it was going to pass the mark and fall over the front of the wagon – an exciting moment for onlookers – but expert workmen were always on the watch with sprags to stay its progress at the proper moment. It was then secured by lashings, and the big team of horses took the whole concern away . . .

Although the above description applies to the gate in the 1862 building, the same would have applied at the 1853 gate. The entrance to the works is now via a set of concertina doors rather than the main entrance and they lead into a small yard from which the main works buildings are reached through the covered dispatch area. The general arrangement of the various shops is shown in Fig. 5. In the main the buildings were of stock brick construction and single storeyed but with a high elevation, except at the front of the works where there was a first floor used

mainly for offices and above the fitting shop which formed a store. The roofs of the main buildings were of king post construction; with wooden members except for the king post itself which was a wrought-iron rod. Roofs were pierced with large areas of glass. In the moulding shop a different roof structure of wooden tie beams with V-struts was employed. The roof over the sheet metal shop appeared to be a later replacement since it was of all metal construction.

The moulding shop and the furnace room formed a right angle to the rear of the premises. In the furnace room there were four furnace pits sunk into the floor and a number of crucibles were still present (Plate 3). Lately the casting of light alloys and aluminium had been a regular practice and remnants of that activity, using a number of small gas fired furnaces, along with some other work, was still being carried out in the sheet metal shop at the time of our visit.

Adjacent to the sheet metal shop but not directly connected with it was a small workshop housing a tensile testing machine (Plate 4). This machine by the famous firm of Tangye of Birmingham probably dates from immediately after the closure of Hatcham Works as a locomotive building establishment e.g. circa 1875. The machine was used to determine the force required to break test-pieces of various metals used in the construction of boilers.

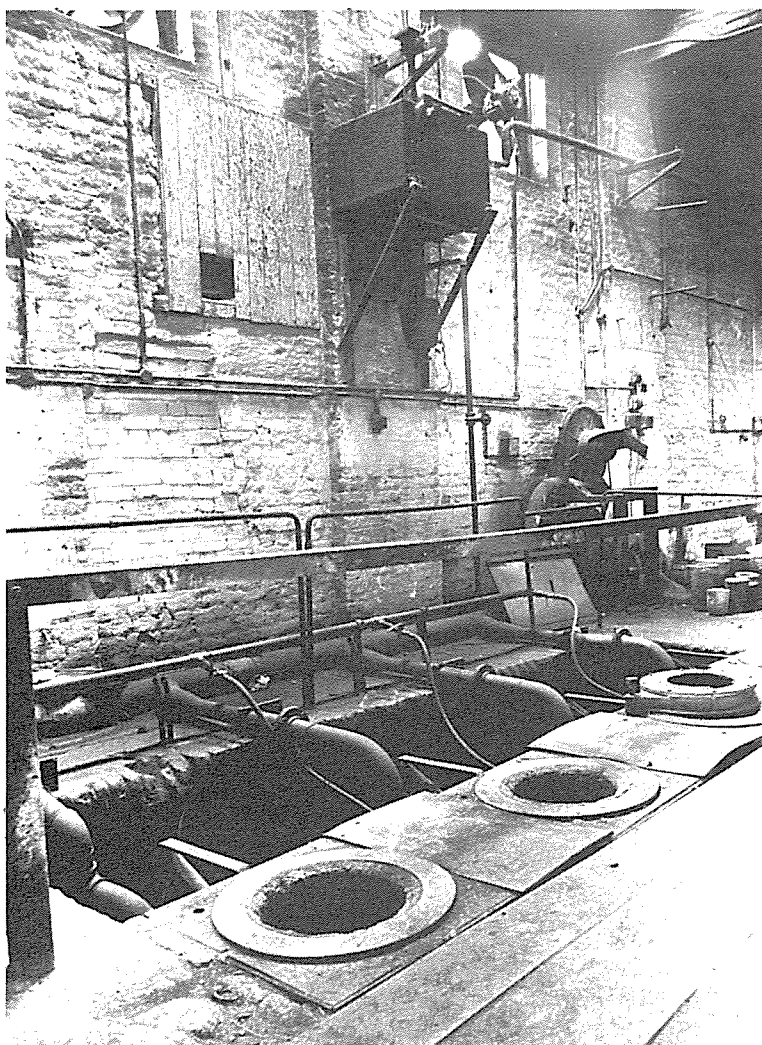


Plate 3. *The casting shop showing the crucible pits and blower in 1981 (Photo D. Perrett)*

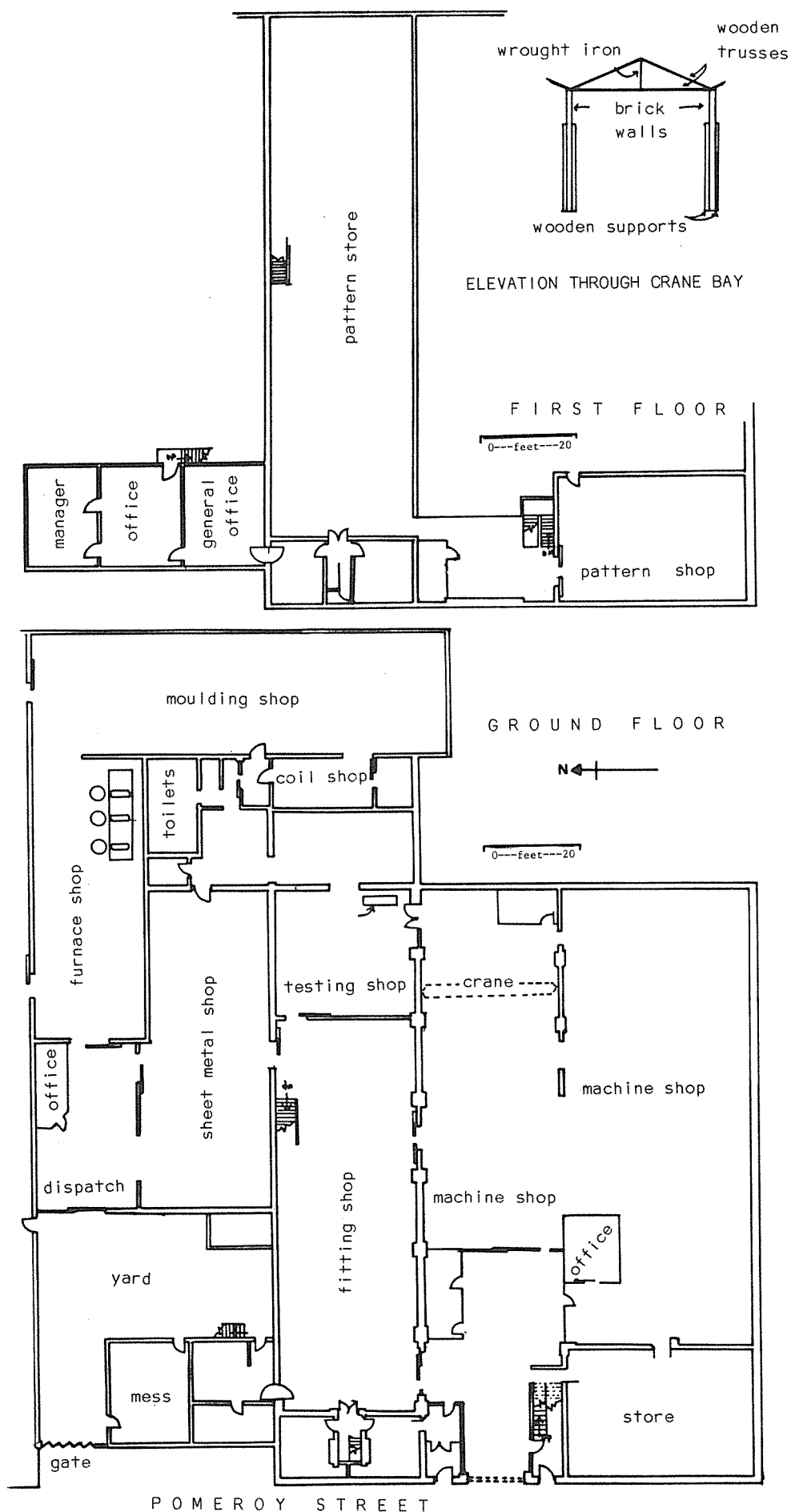


Fig. 5. Plans of the surviving buildings in 1982 with elevations of details in the erecting shop showing the crane supports

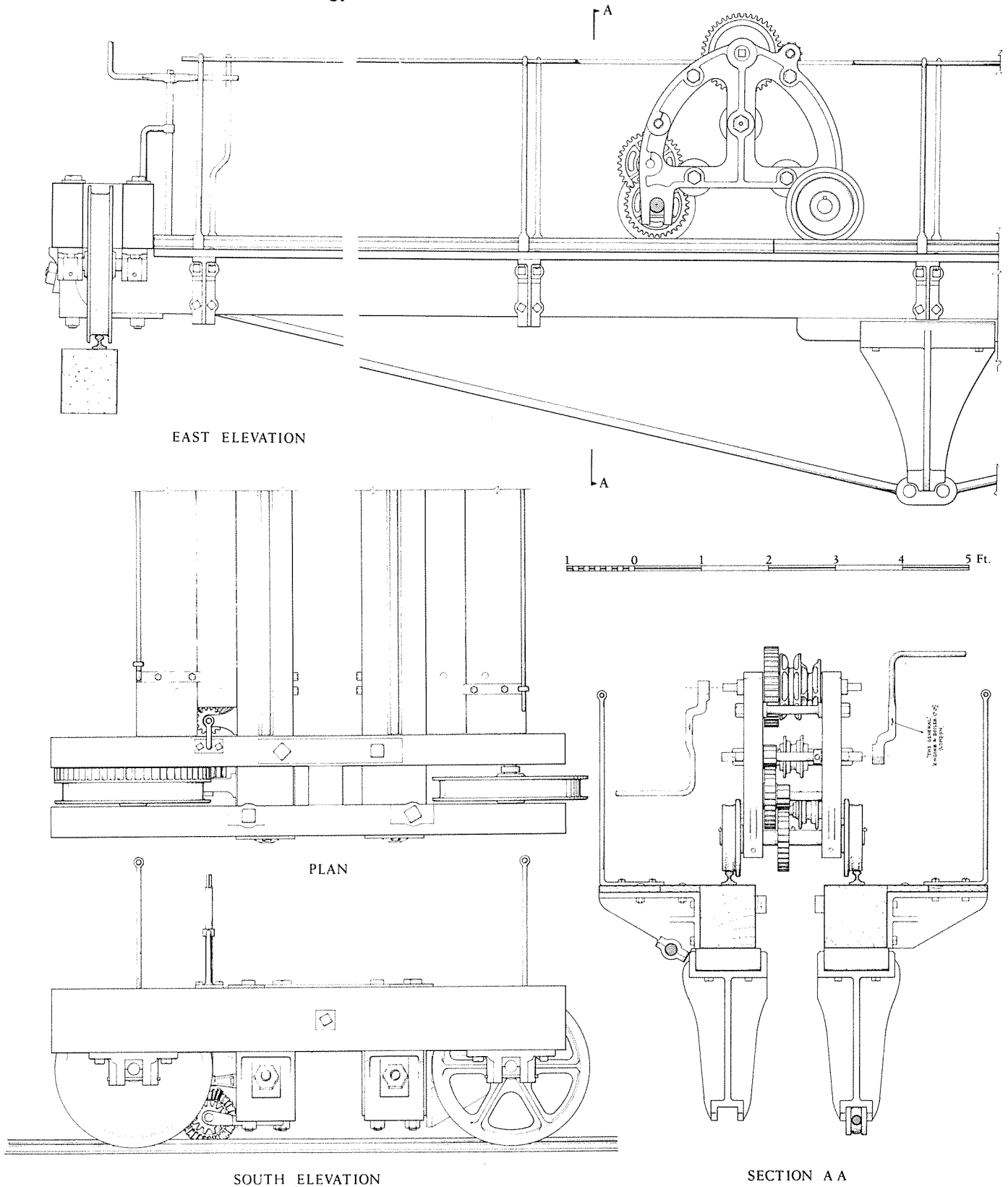


Fig. 6. Detailed drawing of the overhead crane. Drawn by John Sambrook of G.L.C. Historic Buildings Division

The unit could test up to 100 tons per square inch and was still in use in the mid 1960s. The test piece was clamped in the machine's jaws to which hydraulic pressure could be applied by means of a hydraulic pump. The pressure applied to the test piece could be measured by the steelyard beam mechanism. The upper slider being equivalent to a maximum of one ton, but higher weights could be achieved by suspending additional weights from the beam.

A door connected the testing room with a large fitting shop. At the time of the survey this shop was being cleared and its former use could not be readily ascertained although its dimensions would suggest that locomotives could have been erected there. Over most of the shop's area a wooden first floor had been erected which was accessible by a wooden staircase. This upper level immediately below the roof formed the main pattern store although most of the wooden pattern still remaining were

of recent vintage. Various small rooms, offices and another pattern store were situated at the front of the building and reached via this upper floor.

To the south of the first fitting shop were two long bays, which at the present time were designated machine shops (Plate 5). The roof was carried on brick walls. Over the middle bay was the most outstanding item of interest to survive in the buildings; a overhead travelling crane believed to date from 1853. Although over 125 years old the design of this crane was not significantly different from those being installed in modern erecting shops (Plate 6).

The crane was carried on a substantial frame work of 12 inch pitched-pine baulks at a height of 14 feet. The verticals were arranged at 9 feet intervals along the walls of the erecting shop (Fig. 5). The crane's length of travel was 70 feet but may have been longer in the past and it spanned some 28 feet (Fig. 6). Railway tracks mounted on longitudinal timber supported by the vertical timbers allowed the crane to move along the length of the erecting shop. The area covered would have been sufficient for the assembly of at least two locomotives of the size being constructed in the mid Victorian period. Two independent bogies running on the high level rails carried the crane beam, which consisted of two pine beams stiffened by iron stays attached to central iron struts.

The crane could probably lift in excess of 15 tons. The length-wise movement of the crane was effected by a hand winch through gears onto a geared wheel attached to one of the bogies. The crab (or lifting crane) was also traversed across the beam by a hand winch. Three crank handles could be attached to the crab; one double-ended shaft operated the traverse, the other two cranks worked the lifting mechanism, which was basically a pulley block system.

Although it was impossible to be certain of the original uses of the various surviving buildings some idea can be gained from surviving plans of the buildings. In 1897 the General Engine & Boiler Co. decided to extend England's original works. Plans were drawn up by Ernest Flint, Architect of 80 Coleman Street in the City, in October 1897 and these show a proposed new large smithy filling the square site on the south-east of the existing building. From the present ground plan it is clear that this proposal was not put into effect and that the site to the north and east of the fitting was to become the smithy. From the design of the existing structures it appears that changes were made to the 1853 building along somewhat different lines to those proposed in 1897 a few years later i.e. c1900. So although the furnace and casting shops could be readily mistaken for early Victorian it was in fact nearer turn of the century. These architect's drawings do not show the small workrooms including the testing machine shop suggesting a date of c1900 for these shops too. At the time much of the site of the present sheet metal shop was taken up with a low pressure boiler house.

Confirmation of these changes is obtained from a fire survey plan made in July 1924, which is marked "additions since 1894 and have resulted in uniting 2 older buildings". It shows the completed testing room used by two workmen in the present position. There was also an engine room and a compressor room which is marked "recently added" (c1924). The rear workshops including the moulding shop and trimming shop are complete but were occupied by a firm called Brunton & Trier Ltd, who employed 36 people. Probably because of this sublet three forges with two blacksmiths are shown sited to the rear of the machine shop then called the Turnery Shop. Altogether at this

time the General Engine & Boiler Company employed a total of 51 workers including 7 in the office.

The 1862 Building Marked "C" in Fig.2, 25 Pomeroy Street

This was the largest of the units disposed of in 1872 – and the newest at the time. Architecturally it was almost identical to the 1853 block except that it was built parallel to Pomeroy Street rather than at right angles to it. There were four parallel bays two storeys in height with an impressive entrance through the work-shops leading to a rear exit opening on to the field (the "Cabbage Patch") behind.

All of this facility was purchased by James Crossley Eno, a Newcastle pharmacist, for the manufacture of his "Eno's Fruit Salt". The final deed of sale was completed on December 15th, 1877 and shows that he paid £4,500 nett for the premises to Robert Milburn of Stanmore Lodge, Tulse Hill and that the cottage No. 27, Pomeroy Street was included in the deal. Was this, perhaps, the house that England acquired in 1839 from Henry Duxford? Eno's Fruit Saline Works as it was originally called started production on 8th July 1878.

This company, J. C. Eno Ltd., a successful and wealthy one maintained the building to an exceptionally high level throughout its occupation. Internally it was painted throughout, every few years, in very pale shades of duck-egg or off-white. The brick pilasters on the frontage were stuccoed and ornamental tablets bearing the firm's name were erected at roof level at the centre and at each corner of the building. Two Lancashire boilers were installed in the fourth bay and a superb single cylinder horizontal steam engine provided to power the line shafting. This magnificent engine bore a brass memorial tablet testifying to 50 years unflinching service and it was still working as quietly and efficiently as ever when the factory was destroyed. Although undamaged in the bombing it subsequently disappeared without trace. What happened to it, one wonders.

In both plan and section the 1862 building was very similar to that of 1853, with a crane supported in the same way in the erecting shop. Incidentally the gantry crane in the erecting shop collapsed in 1863 severely injuring a painter named Feltham who subsequently sued England and was awarded damages of £200 as recompense for two years in hospital. Such is the strength of local lore and traditions that old Eno employees were still talking about this accident in the 1930s. The crane which collapsed was lifting an engine at the time and was probably the one in the 1853 building as it is clear that the timber framing of this gantry has at some time been reinforced with iron.

The Eno factory was hit by high explosive bombs on the night of 11th September 1940 and by incendiaries a week or so later and a great deal of damage was done, particularly by the fire which followed the incendiary attack. As a result production was transferred elsewhere and the premises left derelict. When things became easier towards the end of the war another pharmaceutical firm, Robert Blackie & Co., rebuilt the factory and took possession for a few years. On their departure the G.L.C. acquired the site, cleared it completely and built a housing estate thereon. Fragments of the old 1862 building, bits of walls and gateposts, remain for the eagle-eyed field worker to find.

"Hatcham Lodge" Marked "D" in Fig. 2, 56 Kender Street

This was the large and comfortable house which England built in Kender Street in 1858. The front elevation is fairly plain except for the flight of steps with iron railings leading to the front door.

Plate 4. *The Tanyge Tensile Tester in 1981 (Photo D. Perrett)*

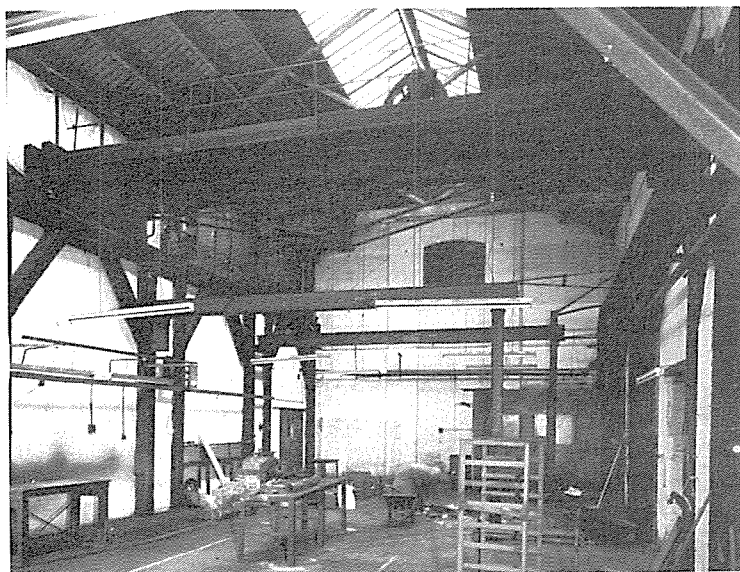
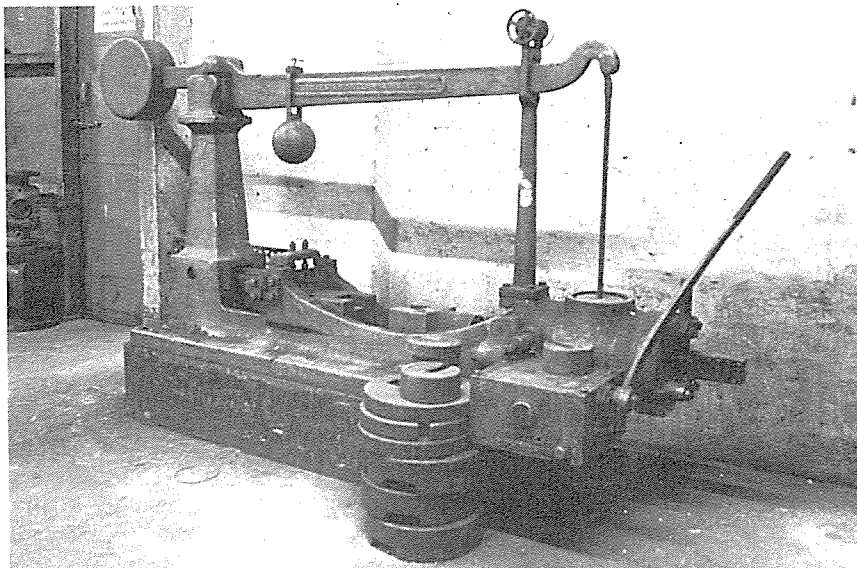


Plate 5. *The main erecting shop (1853 building) in 1981 (Photo G.L.C. Historic Buildings Division)*

Plate 6. *View of the crane over the 1853 erecting shop in 1981 (Photo G.L.C. Historic Buildings Division)*

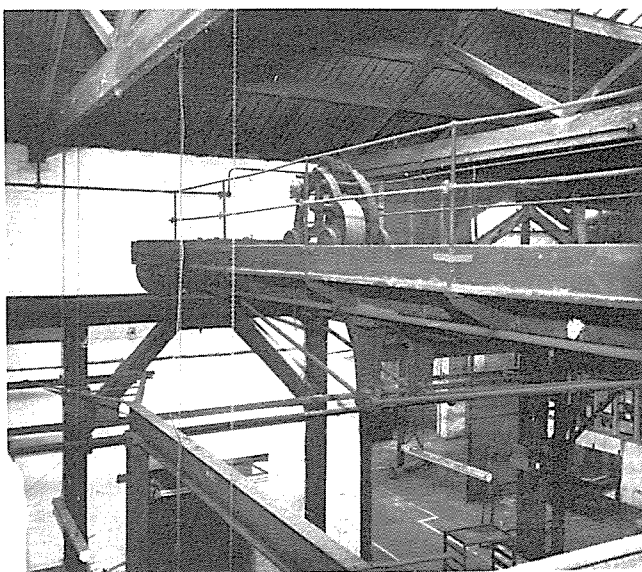




Plate 7. *Georgia Terrace, Kender St (as rehabilitated) in 1983 (Photo D. Perrett)*

The rear elevation is much more impressive having large bay windows at all levels, overlooking the garden and the Works. The south side of the house at the time of its erection boasted a large lean-to conservatory.

The house is now the Vicarage of All Saints', Hatcham Park, which church bought it on 27th June, 1895 for the sum of £1,000. The church authorities subsequently erected a two-storied building on the garden which provided a club house on the ground floor and a mission church at first floor level. This inelegant structure is still there and has been let and used as a light machine shop since World War II.

"Georgia Terrace" Marked "E" in Fig. 2 Kender Street

This row of cottages in grey brick has recently been rehabilitated by the local authority and now looks extremely pleasant (Plate 7). There are 18 of them and one presumes they were built by England for some of his workmen as the drainage system of the cottages was connected with that of the Iron Works. This caused some problems a few years ago when contractors demolishing war-damaged parts of the Works buildings dug through an old brick barrel-vault sewer only to find that it was still carrying effluents from the cottages. Was George England's daughter called Georgia?

"The Cabbage Patch" Marked "F" on Fig. 2

This patch of land was larger than it looks when glancing at the plan. During the latter days of the Iron Works, c. 1862 onwards, it was the site of the test track consisting of two circles of standard gauge rails with connecting straights, rather like a child's train set lay out. It appears in a few old photographs, chiefly showing Fairlie engines being tested (Plate 2). On an old plan in the possession of Eno's this track was shown as a straight line about 100 yards long. Was this artist's licence one wonders or was the track altered, to save space, at some time. Even as late as the 1930's there were elderly Deptford residents who could remember how in their boyhood they climbed the walls of Kender Street to see the engines being tested.

Postscript

After the completion of this article the last remaining section of George England's Hatcham Iron Works, that is the 1853 building was completely demolished and the site cleared in October 1982. Only Hatcham Lodge and Georgia Terrace now remain in the area. On demolition Lewisham Local History Library were able to save the G.E. & Co. property mark from the end-wall. Copies of the documents used to write this report are also lodged at this library.

Following representations from GLIAS to the Science Museum, South Kensington, the Tangye Testing Machine was acquired by the Museum to complement their collection of testing machines. It is at present in store at their reserve station at Wroughton Aerodrome in Wiltshire (Acquisition No. 1981-479). Unfortunately similar approaches were not successful in saving the important overhead crane.

Acknowledgements

The authors wish to thank Mr Nappa of the Reliance Foundry for permission to visit Pomeroy Street, Mr P. Calvocoressi and Mr J Sambrook of the GLC Historic Buildings Division and Mr M. Seymour, Hon. Curator (Archives & Relics) to the Festiniog Railway Co.

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Appendix 1

Details of all known surviving locomotives manufactured at Hatcham Ironworks

Sandy & Potton Railway: Shannon (1857)

This diminutive 0-4-0 well-tank engine (DW 3' 0" Cyls 9" x 12") was delivered in May 1857 to the Sandy & Potton Railway in Bedfordshire. Her name came from the ship commanded in the East Indies by Capt. William Peel, originator of the S & PR.

Appendix 2

Details of all known locomotives manufactured at Hatcham Ironworks*

Works No	Built	Type	Cylinders inches	D.W. ft in	Gauge	Customer	No/Name
	1849	2-2-2WT	IC 9 x 12	4 6	Std	D.P. & A.R.	Eclipse (a)
	1849	2-2-2WT	IC 9 x 12	4 6	Std	London & Blackwall	Dwarf
	1850	2-2-2WT	IC 9 x 12	4 6	Std	Edinburgh & Glasgow	England
	1850	2-2-2WT	IC 9 x 12	4 6	Std	L.C. & S.R.	England (a)
	1850	2-2-2WT	IC 9 x 12	4 6	Std	Exhibition Loco	Little England
	1850	2-2-2WT	IC 9 x 12	4 6	Std	London & Blackwall	8. Samson
	1850	2-2-2WT	IC 9 x 12	4 6	Std	London & Blackwall	9. Hercules
	1852		OC 15 x 18	5 6	Std	London & Blackwall	
	1852		OC 15 x 18	5 6	Std	London & Blackwall	
	1852/3	2-4-0	OC 16 x 20	5 0	Std	Caledonian Rly	144 (b)
	1852/3	2-4-0	OC 16 x 20	5 0	Std	Caledonian Rly	145
	1852/3	2-4-0	OC 16 x 20	5 0	Std	Caledonian Rly	146
	1852/3	2-4-0	OC 16 x 20	5 0	Std	Caledonian Rly	147
	1852/3	2-4-0	OC 16 x 20	5 0	Std	Caledonian Rly	148
	1852/3	2-4-0	OC 16 x 20	5 0	Std	Caledonian Rly	149
	1852/3	2-4-0	OC 16 x 20	5 0	Std	Caledonian Rly	150
	1852/3	2-4-0	OC 16 x 20	5 0	Std	Caledonian Rly	182
	1852/3	2-4-0	OC 16 x 20	5 0	Std	Caledonian Rly	183
	1852/3	2-4-0	16 x 22	4 9	Std	D.P. & A.R.	13 Scorpion
	1852/3	2-4-0	16 x 22	4 9	Std	D.P. & A.R.	14 Spitfire
	1852/3	2-4-0	15 x 22	5 0	Std	D.P. & A.R.	15 Sprite (c)

When this line was acquired by the London & North Western Railway she was sold in March 1862 to a contractor called Joseph Firkbank but returned to the L&NWR. Seven months later as No.1104. (renumbered in 1871 as 1863) and was transferred for work on the Cromford & High Peak Railway. In 1878 she was purchased by the Wantage Tramway arriving in 1882 under the name *Jane*. She worked on this line until withdrawn in September 1946 when she was purchased by the Great Western Railway for preservation. The engine was restored and mounted on the platform at Wantage Road Station. When this station closed she was put in store by the Transport Museum at Clapham. In 1969 she was loaned to the Great Western Society who still maintain her at their Didcot Centre.

Festiniog Railway:	No 1 Princess (1863)
	No 2 Prince (1863)
	No 4 Palmerston (1864)
	No 5 Welsh Pony (1867)

These 0-4-0 saddle tank/tender locomotives were all designed by C.M. Holland and constructed by George England for the 1'11 1/2" Welsh Narrow Gauge line from Portmadoc to the slate quarries at Blaenau Festiniog. Locomotives 1, 2 and 4 along with the now scrapped No 3 *Mountaineer* cost £900 each and were designed to haul 50 tons (or 60 empty wagons) at 10-15 m.p.h. The tenders with which the engines are currently equipped were made in the Festiniog Works. Welsh Pony is a slightly larger version of the other engines (cylinders 12" stroke x 8 3/8" diameter compared with 12" x 8"). Many alterations have been made to these locomotives over the years and in many cases parts including boilers have been interchanged both between the survivors and with other scrapped engines. Detailed descriptions and histories of the many changes to these locomotives as well as others built at Hatcham for this railway are to be found in Boyde *The Festiniog Railway*. Nos. 1, 2 and 5 are still to be seen at Portmadoc whilst No 4 should be considered withdrawn and is now with the North Staffordshire & Cheshire Traction Engine Club at Draycott-in-the-Clay.

Works No	Built	Type	Cylinders inches	D.W. ft in	Gauge	Customer	No/Name
139	1854/5				Std	West Flanders Rly	
	1854/5				Std	West Flanders Rly	
	1855				Std	Sambre & Meuse Rly	
	1856	2-2-2WT	IC 14 x 9	4 6	Std	M.S. & L.R.	123 Carlisle
	1856	2-4-0	OC 15½ x 20	5 6	Std	South Yorkshire Rly	13
	1857	2-4-0	OC 15 x 18	5 0	Std	L & SWR Eng Dept	Hawkshaw
	1857	2-2-2	14 x 22	6 6	5 3	Geelong & S Suburban	1
	1857	0-6-0	16 x 22	5 0	5 3	Geelong & S Suburban	2
	1857	0-6-0	16 x 22	5 0	5 3	Geelong & S Suburban	3
	1857	0-6-0	16 x 22	5 0	5 3	Geelong & S Suburban	4
	1857	0-6-0	16 x 22	5 0	5 3	Geelong & S Suburban	5
	1857	0-4-OWT	9 x 12	3 0	Std	Sandy & Potton Rly	Shannon
	1858	2-4-0	OC 15 x 18	5 0	Std	L & SWR Eng Dept	Brunel
	1859	2-2-2	14 x 22	6 6	5 3	Victorian Govt Rlys	12
142	1859	0-6-0	16 x 22	5 0	5 3	Victorian Govt Rlys	13
	1859	0-6-0	16 x 22	5 0	5 3	Victorian Govt Rlys	15
145	1859	0-6-0	16 x 22	5 0	5 3	Victorian Govt Rlys	17
	1859	2-4-OWT	11 x 17	4 0	5 6	BB & Central India	3
	1859	2-4-OWT	11 x 17	4 0	5 6	BB & Central India	4
	1859	2-4-OWT	11 x 17	4 0	5 6		(d)
	1859	2-4-OWT	11 x 17	4 0	5 6		(d)
	1859	2-4-OWT	11 x 17	4 0	5 6		(d)
	1859	2-4-OWT	11 x 17	4 0	5 6		(d)
160	1859	2-4-0	OC 15 x 18	5 0	Std	L & SWR Eng Dept	Hesketh
	1860	2-4-0T	15 x 20		5 3	Melbourne & Suburban	Hawthorn
	1860	2-4-0T	15 x 20		5 3	Melbourne & Suburban	Richmond
	1860	2-4-0T	15 x 22	4 0	Std	London & Blackwall	10
	1860	2-4-0T	15 x 22	4 0	Std	London & Blackwall	11
156	1861	2-4-OST	16 x 22	5 0	5 3	Victorian Govt Rly	14
157	1861	2-4-OST	16 x 22	5 0	5 3	Victorian Govt Rly	16
158	1861	2-4-OST	16 x 22	5 0	5 3	Victorian Govt Rly	18
159	1861	2-4-OST	16 x 22	5 0	5 3	Victorian Govt Rly	20
164	1861	2-4-OST	16 x 22	5 0	5 3	Victorian Govt Rly	22
165	1861	2-4-OST	16 x 22	5 0	5 3	Victorian Govt Rly	24
166	1861	2-4-OST	16 x 22	5 0	5 3	Victorian Govt Rly	26
	1861	2-4-0	OC 14 x 18	5 0	Std	L & SWR Eng Dept	Locke
	1861	2-4-0	OC 14 x 18	5 0	Std	L & SWR Eng Dept	Stephenson
	1861	2-4-0	OC 16 x 18	5 0	Std	L & SWR Eng Dept	Smeaton
	1861	2-4-0	OC 16 x 18	5 0	Std	L & SWR Eng Dept	Telford
	1861	2-4-0T	OC 11 x 16	3 10	Std	L & SWR Eng Dept	Scott
	1861	2-4-0	OC 15 x 18	5 0	Std	Somerset Central Rly	1
	1861	2-4-0	IC 15 x 18	5 0	Std	Somerset Central Rly	2
	1861	2-4-0	IC 15 x 18	5 0	Std	Somerset Central Rly	3
	1861	2-4-0	IC 15 x 18	5 0	Std	Somerset Central Rly	4
	1861	2-4-0	IC 15 x 18	5 0	Std	Somerset Central Rly	5
	1861	2-4-0	IC 15 x 18	5 0	Std	Somerset Central Rly	6
	1861	2-4-0	IC 15 x 18	5 0	Std	Somerset Central Rly	7
	1861	2-4-0T	IC 15 x 18	5 0	Std	Somerset Central Rly	8
	1862	2-4-0T	OC 11 x 17	4 0	Std	Somerset & Dorset Rly	11 (e)
185	1862	2-4-0	IC 16 x 24	6 6	Std	Great Western Rly	149
186	1862	2-4-0	IC 16 x 24	6 6	Std	Great Western Rly	150
187	1862	2-4-0	IC 16 x 24	6 6	Std	Great Western Rly	151
188	1862	2-4-0	IC 16 x 24	6 6	Std	Great Western Rly	152
189	1862	2-4-0	IC 16 x 24	6 6	Std	Great Western Rly	153
190	1862	2-4-0	IC 16 x 24	6 6	Std	Great Western Rly	154 Chancellor
191	1862	2-4-0	IC 16 x 24	6 6	Std	Great Western Rly	155
192	1862	2-4-0	IC 16 x 24	6 6	Std	Great Western Rly	156
199	1863	0-4-0T & T	OC 8 x 12	2 0	1 11½	Festiniog Rlwy	1 Princess (f)
200	1863	0-4-0T & T	OC 8 x 12	2 0	1 11½	Festiniog Rlwy	2 The Prince (f)
	1862	2-4-0T	11 x 16		Std	Colne Val & Halstead	Cam (g)
	1862	2-4-0T	11 x 16		Std	Colne Val & Halstead	Colne (g)
	1863	2-4-0	IC 16 x 18	5 0	Std	Somerset & Dorset Rly	9
	1863	2-4-0	IC 16 x 18	5 0	Std	Somerset & Dorset Rly	10
	1864	0-4-0T & T	OC 8 x 12	2 0	1 11½	Festiniog Rly	3 Mountaineer (h)
	1864	0-4-0T & T	OC 8 x 12	2 0	1 11½	Festiniog Rly	4 Palmerston (h)
	1864	2-4-0	IC 16 x 18	5 0	Std	Somerset & Dorset Rly	12
	1864	2-4-0	IC 16 x 18	5 0	Std	Somerset & Dorset Rly	13
	1864	2-4-0	IC 16 x 18	5 0	Std	Somerset & Dorset Rly	14
	1864	2-4-0	IC 16 x 18	5 0	Std	Somerset & Dorset Rly	15
	1865	2-4-0	OC 16 x 18	5 0	Std	L & SW Rly	201 (later 9)
	1865	2-4-0	OC 16 x 18	5 0	Std	L & SW Rly	202 (later 10)
	1865	2-4-0	IC 16 x 24	6 0	Std	Somerset & Dorset Rly	17
	1865	2-4-0	IC 16 x 24	6 0	Std	Somerset & Dorset Rly	18
	1865	2-4-0	IC 16 x 24	6 0	Std	South Eastern Rly	215
	1865	2-4-0	IC 16 x 24	6 0	Std	South Eastern Rly	216
	1865	2-4-0	IC 16 x 24	6 0	Std	South Eastern Rly	217
	1865	2-4-0	IC 16 x 24	6 0	Std	South Eastern Rly	218
	1865	2-4-0	16 x 20	6 0	Std	Flandres Orientale (i)	

Works No	Built	Type	Cylinders inches	D.W. ft in	Gauge	Customer	No/Name
	1865	2-4-0	16 x 20	6 0	Std	Flandres Orientale	
	1865	2-4-0	16 x 20	6 0	Std	Flandres Orientale	
	1865	2-4-0	16 x 20	6 0	Std	Flandres Orientale	
	1865	2-4-0	16 x 20	6 0	Std	Flandres Orientale	
	1865	2-4-0	16 x 20	6 0	Std	Flandres Orientale	
	1865	2-4-0	16 x 20	6 0	Std	Flandres Orientale	
	1865	2-4-0	16 x 20	6 0	Std	Flandres Orientale	
		0-4-0ST				2nd Hand to I. W. Boulton	Phospho
234	1867	0-4-0ST	OC 8½ x 12	2 2	1 11½	Festiniog Rly	5 Welsh Pony (h)
235	1867	0-4-0ST	OC 8½ x 12	2 2	1 11½	Festiniog Rly	6 Little Giant (h)
	1867	2-4-0				Neath & Brecon Rly	1 Neath
	1867	2-4-0				Neath & Brecon Rly	2 Brecon

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	1869	0-4-4-0T	4/8¼ x 13	2 4	1 11½	Festiniog Rly	7 Little Wonder (j)
	1869	0-4-4-0T	4/10 x 18	3 6	Std	Nassjo Oscarshamn Rly	Pioneer (j) (k)
	1870	0-4-4-0T	4/10 x 18	3 6	Std	Nassjo Oscarshamn Rly	Morton (j) (l)
	1870	0-4-4-0T	4/10 x 18	3 6	Std	C de F de la Vendée	Angletera (j)
	1870	0-4-4-0T	4/10 x 18	3 6	Std	Iquique Rly	Tarapaca (j)
	1869	Steam Car				LC & D Rly	

* Expanded and corrected from the list in Lowe; for a few industrial locos see Dickson

- (a) May have been same locomotive.
- (b) Ordered by C Dunlop & Co.
- (c) Bought 1855
- (d) Lost at Sea.
- (e) At 1862 exhibition, sold 1863.
- (f) Side tank and tender.
- (g) Built for contractor and returned.
- (h) Side and Saddle Tanks.
- (i) Later became Etat Belge Nos 433-440.
- (j) Delivered to Burry Port & Gwendraeth Valley Rly *Mountaineer*.
- (k) Renamed *Clark*, later *Huttenheim*

Abbreviations

DP & AR Dundee, Perth & Aberdeen Junc. Rly
 LC & SR Liverpool, Crosby & Southport Rly
 MS & LR Manchester, Sheffield & Lincolnshire Rly
 L & SWR London & South Western Rly
 LC & DR London, Chatham & Dover Rly