Inspecting the boilers at the London International Exhibition of 1862.

STEAM & HOT WATER BOILERS
SOME HISTORIC EXAMPLES

BRIAN ROBERTS
CIBSE HERITAGE GROUP
Lancashire coal-fired steam boilers at Papplewick Water Pumping Station, near Nottingham.
STEAM AND HOT WATER BOILERS

The Haden steam boiler erection team 1890s.

Information and illustrations are taken from the Heritage Group Archives and website and from the Paul Yunnie Collection, all having been put together over the last twenty years or more by Frank Ferris, Brian Roberts and Paul Yunnie.

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author’s choice

London Exhibition 1, Papplewick Pumping Station 2,

HOT WATER BOILERS

makers in alphabetical order 7-19

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STEAM BOILERS

makers in alphabetical order 20-25

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STEAM BOILERS

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STEAM AND HOT WATER BOILERS

Advertisement: Anderton & Bolton’s Patent Steam Superheater, c.1900
A Anderton & Sons, Astley Boiler Works, Accrington
(Paul Yemmie Collection)
Domestic Engineering, April 1900, p. 46.
Figure VIII Nineteenth-century advertising broadside for a "saddleback" steam boiler (from ASHRAE Centennial collection, donated by Ms. Janet Alford)
Babcock & Wilcox

In 1856, 26-year old Stephen Wilcox of Rhode Island, USA, patented a water tube boiler that increased heating surfaces, improved water circulation and, importantly, was inherently safe. In 1867, with his friend George Babcock he established Babcock, Wilcox & Company to manufacture water tube steam boilers. Growth was stimulated by the demand for steam power after the Civil War and later by the building of electrical power generating stations.
HOT WATER BOILERS: BEESTON

Beeston Foundry

The Beeston Foundry (later Beeston Boiler Co) was established in 1895 at Beeston in Nottinghamshire. They became famous for their Robin Hood sectional hot water boilers which in 1921 covered a range of types: Major, Senior, C Pattern, F Pattern, General and Junior. In addition, Beeston manufactured a range of domestic boilers and greenhouse apparatus.

Sir Louis F. Pearson CBE 1864-1963
Sixth President IHVE 1903
Chairman Beeston Boiler Co
Scientist & philanthropist, knighted for his social, industrial and public services
W & S Deards

The firm of W & S Deards and Sam Deards were active in business in the 1860s, operating from the Boiler Works, Harlow in Essex, and with offices in Southwark Street, London. The firm produced their Patent Victoria Dry Glazing system for horticultural glasshouses and a variety of glass-roofed buildings. In addition, they made the Sam Deards Champion Coil Boiler, which was awarded numerous models and prizes in Victorian competitions and exhibitions.
HOT WATER BOILERS: GURNEY

Gurney Heater Mfg Co

A pioneer manufacturer of hot water boilers in North America was the firm of E. & C. Gurney of Toronto, Canada. They entered the USA market in 1884, originally under the same name, but later changing to the Gurney Heating Manufacturing Company, operating from 163 Franklin Street in Boston. The firm also produced steam boilers.

Gurney's New Portable Hot-Water Boiler.

Gurney Doric Vertical Water-Tube Steam Boiler of 1896
[Balch's on Heating, 1897]

Advertisement: Gurney Hot Water Heaters Left: Double Crown Right: 300-Series
[Ventilation & Heating, Buffalo, 1896]
HOT WATER BOILERS: HARTLEY & SUGDEN

Hartley & Sugden

The boiler making firm of Hartley & Sugden was established in Halifax, Yorkshire in 1867, becoming famous for their award winning welded and riveted boilers, which they manufactured at their Atlas Works. In 1904, they produced their successful White Rose cast-iron sectional boiler. Later, heating products were manufactured at the White Rose Boiler Works in Halifax and Branch Offices were opened around the country, that in London being Sundial House in the Euston Road.

J E Hartley
President 1913-14
Managing Director, Hartley & Sugden

Hartley & Sugden Works, 1870

Catalogue: Hartley & Sugden
Wrought Welded Boilers, 1873
[Paul Yurato Collection]

Catalogue: Hartley & Sugden
Gold Medal Boiler, 1872

Advertisement: White Rose Boilers
[HHVE, 1946]
HOT WATER BOILERS: HITCHINGS

Hitchings & Company

Hitchings was established in 1844, and their first boiler was a conical-shaped affair. Their Corrugated Fire Box Boiler was introduced about 1867 being originally intended for the warming of hothouses. Meanwhile, Fredk A Lord had established his greenhouse building company in 1856. In 1873, with his son-in-law, William Burnham, their first boiler was put on the market. It was not a success, neither was their second attempt in 1878. A cast-iron one-piece boiler of 1880 was more successful but proved expensive, heavy and difficult to transport and install. A solution was achieved when Hitchings & Co merged with Lord & Burnham in 1905.
The first business venture of John Pierce was as a storekeeper in Buffalo, NY. In 1872, he opened a tin ware shop in Ware, Massachusetts and went on to found the Pierce Steam Heating Company, which manufactured and sold solid steel boilers and cast-iron radiators for both steam and hot water heating systems. In 1892, he merged his company with two others to become the American Radiator Company. Manufacture of heating products in the UK commenced in Hull in the early 1900s when the firm traded as the National Radiator Company, later becoming Ideal Boilers & Radiators, well known for the Ideal Britannia range of cast-iron sectional boilers.

Robert Jenkins

In 1856, Robert Jenkins set up as boilermakers in Rotherham, one of a number of similar mid-19th century firms who began business in Yorkshire. Jenkins manufactured wrought iron and steel welded boilers using the general name of Jenkins. His range of boilers included the 

Chatsworth, Wenworth, Columbia and Delta.

WROUGHT IRON AND STEEL
WELDED BOILERS
OF SUPERIOR QUALITY AND DESIGN.

For HEATING by WATER or STEAM.

Jenkins's boiler in a brick setting
[Dye, 1890]

Advertisement: R Jenkins & Co, Rotherham
featuring a selection of steam and hot water boilers
[Hood on Warming Buildings, Heath Dye, 1891]

Advertiement detail: Robert Jenkins
[Dye, 1897]
HOT WATER BOILERS: JONES & ATTWOOD

Jones & Attwood

In 1836 John Jones set up a foundry in Enville Street, Stourbridge. Walter Jones joined his father in 1862 and took an interest in hot water heating. In 1896 John Attwood joined to form Jones & Attwood but this partnership lasted only 10 years, the firm continuing under Jones with the same name. Jones wrote the classic textbook Heating by Hot Water, which ran to three editions. Jones was a pioneer in determining the cause of boiler explosions, aided by his then young assistant J Roger Preston.

Advertisement: J Attwood
[Heating Warming Buildings, Fredk Dye, 1891]

Advertisement: Jones & Attwood, Stourbridge
(Heating by Hot Water: Walter Jones, 1894)
HOT WATER BOILERS: LUMBY

Lumby, Son & Wood

This pioneering boiler manufacturing firm was founded in 1858 in Halifax, Yorkshire by Edwin Lumby. For many years it operated from the West Grove Boiler and Safe Works; later from the Reedland Boiler Works with showrooms in London’s Shaftesbury Avenue. In 1882, both Edwin and his son died suddenly. A new company, Lumby, Son & Wood was formed becoming a Limited Company in 1886. Sam Naylor became a Director in 1896 having worked there since 1876. He designed many boilers and secured numerous patents.

Lumby Independent Cylinder Boiler & Improved Portable Concentric Saddle Boiler Halifax, 1881 [Paul Thomas Collection]

Lumby Welded Royal British Boiler, 1937

Advertisement: Marlow Steam & Hot Water Boiler [Domestic Engineering, USA, 1897]

Lumby Solar Cast-iron Sectional Boiler, 1937

Welded “Royal British” Boiler

For Hot Water Central Heating and Hot Water Supply
HOT WATER BOILERS: MATHER & KITCHEN

Mather & Kitchen

John Kitchen worked for Hartley & Sugden of Halifax for nearly 17 years before he set up in business making boilers as Kitchen & Company at the Severn Works in Derby. His main product was the Severn independent hot water boiler, which he patented and improved over the years. The firm became Mather & Kitchen before 1891. Of Mather nothing is known. Kitchen was involved in the IHVE in its formative years and it is known that he was a Member of the IHVE Council in 1890.

John Kitchen

Mather & Kitchen Improved Severn Independent Boiler

[Found on Warming Buildings, Fredk Day, 1897]

IMPROVED PATENT SEVERN BOILER

Most Compact, Powerful, & Economical Independent Boiler.

Suitable for all descriptions of HEATING.

Complete catalogue free on application.

MATHER & KITCHEN, DERBY.

Advertisement: Improved Patent Severn Boiler, Mather & Kitchen, Derby

[Heating by Hot Water, Waller Jones, 1894]
Thomas Potterton

Thomas Potterton expanded his father’s building business, first improving the efficiency of kitchen ranges and boilers. In 1902, he introduced what is claimed as the world’s first gas boiler for central heating using town’s gas. He went on to invent the first cut-out valve system and an ether-capsule thermostat. He developed the Victor boiler, the Seal-ed oven cooker and the Queen combined gas and coal ranges. Potterton was a pioneer of multiple gas boiler installations for hot water supply. He was a founding Member of the IHVE and was born, worked and died in Balham, not far from the present CIBSE buildings.

Advertisement: Potterton’s Patent Zig-Zag Boilers
[From "Warming, Fresh Dye, 1897"

HOT WATER SUPPLY.

Advertisement: Potterton Victor Gas Boilers, date unknown
[Paul Topham Collection]

Delivery of Potterton boilers, 1906

Potterson’s Zig-Zag Boiler
Patent BP 3182, 1894

T. POTTERTON, Hot-Water Engineer,
Covendish Works, Balham.

Photos: Thomas Potterton, 1847-1926
and Mrs Potterton.
HOT WATER BOILERS: WEIL-McLAIN
STEAM BOILERS: COCHRAN

Cochran

In 1878 James Taylor Cochran, with his partner Edward Compton, set up Cochran & Co trading as general engineers and shipbuilders in Duke Street, Birkenhead. Compton invented what was to become the famous Cochran vertical steam boiler, the price of a 7 feet diameter boiler then being £729. As the firm prospered the Birkenhead site was too small and in 1898 a new company was formed and moved to Scotland. This was Cochran & Co Anson Limited. Over the years, production changed from the famous Donkey boilers to steam accumulators, then Economic boilers and on to Chiefain and Clansman packaged boilers.

[Images of Cochran personnel and steam boilers]

[All pictures from Cochran, 100 Years in Boiler Making, 1980]
STEAM BOILERS: FRASER BROTHERS

Fraser Brothers

FRASER'S SPECIAL COMPOUND BOILER.
STRONGLY RECOMMENDED FOR ECONOMY OF FUEL.

SECTION.
ELEVATION.

SECTIONAL PLAN.

FRASER BROTHERS,
BROMLEY-BY-BOW, LONDON, E.

Leaflet: Special Compound Boiler, Fraser Brothers, Bromley-By-Bow, London, E, 1882
[From the Philipson Archive of the CIBSE Heritage Group]
John Henry Mills has been described as a mechanical genius, who was in turn, craftsman, inventor, heating contractor, scientific investigator and engineering consultant. He patented a cast metal sectional boiler in 1867. Improved designs followed, to be manufactured by the Waltham Company and then by George W. Walker & Co. However, from 1873 his boilers were manufactured exclusively by the H. B. Smith Co. His early boilers were steam type; later he concentrated on hot water design. Mills is considered most of the most widely renowned engineers in the USA in the last quarter of the 19th century.

Mills Steam and Water Safety Boiler, No. 6.

(From Mills, 1890)
H B Smith Co

Founded in April 1854 from the original foundry and stove works in Westfield, Massachusetts, purchased by Henry Smith in 1855. The firm manufactured the boilers developed by Stephen J Gold, and later by his son Stephen, principally the "Gold" boiler, adapted from the earlier designs of George B Brayton of Providence, Rhode Island.

Henry B Smith, 1817-1900
Company Founder

Edwin Smith, 1819-1886
Brother of Henry and Co-Founder

THE H.B. SMITH CO.
WESTFIELD, MASS.

EASTERN AGENTS, WESTERN BRASS MFG. CO., ST. LOUIS, MO.
SALES ROOMS,
133 CENTRE STREET, NEW YORK CITY. 510 ARCH STREET, PHILADELPHIA, PA.

[Domestic Engineering, April 1900]
John Thompson

William Thompson founded a family boiler-making firm in Bilston, Staffs in 1834. It is said he was the first man to make a boiler from a template which significantly reduced manufacturing costs, but he failed to protect his ideas and the business ran into difficulties. Taken over by his brother Stephen, control later passed to William's son John under whose leadership the business flourished. By the time of John's death, the firm, now with some 600 employees, specialised in the manufacture of large dish-ended steel Lancashire boilers, shipping them to locations all over the world.
STEAM BOILERS: TREVITHICK

Richard Trevithick was a brilliant Cornish mining engineer who in 1804 developed a high-pressure boiler and steam engine and in 1812 produced the Cornish boiler. He had earlier built a road locomotive at Camborne in 1801 and is famous for designing the first railway locomotive, running on rails, at Penydarren in South Wales in 1804. His use of high-pressure steam was in marked contrast to the low pressures used in the giant steam engines of Boulton & Watt.

[Credit must also be given to Oliver Evans of Philadelphia who independently developed a similar boiler around the same period.]
STEAM BOILERS: FACTORY

Boiler Factory of Marshall, Sons & Company Ltd, Gainsborough.

STEAM BOILERS: FACTORY

The Galloway Factory in Manchester (from a 1990 Documentary Film).

Galloway Boilers store.
Lancashire Boiler hauled by a Traction Engine in Calne, Wiltshire, c.1919.

Boiler by J. Hickey & Sons Ltd, Richmond.
STEAM BOILERS: DELIVERY

Transporting a Ruston Boiler in Truro.

Mules hauling a Cochran Boiler in South America.
STEAM BOILERS: DELIVERY

Elephants hauling a Marshall Boiler in Ceylon (Sri Lanka).

Moving a Marshall Boiler to a tea factory in Ceylon (Sri Lanka).
STEAM BOILERS: DELIVERY

Transporting a Boiler for Contractor Wm. Freer Ltd of Leicester.

Boiler arriving at its destination on the Isle of Wight.
Boilers at Askern, Doncaster in South Yorkshire.

Steam Boiler awaiting installation by Wm Freer Ltd.
Galloway boiler on a crane 1900.
STEAM BOILERS: OPERATION

Boiler House at Keresley Colliery, near Coventry.

Stokers at the Bullcroft Colliery Boilers, near Doncaster in South Yorkshire.
Ready to stoke a Patented Steam Boiler.
STEAM BOILERS: OPERATION

Bank of Lancashire Steam Boilers.

Postcard featuring eight Steam Boilers.
A Vertical Steam Boiler.
STEAM BOILERS: OPERATION

Stoker with three Lancashire Steam Boilers.
Feeding wood into a Galloway Steam Boiler at Coldharbour Mill in Devon.

Four Lancashire Steam Boilers at Papplewick Water Pumping Station, now a Museum.
STEAM BOILERS: EXPLOSIONS

Boiler Explosion at the Bass Brewery, Burton-on-Trent, 1866.

After the Boiler Explosion in the Millfield Iron Works, Wolverhampton, 1852.
After the Boiler Explosion at Lord Brothers, Todmorden, West Ridng of Yorkshire, 1875.

Aftermath of Boiler Explosion at Rose Bank Bleach Works, Ramsbottom, Lancashire, 1873.
STEAM BOILERS: GRAVEYARD

Egg-ended Boiler removed from Blists Hill Blast Furnaces, Telford, Shropshire.

Haystack Boiler from Cheddleton Flint Mill, Leek, Staffordshire.
Steam Boilers long abandoned, rusting away, location unknown.