

Between the Wars

by Brian Roberts, Chairman CIBSE Heritage Group

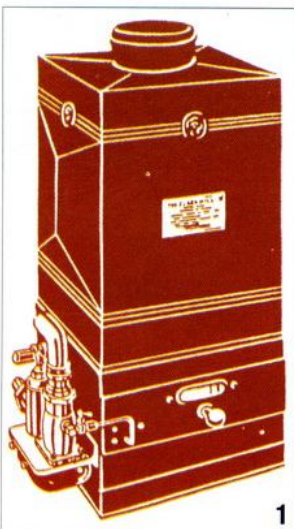
Shortly after the end of the First World War, the British Commercial Gas Association vigorously promoted the benefits of domestic hot water. An early advertisement (published in Punch magazine, 1921) took the following tack: "When the hot water supply depended upon the inefficient coal fire, the water was often not hot enough or not ready in time. The gas water heater has changed all that."

Another example (also from Punch, 1924) stated: "In these days of economical and efficient gas water-heaters, no home need be without its hot water on tap."

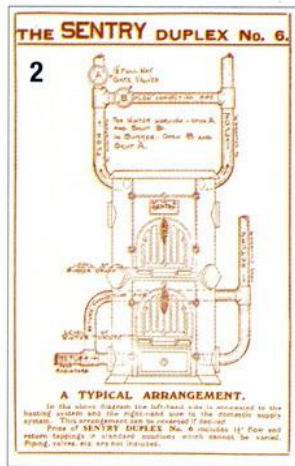
Similar adverts continued unabated throughout the 1920s and 1930s.

It was also during the 1930s that architects and interior designers grasped the opportunities now open to them for designing luxurious bathrooms, reflecting the lifestyle of an upper echelon of society which placed great emphasis on personal grooming.

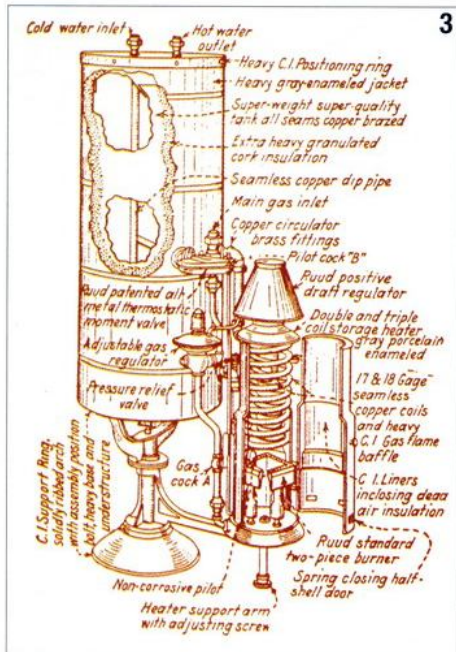
The Art Deco style was popular



1



A TYPICAL ARRANGEMENT.
In the above diagram the left-hand side is connected to the heating system and the right-hand side to the domestic supply system. This arrangement is the normal standard.
Price of SENTRY DUPLEX No. 6 includes 12" flow and return pipes to nearest radiators which should be varied. Piping, valves and control devices.



3

and remained so until after the Second World War. Attempts were made to simplify the plumbing and use new materials, and first efforts at prefabrication were made, most notable in 1938 being the Prefabricated Bathroom used by Buckminster Fuller (designer of the geodesic dome) in his revolutionary Dymaxion House.

Hot-Water Geysers and Boilers

Plumbing textbooks of the time illustrate the wide range of gas water-heating appliances available: The "White Chief Copper Geyser" (British Gas Light Co, 1920s); an American type with its "patented all-metal thermostatic moment valve" (Ruud, 1928); the "Circulator" (Wilson & Mathieson, 1929); the "Sunhot" boiler (Wright, 1929); the "Hollar" boiler (Richmond, 1929); the "automatic water heater... fitted with Bray's geyser burners" (Clarkhill, 1929), and the most famous manufacturer of them all with its "multi-point instantaneous gas water heaters" (Ascot, 1933). These are but a few.

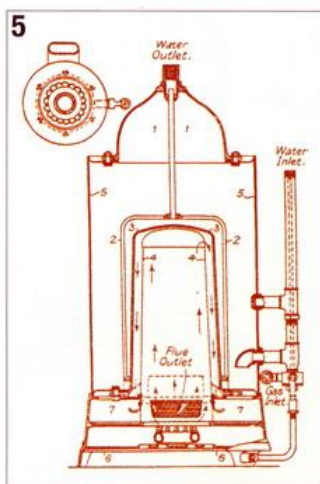
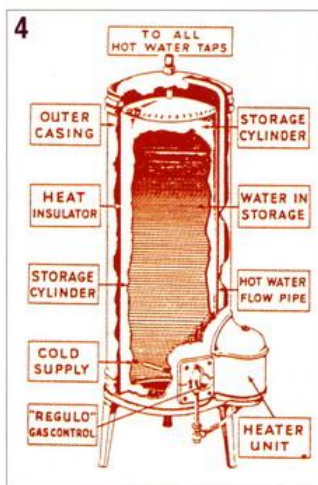
Solid Fuel Boilers

But the 1920s also saw the promotion of special solid-fuel boilers. One example is "The Sentry Duplex No.6" (Wood, Russell & Co, London.) This was actually two separate boilers for hot water supply and heating respectively, but served by only one fire. In summer, only the hot water supply boiler was used. For good measure, the boiler has a large hot plate top for cooking. Textbooks examples (1928) also include the "Mermaid" boiler, and the "Independent" boiler of Lumby, Sons, Wood & Co.

Technical Advances

While the geysers and boiler manufacturers strove to produce more efficient and attractive hot-water supply appliances, the system designers and installers also sought to develop design procedures and installation methods. They were relatively slow

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6 BEDROOM
BATH
BASIN
SINK

It's hot at every hot tap always

NOW WE'RE UP-TO-DATE WITH **GAS**

Thank goodness I don't have to WAIT for hot water now

VISIT YOUR GAS SHOWBOONE — they will advise you which gas waterheater you should choose

off the mark. The IHVE Proceedings features only three articles on hot-water supply during the 1920s. In the 1930s, the tally was somewhat more healthy with 11 articles on the subject featured in the publication and - from 1933 - in the IHVE Journal.

These covered a variety of fuels for water heating: coal; coke; gas; anthracite; oil and electricity, while in larger installations hot water was often heated by steam. However, it was still the gas industry that took the lead, when in 1926, Watson House was opened at Nine Elms in London. This building housed the laboratories of the Gas Light & Coke, and served as a scientific and training centre.

The state-of-the-art of providing hot-water supply may be gauged by reference to the textbook of the period (Faber & Kell, 1936), which describes combined systems where the domestic hot-water is drawn off the heating system (not recommended), direct or separate hot-water systems having a boiler and storage cylinder with either gravity or pumped secondary circulation, and (preferred) the indirect cylinder system.

Costs

It is interesting to look at the costs of hot-water supply apparatus. The following examples are from 1934 and include fixing, insulation and mountings:

BOILERS

Rating Btu/h (kW)	Cast iron direct	Wrought iron direct	Cast iron sectional indirect
100,000 (29.3)	£20	£70	£30
200,000 (58.6)	£40	£90	£40
400,000 (117)	£75	£140	£75
1,000,000 (293)	-	£270	£170

CYLINDERS AND CALORIFIERS

Capacity Gallons (litres)	Galvanised iron cylinder	Galvanised iron calorifier	Copper calorifier
50 (225)	£10	£20	£25
100 (450)	£15	£30	£50
200 (900)	£25	£40	£90
500 (2250)	£85	£120	£200
1000 (4500)	£120	£180	£350

ILLUSTRATIONS:

1. The Clarkhill Automatic Gas Water Heater
2. The Sentry Duplex Hot Water Boiler
3. Ruud Gas Water Heater
4. Wright's Sunhot Boiler
5. Richmond's Hollar Boiler
6. Gas Advertisement (Punch, 1935)



This article is the fourth in a series charting the complete history of water heating and is sponsored by Andrews Water Heaters.
Look out for Part Five in the next issue of HAC.

The Forties and Beyond

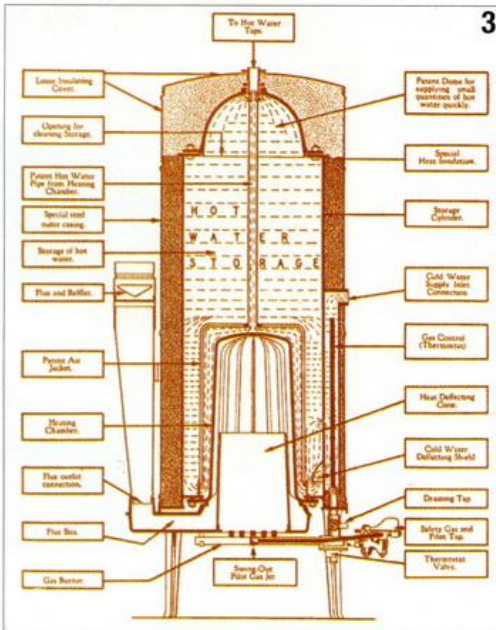
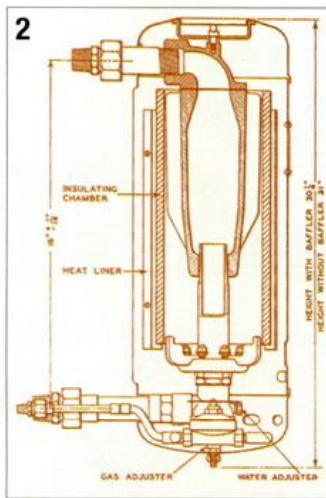
by Brian Roberts, Chairman CIBSE heritage group

The introduction to a landmark textbook, *Hot Water Engineering* (1945), describes how society in general, and heating engineers in particular, regarded the provision of hot water as the Second World War was coming to a close.

"So to have arrived at a time when hot water in abundance is regarded as one of the common necessities of life does indeed mark a great step forward. Its provision, like that of so many of the things which the community takes for granted, requires a great deal of care and thought. Although the technics (sic) involved are not so formidable as those of heavy engineering, yet hot water systems have their own complexities and pitfalls, and the subject is one which demands, and deserves close study."

Choice of fuels

Another classic textbook of the immediate post-war years (Faber & Kell, 1948) refers to the rebuilding of war damaged small houses and tenements under the National Housing Scheme and compares the alternatives of hot water supply: "Electricity or gas offers many



advantages as compared with solid fuel firing in a boiler. These include: cleanliness, convenience, absence of labour in stoking and ash removal, uniformity of temperature of hot water, absence of a chimney."

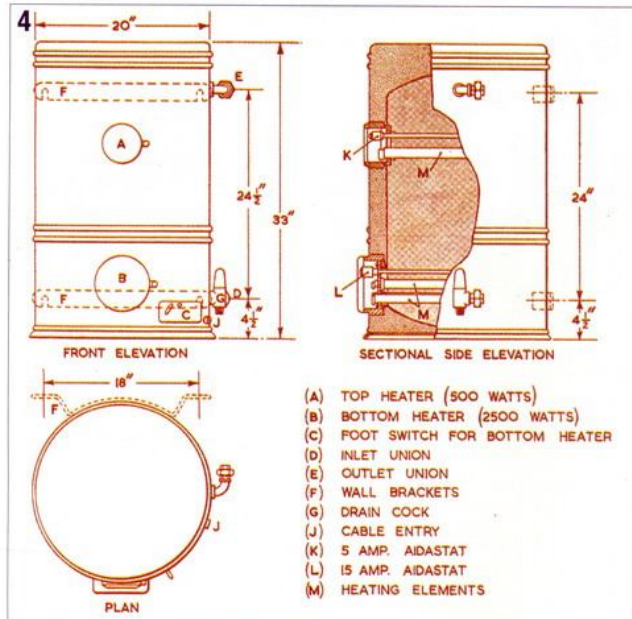
But the small domestic boiler system, fired with coke or anthracite was still a contender because of: "The gently warmth it gives to kitchen and house; it provides a means of disposal of a certain amount of refuse: one or two radiators may be added for halls etc., at little extra cost or fuel consumption."

The use of gas was promoted as an energy saver. One water heating advertisement boldly stated: "Gas used efficiently saves coal." The benefits of gas water heating to the housewife were loudly trumpeted. A second edition of the textbook (*Hot Water Engineering*, 1948) shows the wide range of gas water heating appliances then available. The sizes ranged from 30,000 to 105,000 Btu/h (roughly 9 to 30kW).

There were instantaneous water heaters from De La Rue and Ascot, while gas-fired water storage heaters, such as the Equator from Richmonds Gas Stove Co, were also available. In addition, there was the gas circulator from firms such as Main Water Heaters. This was an appliance arranged to deliver hot water to a storage cylinder, either independently or as an auxiliary to supplement the output from a solid fuel independent or back boiler, the latter installed in connection with an open fire, stove, or range.

Electrical manufacturers also entered the market. Aidas Electric featured Sadia Hot Water Systems with an all-electric, and even a coal-electric model. General Electric advertised a wide range of GEC Electric Storage Water Heating Equipment in sizes from 1.5 to 500 gallons (7 - 2,250 litres). An example is the 300-gallon (1,350 litre) heater with an electrical

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loading of 27kW.

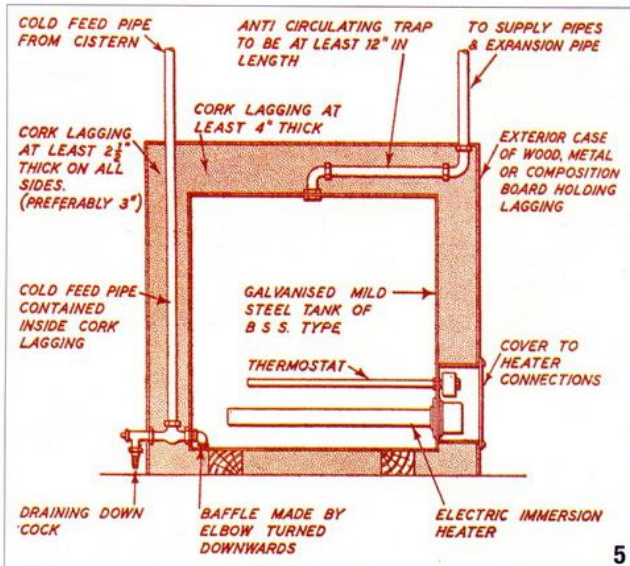
Santon made both electric instantaneous and storage water heaters, at that time, while Heatrae sold a Jet Water Heater for multipoint use. A very basic built-in electric water heater by the British Electrical Development Association used a rectangular galvanised tank cased in cork insulation with an inbuilt immersion heater.

For institutional and industrial water heating, a range of calorifiers

and cylinders was available, usually in copper, from firms such as Rycroft of Bradford and Range Boilers of Stalybridge in Cheshire. An advertisement for the latter shows a 2,000 gallon (9,000 litre) copper storage cylinder.

Hot water engineering

While neither glamorous nor at the forefront of technology, hot water supply is still a very important part of the services of a building.



ILLUSTRATIONS:

1. Advertising hoarding: 'Gas used efficiently saves coal'
2. Gas circulator (Main Water Heaters)
3. Equator Gas-Fired Water Storage Heater (Richmonds)
4. Dulec Electric Water Heater (Sadia)
5. Built-in Electric Water Heater (British Electrical Development Association)
6. Gas Council Advertisement (Punch, 1954)

As recounted in 1948: "The object of all engineering is, or should be, to serve the convenience of mankind and few branches can make such a direct and immediate contribution to health and comfort as hot water engineering."

These words are as true today as they were then, more than 50 years ago.

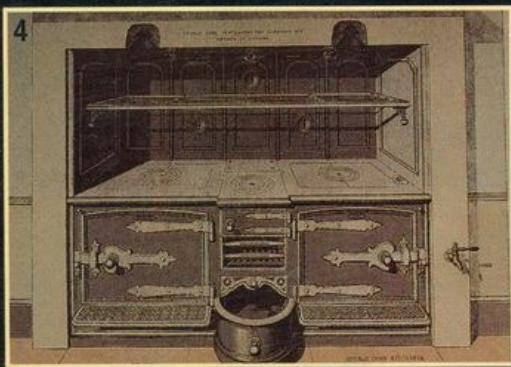
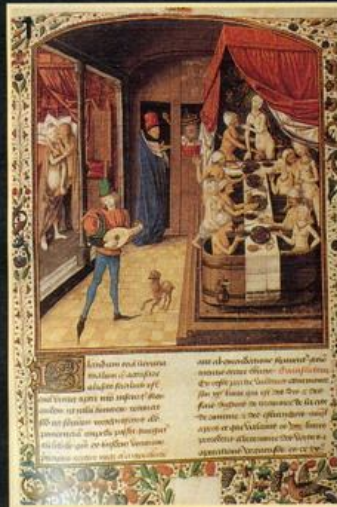


This article is the fifth in a series charting the complete history of water heating and is sponsored by Andrews Water Heaters. Look out for the final part in the next issue of HAC.

Colourful history

by Brian Roberts,
Chairman CIBSE
heritage group

Water heating has provided inspiration for artists down the years stretching as far back as the 15th century and, as our montage shows, manufacturers have rarely run short of promotional ideas.



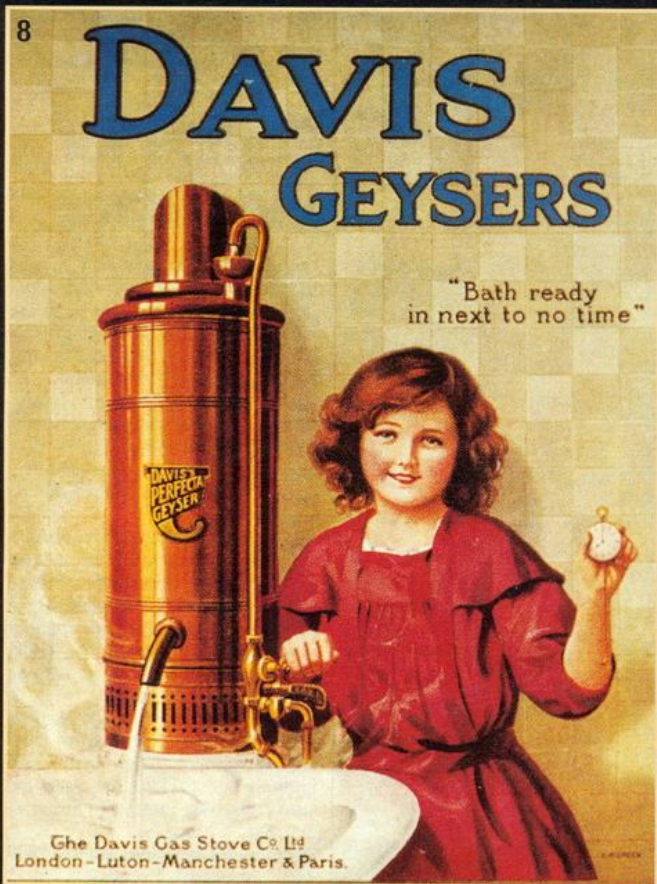
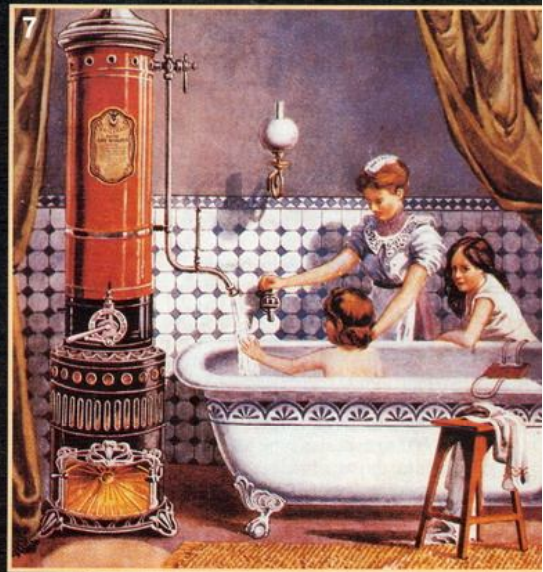
- ILLUSTRATIONS:**
1. Mixed communal hot water baths (with amorous indiscretions) - 15th Century
 2. A bath with hot water, which was unusual in Regency times - circa 1810
 3. A bath and water delivered to your home - Paris circa 1860
 4. Solid fuel kitchen range with hot water boiler - Fryke & Palmer, London, 1896
 5. Instant hot water for bath and shower - Rousseau & Cie, Paris, circa 1900

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ILLUSTRATIONS:

- 6. Gas hot water geyser and bath - L'Hygiene Moderne, Paris, circa 1900
- 7. Combined gas hot water geyser and room heater, Vaillant 1909
- 8. Gas hot water geyser - Davis Gas Stove Company, 1920s



All six parts of this history are being collected in a book, which will be published in April to mark the 25th anniversary of the founding of Andrews Water Heaters.

Readers of *HAC* are entitled to one free copy each. To reserve yours call Sarah Wiseman or Angela Townsend on 0121 506 7400.



This article is the final part in a series charting the complete history of water heating and is sponsored by Andrews Water Heaters.