SOUVENIR.

MIDLAND HOTEL, MANCHESTER.

Engineers : ASHWELL & NESBIT, Ltd.,

LONDON,
LEICESTER,
NOTTINGHAM,
MANCHESTER.

A Test made on Saturday the 5th September, 1903, showed, that our Ventilating Apparatus was delivering SIX MILLION CUBIC FEET OF AIR PER HOUR into the Hotel, which means that with air at 62° Fahr, = 203 TONS WEIGHT.

(Brochure of 1903)

Midland Hotel, Manchester.

DESCRIPTION OF THE ENGINEERING WORK

AT THE ABOVE,
CARRIED OUT BY

ASHWELL & NESBIT, LTD.

Local Address:

3 Mansfield Chambers,
St. Ann's Square,
MANCHESTER.

And LONDON,
LEICESTER,
NOTTINGHAM.

Midland Hotel, Manchester.

May 26th, 1903.

THE following is a brief account of the Domestic Engineering carried out in the Midland Railway Company's new hotel at Manchester, by Messrs. Ashwell & Nesbit, Ltd., of London, Leicester, Nottingham and Manchester. It is probable that there has not been previously so large an installation as this, within the whole range of domestic engineering; and while it is yet too early to assert its complete effectiveness it can be claimed that it represents the latest and best practice of the science, and affords the finest example of the form which plants of the particular nature required should assume. It may, indeed, be taken as a typical and an unique demonstration of "up-to-date" domestic engineering; and it is confidently hoped that the design, which was carefully planned in the early stages of the work, will be found to realise the most efficient and beneficial results.

In solving the problem of warming and ventilating a building of this description, considerable difficulties were inevitable, and after mature consideration it was decided that the most feasible method of accomplishing the desired ends was to regard the hotel as in two portions. Thus, the corridors, entrances, and a few of the principal bed and sitting rooms are warmed by direct radiators; but the main portion of the building, embracing the smoking room, billiard room, lounge, coffee room, reading room, ball room, etc., is supplied with fresh warmed air from the battery chambers situated in the sub-basement under the centre of the hotel. The fresh air is derived from two air shafts in the main wall which constitutes the centre of the building, extending from a height of about 70 feet to the sub-basement and conveyed by a short horizontal duct to the eight groups of batteries supplying the above rooms with fresh warmed air, a by-pass being provided with a suitable damper, so that a variable volume of cool air may pass directly to the fans. Before reaching the batteries, all the air is passed through a cleansing screen constructed in sections of wood frames covered with fine cloth, and then finally through a coke screen which eliminates the particles of smut and dust from incoming air. Motive power will be furnished by two 20 brake horse power motors for driving the fans at a moderate speed.

A visit to the boiler house will indicate the care and forethought displayed in the design and arrangement of the mechanical appliances required for a building of this description. Three large boilers of locomotive type, and supplied by the Midland Railway

Company, generate all the steam required for the various services. Each boiler carries a working pressure of 100 lbs. per square inch, and from each a main steam pipe 6" in diameter is suitably arranged and connected to a horizontal main, 10" internal diameter terminating in a distributor 12" internal diameter, from which the various branches requiring high pressure steam are taken. From this distributor, carrying 100 lbs. pressure, a 6" internal diameter pipe conveys steam to the HEATER ROOM where it is then automatically reduced to atmospheric pressure, the heating apparatus erected by the engineers being worked at this pressure. To thus accomplish the warming in such large buildings without pressure is a boon which must be obvious to all who are interested in modern steam heating practice.

In conjunction with the Warming Installation, the Atmospheric System has been applied, whereby, with the aid of vacuum pumps and thermostatic valves, all the water and air from the interior of the radiating surfaces and pipes are exhausted; thus making the surfaces more efficient and better heat agents than by the old method of steam-heated surfaces. This system ensures a continuous and automatic drainage of condensation with a thoroughly effective circulation, *and gives absolute control of the temperature to an extent afforded by no other system,* the condense water being automatically returned by the vacuum pumps into a receiving Manifold in connection with the "Nuconomiser" system.

One of the notable features in the engineering installation is this "NUCONOMISER" SYSTEM, fixed in the boiler house, which takes care of the whole of the water of condensation and vapours discharged by the *"steam traps"* which it has hitherto been the practice to discharge into the open atmosphere. The condense water and vapour discharge into the *"Manifold"* of the "Nuconomiser" and are utilised for heating and supplying the whole of the feed water for the boilers. There are several different applications of this "Nuconomiser" System, and in some it has been possible to heat the whole of the hot water required for domestic purposes from the saving of such by-products as have hitherto gone to waste. This apparatus is finding much favour in different parts of the country, and is protected by Letters Patent.

The hot water services for domestic purposes are of considerable magnitude. The water is heated in large Calorifiers, fixed in the heater room in the sub-basement. A distributor is arranged in connection with this, from which five services are taken in copper pipe, ranging from 2½" to ¾" internal diameter. The system has been designed to have a mechanical, or forced circulation, in case the ordinary gravity circulation should not be sufficient when a heavy draught of hot water is required.

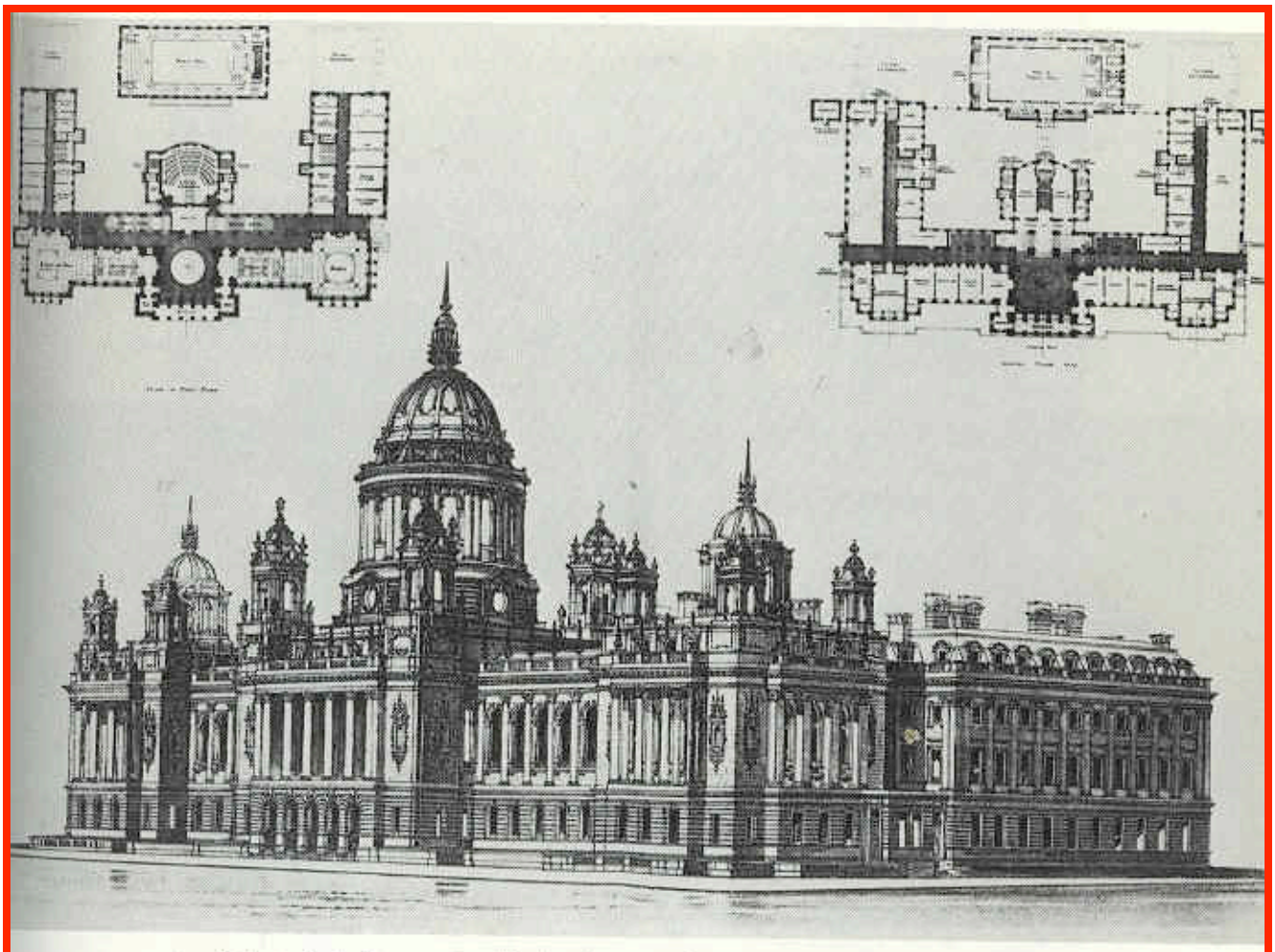
The work for these services was, in the first place, carefully designed in the drawing office, and then set out on the works by the firm's engineers.

The importance of the work of planning and fixing domestic hot water services for hotels and similar buildings can hardly be exaggerated, considering especially the

magnitude of the requirements in recent years. Success has, however, been made possible largely by the fact that warming and ventilating engineers have been enabled to study all the essential facts and conditions connected with the building in its embryo stage. Their exhaustive study, guided by extensive experience, has raised the work of installing such large circulations as that applied to the present hotel, to the rank of a practical science, banishing for ever the haphazard "rule of thumb" methods, so balefully common in the past.

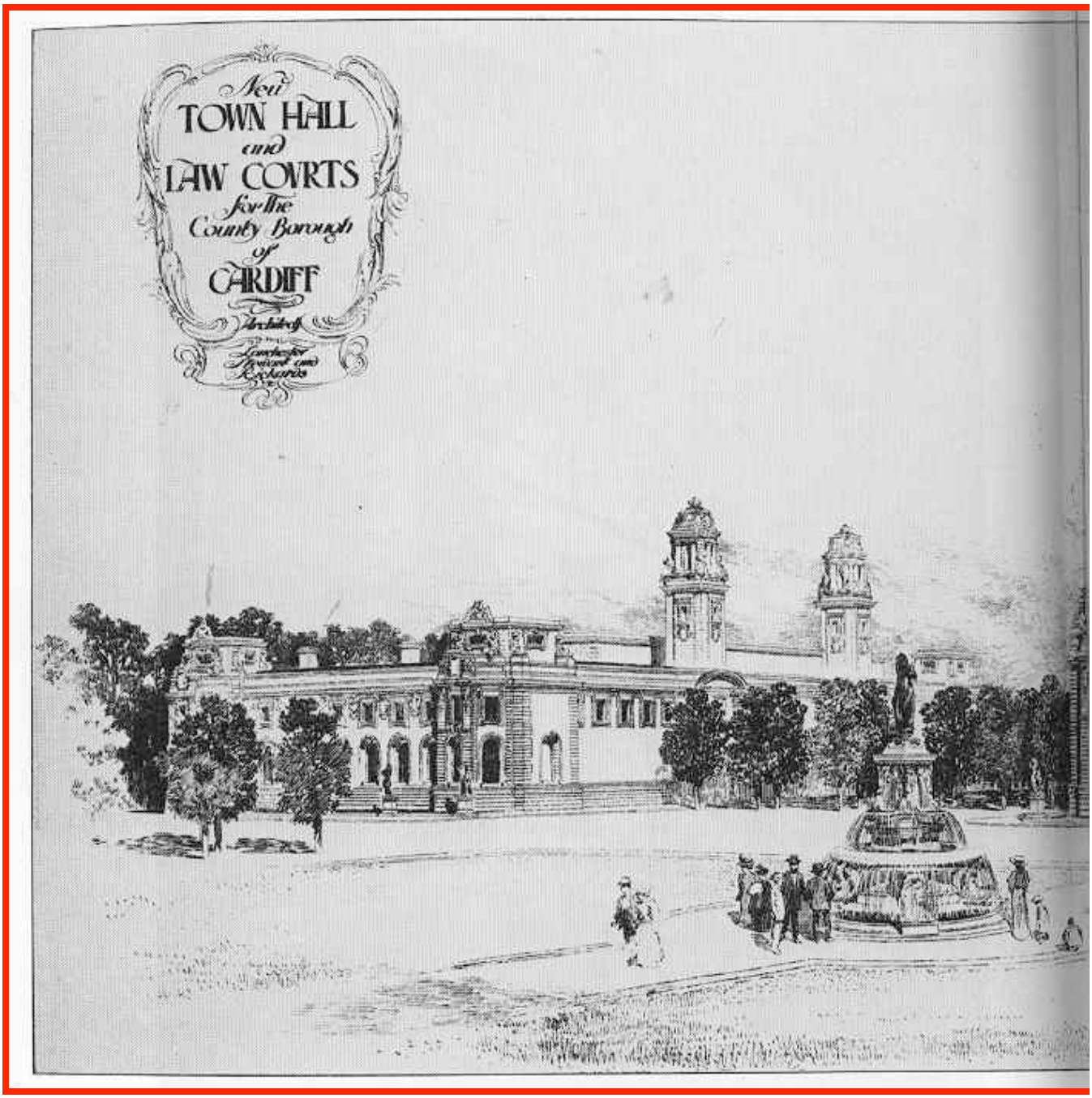
The whole of the design and works executed in connection with the warming, ventilating, domestic hot water supply and cold water pumping service, with also the various requirements connected with the works of several other contracting engineers (except the warming and ventilating of the Concert Hall), have been designed and carried out in conjunction with Mr. S. W. Johnson, Locomotive Superintendent to the Midland Railway Company, and Mr. Charles Trubshaw, Architect to the Midland Railway Company, of Derby, by **ASHWELL & NESBIT, LTD., of London, Leicester, Nottingham, and Manchester (4 Mansfield Chambers, St. Ann's Square).**

"NUCONOMISER" SYSTEM (Patented).



70 Belfast city hall, premiated design for second competition, Malcolm Stark and Rowntree, 1896 (*Building News*, vol. LXXII, 1897)

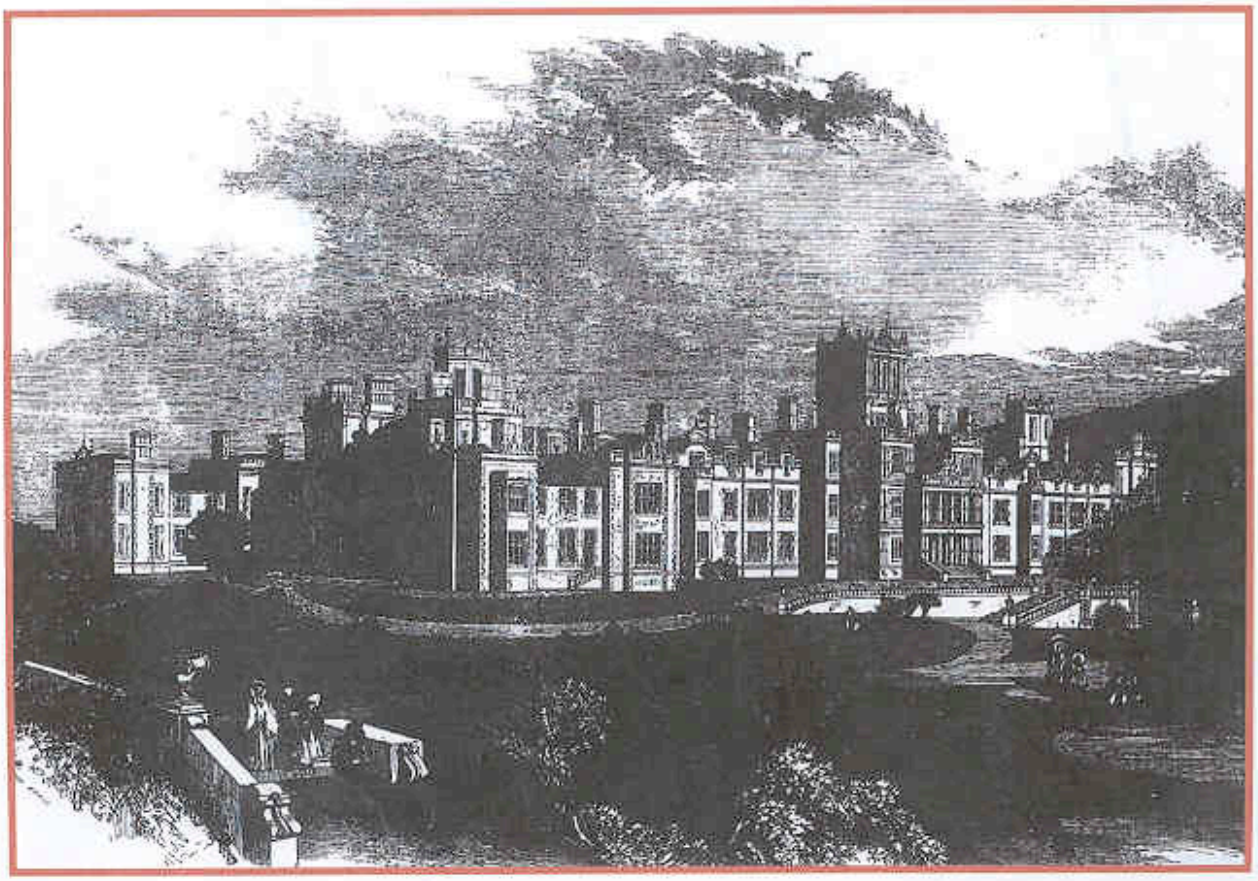
Belfast City Hall



Cardiff Town Hall 1900-04

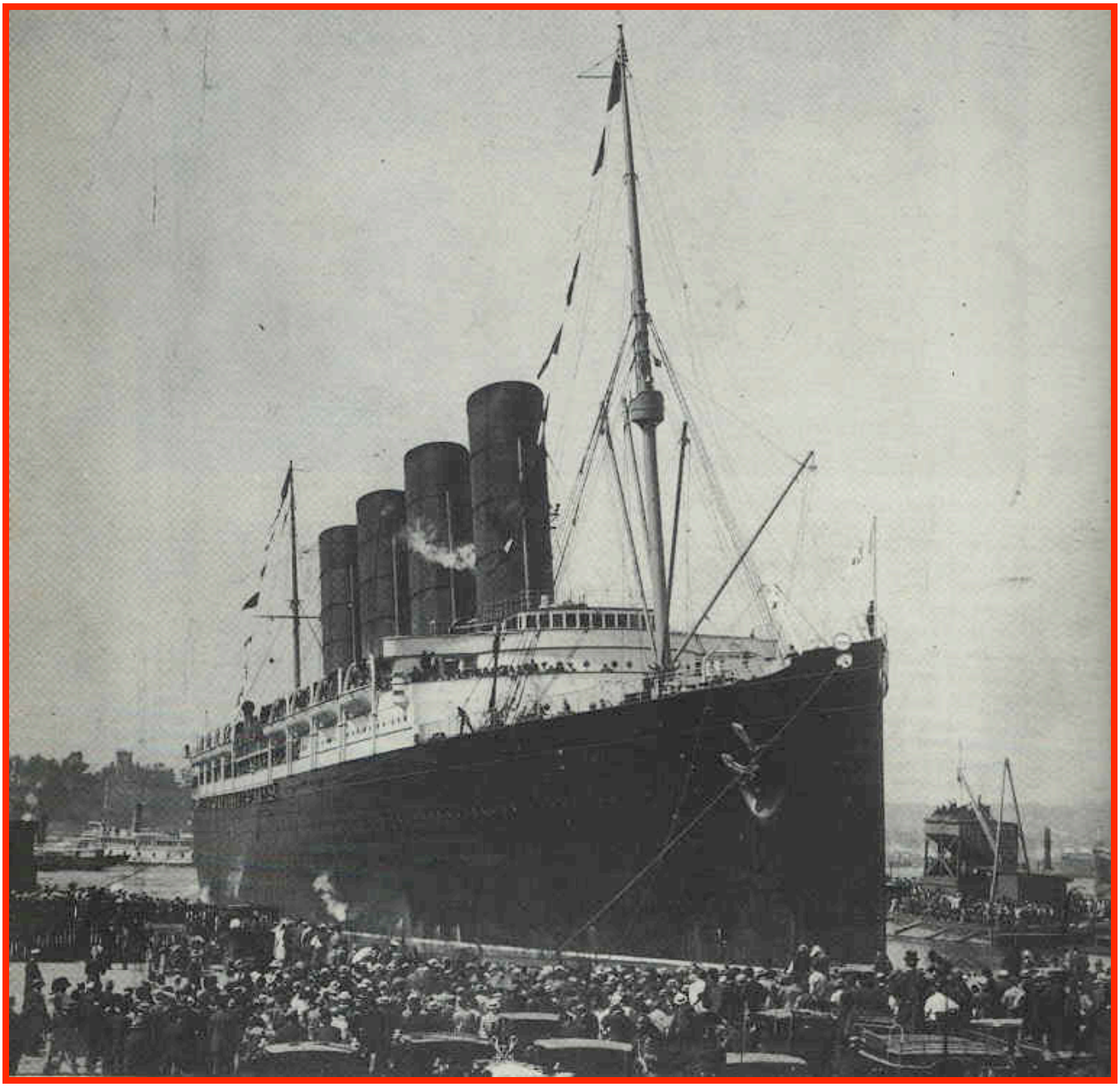
Cardiff Town Hall 1900-04

EARLSWOOD ASYLUM, REDHILL, SURREY

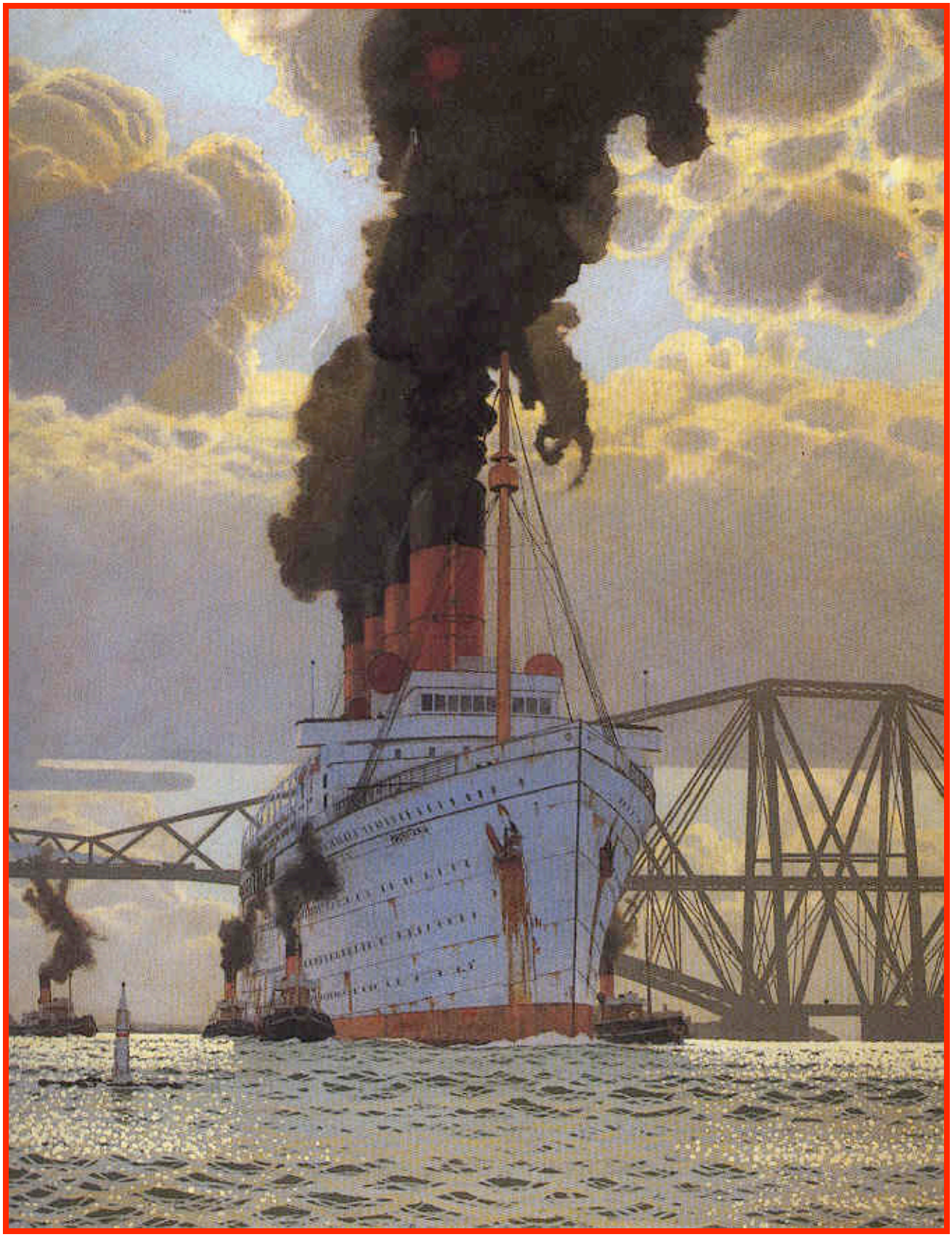


View of Asylum [*The Illustrated London News*, 11 March 1854, p.213 detail]

Ashwell & Nesbit installed new heating & ventilation c.1900

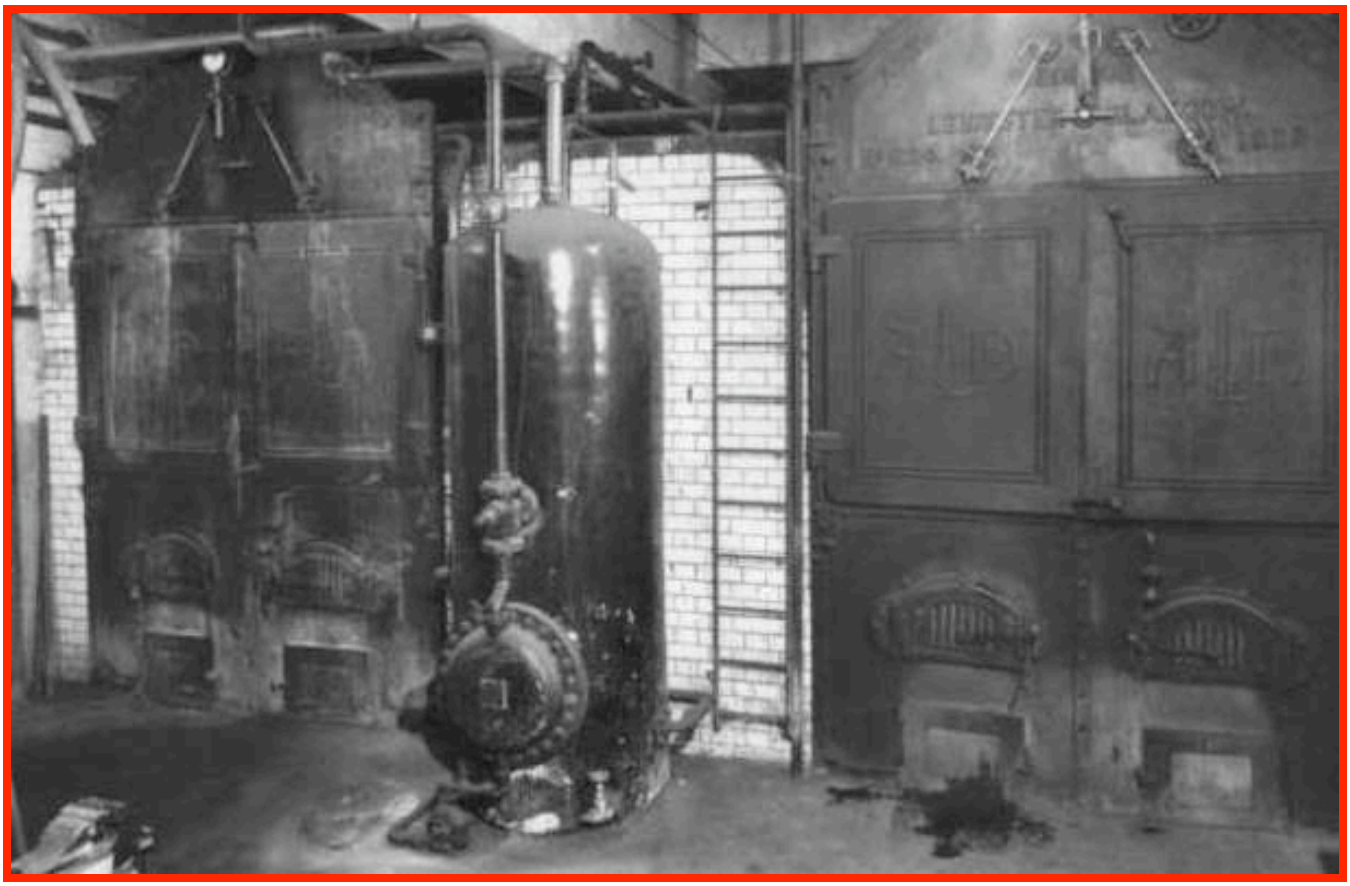


The Lusitania arriving New York on her maiden voyage 1907
Used the Ashwell & Nesbit "Nucalometer" domestic hot water system



The first Mauretania launched 1907
Used the Ashwell & Nesbit "Nucalometer" domestic hot water system

Methodist Central Hall, Westminster 1912 (photos Frank Ferris)



Boiler plant at the Methodist Central Hall