

borderlight battens were being lit, and spread with alarming rapidity owing to the highly inflammable nature of the scenery.

A theatre a month lost by fire

Although a safety curtain was fitted at this theatre, it was found to be impossible to lower it due to its buckling with the tremendous heat. The ambient temperature was usually so high in gas-fitted theatres—measured by Captain Shaw of the London Fire Brigade at up to 105° in the grid of the Alhambra—that any residual moisture in canvas and timber must long since have evaporated, and be very prone to instant combustion, once ignited. This when firefighting equipment largely consisted of long poles with bill-hooks attached for cutting down burning scenery, hand pumps and buckets, and a few wet blankets. “The fate of a theatre” wrote the editor of ‘The Builder’ in 1856, “is to be burned. It seems simply a question of time”. In the twenty-five years prior to 1881, theatres were destroyed by fire at the staggering average rate of one per month. Electricity had its own problems, but fire hazard on this scale was not one of them. It is, however, interesting to note that it was the standard practice of the insurance companies of the time to demand a higher premium from theatres equipped with electricity than from one fitted for gas.

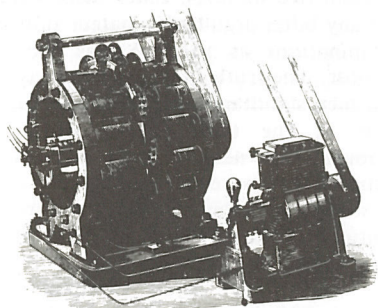


Fig 3. Siemens W1 Alternator with D6 Dynamo

At the Savoy, the electric power was produced in a shed erected on a piece of waste land outside the theatre. A motley collection of steam engines were arranged to drive six large alternators of German manufacture. The field coil excitation voltage for these was simultaneously generated by six small dynamos (fig 3). The theatre itself was wired in six main circuits, corresponding to the number of generators, various areas being protected by sub-fuses. Each area was initially provided with a switch. Main switches for each group were also provided, and it is reported that when they were operated, the flash that resulted could be seen in the auditorium if the scene was dark.

The stage lighting fittings themselves were not especially novel or noteworthy, being made as electrical versions of existing designs of footlights, wing towers and battens. Altogether there were 824 lamps on the stage, giving in total a light output equivalent to about 3000 modern watts. Of those, 718 were above the actors' heads, 50

were floats and portable units, and the remainder were fixed to the side wings in the traditional manner.

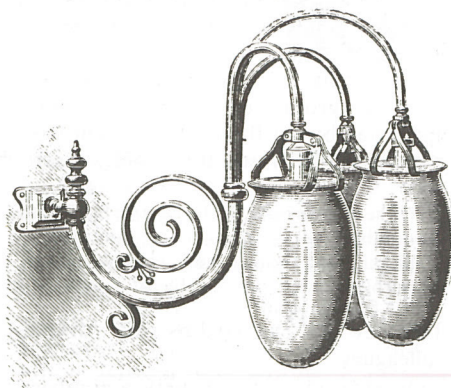


Fig. 4 Faraday's three-light electric bracket

The houselighting consisted of 114 lamps, mainly in three-branched brackets around the auditorium circle fronts. (fig 4) It seems not to have been envisaged that the houselights should be dimmed during the opera, possibly due to the fact that reading the libretto was ‘quite the thing’ during the performance, and indeed the sale of these must have been a profitable sideline.

One of the few things that Carte had greatly admired about gas lighting was the ease with which its intensity could be adjusted from a central gas plate. One of the more impressive features of the incandescent lamps was the fact that, as the applied power was decreased, the output light also decreased, more or less in proportion. Siemens Bros. and Co., who had done the installation, manufactured a series of open spirals of iron wire in a frame, and connected them between the generators and each group of stage lamps switched in and out of the circuit as required, they acted as the first ever resistance dimmers.

On October the 4th, D'Oyly Carte had confidently allowed the running advertisement in ‘The Times’ to be printed as usual.

The Grand Opening of the Savoy to the public will take place on the sixth of October . . . by which date it will be lighted entirely by electricity.

The following day the advertisement was withdrawn and the following substituted

SPECIAL NOTICE. The opening night is unavoidably **POSTPONED.** until Monday 10th October to complete the very complicated works and experiments connected with the application of electric light to the stage. Mr Carte trusts that the novelty of the undertaking will be an excuse for this delay.

Like many a more modern occasion when bold steps are taken with untried technology, there were complications. The fact of the matter was that the alternators would not supply sufficient power to light the whole system. It is hard to believe that Messrs. Siemens' calculations were at fault: by 1881 they had supplied a large number of generating sets worldwide, and their experience was undoubted. Even so, this was still uncharted territory for the Victorian engineer-electricians. They had yet to learn of some of the more unexpected

effects of alternating currents. It is hard to see over a span of a hundred years exactly where the problem lay, and at the same time easy to see with the benefit of hindsight where the areas of difficulty could have been. As Carte pointed out, never before had it been attempted to light so many incandescent burners at a single time. He wrote to papers explaining that he would ‘procure an additional steam-engine immediately’ in the hope that it would solve the problem. It did not. However the houselighting, for which no dimming facilities had been provided, worked very well. It was then decided not to postpone the opening further, but to go ahead under the conditions in which they found themselves.

It was perhaps a source of particular annoyance to D'Oyly Carte that the full lighting could not be employed on the opening night. Apart from any embarrassment involved, there were other factors, among which was the fact that the Paris Opera was being temporarily fitted-out for the opening in five days time of the Grand Electrical Exhibition and Congress. Seven different and rival electrical systems were being erected side by side, including the Swan/Siemens, Edison and Maxim schemes, for the benefit and comparisons of the trade. There were obviously great commercial interests at stake here, so it comes as no surprise to learn that most of Siemens' specialist electricians had decamped to Paris to lend a hand and their experience from the Savoy to what must have been the biggest fit-up ever up until then, leaving the Savoy Theatre more or less high and dry.

Fortunately the management were in a position to revert temporarily to an older, well-tryed backup system, having had the foresight to have had the theatre fully fitted for gas. The work was carried out by the best-known name in the theatre gasfitting trade, Messrs. Strode, a magnificent example of whose artistry hung above the heads of the audience when they entered the theatre on the 10th of October—a resplendently glowing sunburner.

They also saw, not the usual painted act-drop to which they were accustomed, but a sumptuous drop-curtain in rich creamy satin set off with silk fringes. It was ornamented with two plaques of white figured silk upon which were applied comedy and tragedy masks, the cothurnus, buskin and other ancient symbols of the dramatic art. Above this ‘symphony of the draper's art’ they saw a matching valance, surmounted by an elegantly dished top to the proscenium arch which they were later to discover was designed to be a sounding-board to direct the voices to the back of the theatre. The seats were upholstered in inky blue plush, and the walls were lined in two shades of red velvet.

Even before they had entered the building they had had a series of pleasant surprises. The elegant covered carriage entrance, large enough for five conveyances at once, led onto a well-appointed foyer. Those who had taken the opportunity to reserve their numbered ticket found printed on the portion ‘to be retained’ a simple plan