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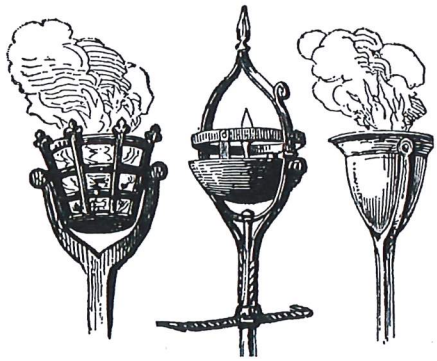
FADING LIGHTS...

An article series by Chris Van Goethem Fading Lights, transitions in theatre lighting in a historical context

Fading Lights is a cooperative project between the Expertise Center for Technical Theatre and the Stockholm Academy of Dramatic Arts.

The project researches the history of lighting with a focus on the transitions between subsequent technologies. In the context of the imminent transition to more LED sources, it seems useful to us to look at earlier transitions and maybe learn something from them. In other words, we would like to find out how the technician, the designer, and the audience have adapted to the transition from candlelight to gas lights, to electrical lighting.



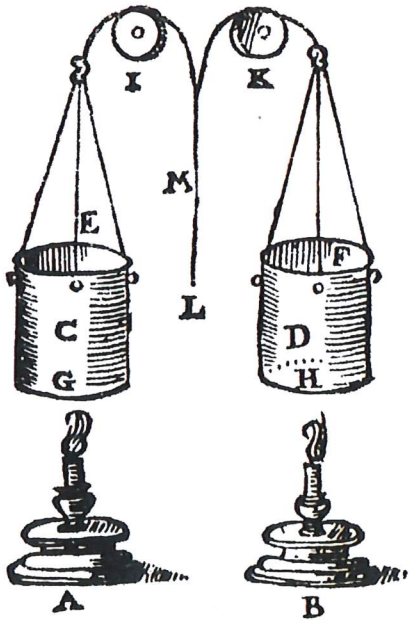
The first types of theatre were performed in daylight or with the lighting equipment that was at hand for domestic use. Those would have been torches, cressets, tapers, etc.

In smaller spaces, candles dipped in animal fat were used among other things. Those were cheap, but gave off a considerable amount of smoke and stench. Apart from that, lamps based on a wick dipped in vegetable oil were used. Candles from bees wax were expensive en were therefore only used in extraordinary circumstances, when high-ranking people were present. The most important function of these sources of light was making the actors visible. Although we must also point out that some light sources were manipulated by the actors so they could stress certain things. Some light sources were also used purely symbolic to, for example, show that it was night, even though the play was during the day.

In the Renaissance and Baroque we see that standard positions for lighting equipment are starting to develop. The audience area is lit by chandeliers, which also provide a minimum of front light. These lights would stay on even during the performance. Foot lights on the edge of the stage and lights that illuminate the sets from the wings are the standard. These could be complemented with a second row of foot lights to illuminate the backdrop. The first experiments to use light from the "heavens" above, the fixed painted ceiling elements, appear to have very little success.

For the first time, they try to manipulate and control the light as well. Sabbattini's dimmer is presumably the most famous, but apart from that, foot lights could also be lowered under the stage and the beams that held the lighting in the wings could be turned away.

The colour temperature of the light was constant, since it is dependant of the characteristics of the open



flame. To colour and shape the light, Serlio and others experimented with concave and convex bottles that could be filled with a coloured liquid,

and that coloured and directed the light in combination with a mirror. The further shaping of light was only possible by shielding it off, for example with the sets.

THE RISE OF GAS LIGHTING

Even though Murdock already used gas lighting to illuminate his house in 1792 and the first experiments with stage lighting happened in 1804 in the Lyceum Theatre, it took until 1816 for the first theatres with gas lighting to become operational. Around 1850 the use has taken hold, but still some theatres continue working with petroleum, carbide or oil lamps until after 1900.

During the transition from candle light to gas, the same lighting positions were used at first. The candles were simply replaced by gas burners. The basic composition with foot lights and lighting from the wings is later complemented with herzes or battens that are hung in between the borders. This is possible because a gas burner, as opposed to a candle or oil lamp, can be hung upside down. According to Bram Stoker , this basic composition can be further complemented with moveable "standards", that contain a cluster of burners en thus give off a very strong light, "ground rows", that help correct the perspective of the scenery, and "all sorts of side and form", that were built especially for a specific set piece.

All of these devices basically consist of a housing with a reflector and a protective metal gauze. There is a gas tube in the housing onto which several gas burners have been installed. The devices usually have a second connection for a pilot light. When the gas tap in the supply pipe is opened, the pilot light ignites the first burner, after which the flame is passed on from one to the next burner. The connections were made with rubber hoses that could be connected to a water trap – a power outlet for gas so to speak.

Depending on the type of light that you want and the intensity, different types of burners are used. The easiest burner is the single jet: just a tube with gas coming out of it. An improved version is the Argand burner, which provides a better oxygen flow and has a glass casing. Furthermore the fishtail burner, that creates a flat, tail-shaped flame, is popular, because it had a wide flame surface that can connect to the next burner with a minimal safety distance to the front. For the house lighting the traditional chandelier is replaced with a sun burner, a cluster of burners positioned in a sphere.

It is important to underline that all of these burners have open flames. The colour temperature of the burners is stable, even when dimming them. The gas mantle that we know from gas lighting for camping trips wasn't invented until the end of the gas period, when electrical lighting was already on the rise.

Operating the different (groups of) burners happens with a "gas organ" or "gas table", a series of taps that supply both individual connections and the pilot lights. The light can be limitedly coloured by hanging woven "mediums" in front of the rows of burners or by adapting the colours of the glass casings.

The use of gas lighting solved several disadvantages that are specific to candlelight. Since in theory, the burners could burn unlimitedly, there was no need for intervals to trim the candlewicks. It became possible to light from above. The light could be operated at a central place. This also means that dark became an element in the use of light. Stoker writes: "In fact, darkness was found to be, when under control, as important a fact in effects as light." In other words: the lacking of light becomes an additional element in the design.

Furthermore, this control makes it possible to darken the house and even do set changes with an open curtain and without light. To do this, it was necessary to train the stagehands and to provide them with "silent shoes" and "dark clothing". Or how the transition to gas lighting was the cause for technicians being dressed the way they are today.
To be continued...

Chris Van Goethem