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Illuminating Theatre / Ariel Davis : Utah Innovator

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COVER ART
Salt Lake Theatre
by Cornelius Salisbury, 1963
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Maud May Babcock made a lasting impact on speech and drama in Utah as the founder of both the Theatre and Communication departments, as well as the College of Health, Physical Education, and Recreation at the University of Utah. So significant was her influence that one of the theatres at the Pioneer Memorial Theatre on the University of Utah campus is named after her.

Young Gates, daughter of Brigham Young and a summer student at Harvard University, painted such an intriguing picture of life in Utah that her elocution teacher, Maud May Babcock, decided to come and teach for a one-year sojourn. That decision to leave the East in 1892 changed the course of Maud May’s entire life, for she was baptized a member of The Church of Jesus Christ of Latter-day Saints four months later and spent the rest of her life as a Utah resident.

Born in East Worcester, New York, in 1867, Maud May studied at the Philadelphia National School of Oratory and the American Academy of Dramatic Art. She became a recognized leader in the field of elocution. Her family was so fond of her religious conversion that her mother said she would rather Maud May had had a child out of wedlock and that she hoped her tongue would be paralyzed if she publicly defended the church.

Potto in size (5’4”) but strong in will and body, Maud May didn’t simply come to teach; she persisted in improving education, particularly for women. When her efforts to establish a women’s “physical culture” program were ignored, Maud May started a private school for physical fitness and was one of the founders of the Deseret Gymnasium. When students and friends stayed at her cabin in Brighton she took them on arduous hikes. One guest recalled, “She would get up that hill leading all of us. It was a 3,000-foot climb. … Maud was 63 years old.”

During her forty-six-year university career, Maud May, a popular but strict teacher, directed over eight hundred plays, and taught speech and drama to thousands of students. One of her speech students, Joseph F. Smith, who later served as sixth president of The Church of Jesus Christ of Latter-day Saints, remarked about her insistence on excellence: “She could search a student or an entire class with a look. Her students had no difficulty whatever in developing humility.”

Although Maud May’s energetic vision of a quality university speech and drama program at times met with resistance, she was undaunted and eventually witnessed the realization of many of her dreams. One of her most significant contributions was the formation of the nation’s first university professional theatre company.

Maud May Babcock, often called the “grand dame” of Utah theatre, died at age 87 in 1954.

The Babcock Theatre at the University of Utah is named after Maud May.
From 1862 to 1872, the Salt Lake Theatre was lighted by roughly 150 coal oil lamps. The size of the stage accommodated 16 footlights.

One of the earliest forms of light source was the blazing pine knot. An iron basket called a "crest" acted as holder for the flaming wood. The design shown here was used in the fifteenth century.

The tallow candle followed the open-flame lamp, dating from the first century. In the theatre, candles were usually protected by shades, which served the double purpose of guarding the flame from drafts and cutting off the light that would otherwise shine in the faces of the audience.

The open-flame gas burner was invented in Scotland in 1782. This form of lighting was used wherever the requirements were sufficient to justify the expense of a gas generating and distributing system. One of its earliest uses was in the theatre.

The kerosene lamp with an adjustable wick was invented in 1873 in France. The glass chimney quickly followed. It was many years before it came into general use.

McKee Rankin, a nationally known actor, said the following about his 1871 performance in the Salt Lake Theatre: "The stage manager was a man of wonderful resources and I was struck particularly with his handling of the light effects.

A block of lime heated to incandescence by an oxygen blowpipe was used for many years as a spotlight in the theatre. From this practice the expression of being "in the limelight" originated.

In 1898, Sir Humphrey Davy invented the electric arc. In the 1890s it came into use on the stage and later superseded the limelight. The earliest lamps provided for adjustment of the carbon by hand.

While improved candles had taken the place of oil lamps in the seventeenth century and were used through most of the eighteenth century, oil lamps came back into fashion in the late eighteenth century. The open-flame camphine burner was used because camphine oil was clean-burning. In 1783, the kerosene lamp with an adjustable wick was invented in France. It was followed by the Argand oil burner, which had a cylindrical wick and a glass chimney which improved and steadied the flame, providing whiter and brighter light.

By the early nineteenth century, the chimneyed oil lamp had taken the place of the candle. It was a common sight in the theatre to see hundreds of oil lamps hanging in clusters from the ceilings and projecting from the walls, balconies, and boxes. These lamps were also used as footlights and sidelights.

Around this same time, some theatres were experimenting with illuminating gas lights, but since there were no gas plants or large street mains, gas lighting did not come into common use until mid-nineteenth century. Since gas lighting could be regulated and controlled, elaborate lighting effects began to be used in productions.

During this same period, another important form of illumination developed: the limelight. In 1816, Henry Drummond discovered that by raising a piece of lime to a high temperature, it became incandescent and gave off a brilliant white light. This calcium light or limelight, came into general stage use around 1860. It was produced by combining a burning mixture of oxygen and hydrogen on a block of lime. The light was so concentrated and localized that it was used as a spotlight on the heroes of the play.

From 1862 to 1872, the Salt Lake Theatre was lighted by roughly 150 coal oil lamps. The size of the stage accommodated 16 footlights. Reflectors of polished tin were used to direct the light toward the actors. Three lamps, one above the other, were used on each of the three posts which supported the fly galleries on either side of the stage. A large central candle-illuminated chandelier illuminated the auditorium. McKee Rankin, a nationally known actor, said the following about his 1871 performance in the Salt Lake Theatre: "The stage manager was a man of wonderful resources and I was struck particularly with his handling of the light effects. Each act was perfect in that respect and, what is more remarkable, he had no gas to modulate the light.
Electric lights appeared in Salt Lake City in 1880, but were not installed in the Salt Lake Theatre until some years later.

The first really commercial arc lamp was the so-called Fablochkoff candle, which consisted of two carbon electrodes insulated from each other by material that was broken down and consumed by the arc as the electrodes were away from the action of the arc.

The first incandescent electric lamp was invented by Edison in 1879 and was provided with a filament made of the carbonization of a bamboo fibre.

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Edison's incandescent lamp finally settled down to a carbon filament as the results of inventions of various engineers.

The present-day representative of the incandescent lamp is the tungsten filament, or mazda lamp. For the high power units these lamps are usually filled with nitrogen.

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Experiments with incandescent lamps in theatres began in 1880. However, it was not until devices for regulating electric current and manipulating the various circuits were invented that electricity was able to take the place of gas for lighting theatres. These devices were called dimmers, and they revolutionized theatre lighting at the beginning of the twentieth century. Electric lights appeared in Salt Lake City in 1880, but were not installed in the Salt Lake Theatre until some years later.

The limelight was first used in the Salt Lake Theatre in April 1866. The operator could carry the lantern and the two gas tanks with him as he moved. He usually positioned himself in the fly galleries.

Gas lighting was installed in the theatre in July 1872. Gas lighting provided increased control as well as additional illumination. A gas man operated the valves to increase or decrease lighting as it was called for.

In 1879, Paul Jablchickoff caused a sensation in the theatrical world when he introduced his electric candle, which consisted of two carbon rods mounted side by side and separated by an insulating compound. The compound would melt away just fast enough to permit continuous burning of the arcs across the upper ends. In 1879, Thomas Edison invented his incandescent lamp.

Notes

1 Fuchs, Theodore, Stage Lighting (New York: Benjamin Blau, Inc.), 1929.

Sources


Ariel Davis: Utah Innovator

By J. Michael Hunter

A discussion of theatre lighting in Utah would not be complete without mentioning Ariel Rual Davis. Davis was a famous inventor of theatrical lighting equipment. He held nearly sixty patents in the field of theatre lighting control.

Davis was born 14 February 1912 in Provo, Utah, to Rual D. and Mary (Kitchen) Davis. He attended Provo High School. Harold Adams, a professor at Chico State University from 1939 to 1974, said this about Davis: "In September of 1924, I went to Provo High School, teaching two sections of beginning French and two sections of seventh grade English. There's one student I shall never forget because that young man, named Ariel Davis, spent all day dreaming. Fifteen years later, when I came to Chico State, the dimmers on the stage of the auditorium were 'Ariel Davis' dimmers, invented and built by that young boy.' Davis graduated from Provo High in 1931. He then attended Brigham Young University where he received his B.S. in physics in 1936. He was a consultant on stage lighting technique at BYU with T. Earl Pardee from 1932 to 1940. In 1937, Davis went to work for the Farnsworth Television Company in order to "assist with research that is hoped to make television a reality in the average American home." He married Dorothy Jean Harding in 1941 and served in the U.S. Navy during World War II. After the War, Davis started Ariel Davis Manufacturing in Provo. He changed the name to Electro Controls in 1953 and moved the company to Salt Lake City, where he and his brother Byron sold stage lighting equipment.

In 1953 Davis graduated from Provo High in 1931. He then attended Brigham Young University where he received his B.S. in physics in 1936. He was a consultant on stage lighting technique at BYU with T. Earl Pardee from 1932 to 1940. In 1937, Davis went to work for the Farnsworth Television Company in order to "assist with research that is hoped to make television a reality in the average American home." He married Dorothy Jean Harding in 1941 and served in the U.S. Navy during World War II. After the War, Davis started Ariel Davis Manufacturing in Provo. He changed the name to Electro Controls in 1953 and moved the company to Salt Lake City, where he and his brother Byron sold stage lighting equipment.

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Davis revolutionized theatre lighting by creating a simple board of sliders and keys that looked somewhat like an organ keyboard.

Davis's slider was a lightweight aluminum box about the size of a suitcase. The small box was easy to control with one operator, who could slide buttons up and down to make any combination of lights needed. Theatre lighting suddenly went from four frantic operators pulling switches and even catching on fire.

Davis came up with the idea of moving this portable box and its operator from the back of the stage to the back of the theatre behind the audience where the operator could clearly see what lighting was needed. The University of Utah's theatre was one of the first in the country to install this system. Davis was a consultant on stage lighting to Lowell Lees at the first in the country to install this system.

In 1947 to 1964. His system of lighting is used worldwide in most theatres today.

In 1961, Davis received an award of recognition from the Utah Engineering Council for his developments in stage lighting and dimmer controls. In 1970, Brigham Young University presented him with the Franklin S. Harris Fine Arts Award for his unique contribution in the field of theatre.

In Notable Names in American Theatre, Davis modestly listed his hobbies as fishing, inventing, and cooking, Arist Davis died on 6 February 1997 at the age of 84.