

ABSTRACT

Title of Thesis: THE AUTOMATIC GAS MACHINE ERA,
1853- 1923: ANALYSIS OF IMPROVEMENTS IN
PATENTED ILLUMINATING DEVICES AND
PROCESSES

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This thesis analyses the progression of automatic gasoline lighting systems, [air-gas machines], from the 1840's through the 1920's. The automatic gasoline lighting systems are evaluated from the perspective of the four key elements in preservation: historic significance, historic context, historic integrity and the sense of place.

The history of manufactured gas in the United States includes a period, 1840-1920, where stand-alone gas generators were in existence for lighting country estates and other establishments that were remote from the main gas lines of the cities. As early as the 1850's, illuminating gas producing machines were constructed that enabled the outlying

areas to experience the same lighting benefits that were in use in the municipalities. These individual gas machines employed an air-machine [powered by a concrete weight or hydropower] that forced air through a carburetor that vaporized the gasoline, or other fuel, and directed the gas through a system of piping.

Advancements in technology promoted the progression of illuminating gases and devices during the latter half of the nineteenth century. The inventions and innovations that occurred applied the known scientific principles to solve fuel and mechanical problems that occurred in the earlier versions of air gas machines. The progression of patented gas lighting processes and apparatus illustrates the understanding of how the combustion process works and how volatile fuels responded to a variety of stimuli such as heat, and carbureting.

Through the use of case studies and evaluating tools, it has been demonstrated that automatic gas-machines played a fundamental role in the development of social lighting. The advancements in domestic lighting were integrated into use and eventually seen as basic components of the American domestic lifestyle. The research suggests that the documentation on domestic lighting systems will enable future researchers to better describe and understand historic structures and the daily life that took place within.