

GERMANTOWNE *CR*IER



HISTORICAL MUSEUM STORY (see page 71)

EARLY LIGHTING IN GERMANTOWN

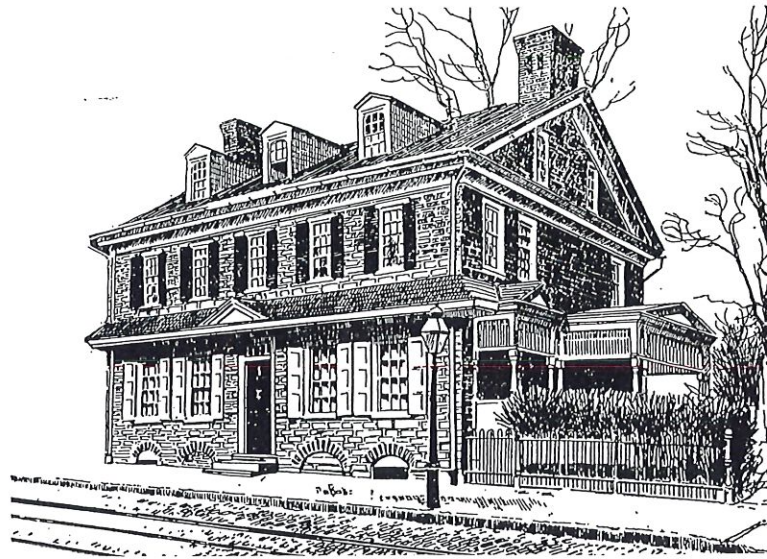
By FRANK E. GLACE

THE story of "early lighting" in Germantown begins with the arrival of the first families in the Fall of 1683. Whatever light they had that first evening came from a wood fire, smoking grease pots, or the feeble glow of common tallow candles. We can be certain of one salient fact, the science of lighting had not maintained pace with man's other developments in the arts and sciences. The hopes and dreams of the first pioneers from Crefeld to the banks of the Wissahickon were to be realized with very little assistance from artificial illumination.

Until the early decades of the nineteenth century, artificial illumination in Colonial America including Germantown was still as primitive as it had been in Greece or Rome some thousand years before Christ. Early settlers depended on the candle, or on plain open-dish lamps with reeds or old rags for wicks. Fuels consisted of animal or vegetable fats. In spite of the limited light, with the length of work day determined by the available hours of sunlight, the Germantown Society developed its art, and established its industry in a manner which draws praise from students of history.

Our respect for these pioneers deepens as we examine the history of lighting itself, and the struggle of men everywhere to lengthen their creative hours through better lighting. The candle, as a prime illuminant, did not give way to gaslighting until the 1830's, and electricity did not displace gas until after the year 1900. Kerosene remained popular only from the period 1884 until 1899, a relatively short span of time. Indeed, those who have chronicled the developments in lighting state that the glass chimney, when first used, was probably the most significant lighting improvement to take place in 6,000 years!

Improvements, as they were made, moved from the old world to the new, from east to west. Our forefathers brought with them, or later imported, lighting devices of copper, brass and pottery. Until the beginning of the nineteenth century the fire-pan or



Philadelphia square lamp first used on city streets in the latter half of the 18th century. Four methods of lighting were used in this lamp—whale oil, open flame gas, incandescent mantle and electricity. It served Germantown before and after consolidation with Philadelphia, over a span of more than 150 years.

fatted rush furnished most of the light needed, even for their important council meetings. A fire in the hearth supplied both light and heat to a people both frugal and hardworking. Street lighting did not exist at all in the colonies until the middle of the eighteenth century, and then with oil lamps suspended from any available tree, pole or porch roof. The comment from the *New York Daily Advertiser*, as late as 1824, before open-flame gas burners were installed, serves to describe the outdoor lighting then existing in Germantown.

"Our streets last evening were so dimly lighted that it seemed they were mourning for the loss of the moon. Five full grown lightning bugs would have stared them out of all countenance."

The basis for all lighting, inside and outside, in its earliest forms was the age-old lamp. These took many forms and shapes, but seldom varied from the principle of the wick placed in oil. Before man shaped the first pot or learned to weave, he had made a lamp. The common fuel during the stone age was animal fat; the holder an animal's skull. Even woodburning, the very earliest form of light was not immediately outmoded by grease fats. The Pharos at Alexandria, one of the seven wonders of the ancient world was lighted by a wood fire as were other lighthouses. The famous beacon on Beacon Hill in Boston was lighted by wood burning in a fire basket.

The story of the lamp with its many variations in style, its fuels, and the attempts of man to improve upon it, fills some of the most interesting pages in history. We can do little else here than name the most important types, selecting those most common to the early generations of Germantown families. Pottery lamps certainly are the common lights of antiquity, made of either sun-dried or baked clay. These sufficed for the poorer classes for century after century. Even the Greeks and Romans never discovered the principle of the draft of air (oxygen) which would have improved combustion and given them brighter light. They did, however, increase the number of wicks, and, unfor-

unately, the amount of smoke and odor until, as a Greek writer put it, "One could not enjoy the good things of the table until indulgence in wine made the guests indifferent to the smoking lamps."

Other lamps were refinements of the original pottery lamp. As artificers became more skilled with metals, lamps became more ornate and made to blend with the architecture of the age. There were simple lamps, ones with no loose or movable parts, except possibly for hooks with which to suspend them from wall or ceiling. These included pan lamps, cruises, and several other types of grease lamps—wick-support lamps called Betties, and float lamps. The Spanish settlers introduced pottery lamps to these shores, and it was not until the Germans arrived in Pennsylvania in the early eighteenth century that pottery lamps were made here.

These same lamps, in the absence of any other acceptable form of lighting, were called upon to illuminate the streets when settlers decided that some form of lighting had become necessary. The float lamps, in which the wick was either supported by wire or made to float on the surface of the fuel by a buoyant material, were most adaptable for the purpose. Any other type of lamp would not have remained lighted outdoors in the wind. The fuels for these lamps had to be those which would not harden. The demand therefore was for oils which would remain in fluid state despite the weather. Among the oils used were olive oil, fish oil, and whale oil. The most satisfactory in price, supply and illuminating quality was whale oil.

The first street light was the lamp which the wayfarer carried along to light his path. The development of colonial street lighting cannot be dated, it had been a gradual process over many years. In 1704 the volunteer night watch was established in Philadelphia. In 1751 Philadelphia began lighting a few of its streets. One of the leaders was Benjamin Franklin, philosopher, inventor and statesman, who designed the now famous Franklin square lamp which burned whale oil. Whale oil remained the most popular fuels for street lighting until 1841 when manufactured gas started to take over in Philadelphia. This was only 13 years before consolidation of Germantown within the city system of government.

Strange as it may seem, the world's first street lighting system is credited to the ancient Egyptians. Later in 400 A.D., the streets in Antioch, Syria, were lighted by suspending lamps by ropes from trees in the first recorded attempt at organized illumination. In 1417 the mayor of London, in what was probably the first attempt at street lighting in a modern city, ordained that "Lanterns with lights to be hanged out on winter evenings betwixt Hallowtide and Candlemasse." By 1738 London's system consisted of 15,000 oil street lamps burning on an all-night schedule. The first city in the colonies to take official action in the matter of lighting the byways was New York, in 1697, only 14 years after the first families arrived in Germantown. It can safely be assumed that formal at-

tempts at street lighting did not take place in Germantown until nearly 100 years after its first settlers took up residence there.

Before proceeding into what we may properly call the modern age in street lighting, let us pause long enough to discuss briefly the matter of light itself. The tree of light traces the development of artificial illumination from three main sources: combustion, electrical discharge, and incandescent materials usually heated by an electric current. All types of light available to men from the beginning of time until the year 1879 with its Edison lamp, stemmed from one source only—combustion, igniting combustible matter in the presence of oxygen. In this light there was no incandescence. In fact, all light, both indoor and outdoor served as little better than a guiding beacon.



Two lamps that were most widely used in the gas lighting days. The square lamp on the right was used from the beginning (1840) until the early 1900's when it was gradually replaced by the Boulevard (left). At the end of the "Gas lighting era" in the 1930's, most of the gas lamps were of the Boulevard style.

Modern street lighting did not come easily to Germantown. People in all ages have resisted change as a threat to fame, fireside and fortune, and so did the people who followed in the footsteps of the planners of the Borough of Germantown. The city fathers in nearby Philadelphia shied away from gaslights until 1835, quite happy with the whale oil fixtures which lighted the way. Those who argued against gas as an illuminant expressed the fear of explosions. The first 46 open-flame gaslights winked on February 10, 1836, on 2nd Street between Vine and South, and the City of Philadelphia embarked on a plan for City gas lighting that lasted until April 15, 1959, when Mayor Dilworth extinguished the last light located on 45th Street, south of Osage Avenue.

Gaslighting evidently reached Germantown before consolidation within Philadelphia in 1854. A gas company had been chartered in Germantown to supply the demand in industry, in homes and for the streets. The first issue of the American Gas-Light Journal, July 1, 1859, carried the following announcement: "The City purchased the Spring Garden, Manayunk, Germantown, Southwark and Moyamensing companies, as their charters expired, all of which are now consolidated in the Philadelphia City Gasworks."

The peak of gaslighting in Philadelphia, including Germantown, was reached in 1927, with 39,201 lamps burning manufactured gas. In this same year there were 11,782 naphtha lamps still in use, for a total of 50,983 gas lamps. All lamps were equipped with the famous Welsbach gas mantle. The lamplighters had become a symbol of the age as he made his rounds either on foot or on bicycle. Lesser known is the clock-winder who also played a part in the romantic age of gaslighting. Starting in 1912 the American Street Lighting Company, later to become a part of The Welsbach Corporation, developed a 7-day clock for the purpose of turning up the gas in the evening and back down toward dawn. By the end of 1931 Welsbach had installed 35,820 of these clocks on the city gaslights.

The Welsbach incandescent mantle deserves a shelf all by itself in the history of lighting. Up until the development of the mantle in a commercial state by a chemist named Carl Auer, an Austrian, all gaslighting belonged to the combustion stage of lighting. Incandescence, desired by man since the time of Adam, was about to radiate on him from not one—but two sources. The gas mantle and the incandescent light bulb. Mr. Auer and Mr. Edison had literally caused the light to shine. The two systems, gas and electricity, were to vie with each other for supremacy for

a period of 40 years before either could claim victory.

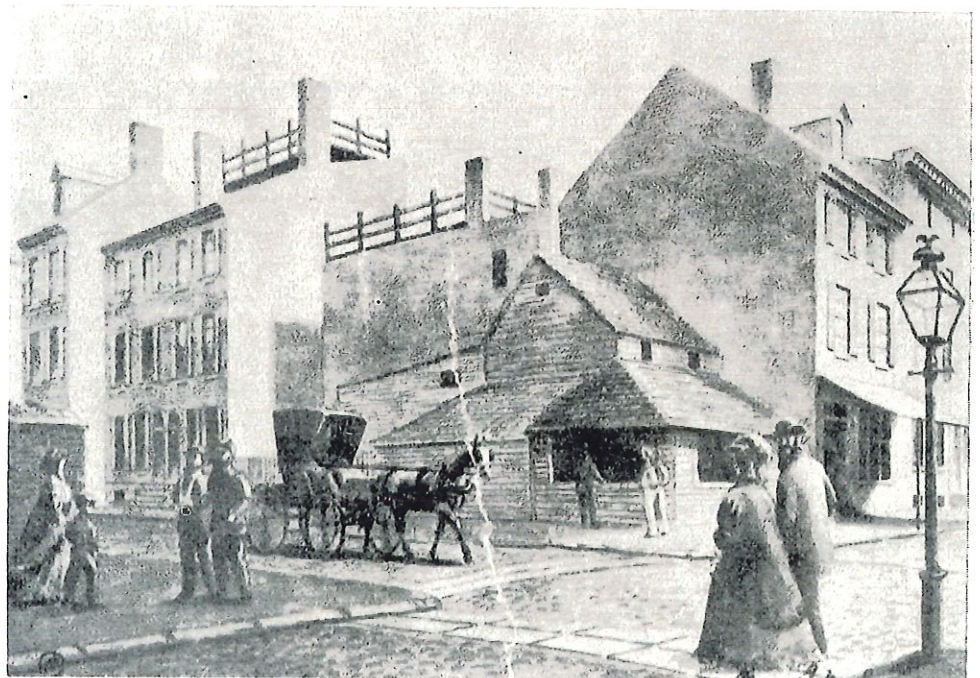
Carl Auer, a young Austrian scientist studied at the University of Heidelberg under Professor Robert Wilhelm Von Bunsen, who, in 1855, had perfected the atmospheric (Bunsen) burner. In 1866, Auer, after experimenting with many rare earths, saturated a combustible filament of cotton webbing in a solution containing 99% of thorium nitrate and 1% of cerium nitrate. He dried it, and then ignited it. The cotton burned away and left a frame or "mantle" of fused ash. This mantle, supported by a wire, was then placed over a bunsen burner and the gas ignited. The light which resulted was from eight to ten times brighter than the same flame without the mantle. A patent was granted him in 1844. The "Auer-Light" was perfected. Auer later was titled for his accomplishment by the King of Austria, and became Carl Auer von Welsbach.

In the early 1890's the United Gas Improvement Company of Philadelphia acquired the rights to the mantle in North America, and formed a subsidiary company, the Welsbach Incandescent Light Company, to manufacture and distribute it. By 1900 the use of the mantle was well established. The Pennsylvania Globe Gas Light Company, formed in 1877 as a private gas light maintenance company in Philadelphia, undertook the conversion of city open flame gaslights to mantle lights.

Even before the mantle gas was developed, residents and officials of Germantown had been sharply divided on the whole question of gas versus electric lighting. Early technical difficulties with the generation and transmission of electricity, together with the initial capital expense for its installation, militated against electricity. Edison had shown the world the first incandescent light bulb in 1879. But, argued the town

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Here is how one of the busiest corners of Philadelphia—Chestnut and 15th Streets—looked back in 1830. Recognize the eagle-crested street lamp at right? The old engraving comes from the Free Library of Philadelphia.



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fathers, adequate lighting was already installed—gas—and all that was needed was to accomplish the conversion of the open units to mantles. Why install a second major lighting and power system? Still, the battle raged, in private and in public.

Electric lighting was no newcomer to the field of illumination. Davy had first demonstrated the electric arc lighting in 1801. Arc lighting continued to be developed until, in 1879, the City of Cleveland, Ohio decided to install arc lights on its streets.

Planning by some for the introduction of arc lighting in Germantown had started sometime before the year 1884, before the advent of the incandescent mantle in America. Editor Horace F. McCann of the Germantown Independent wrote on February 2, 1884, that planning for an electric system had not progressed because of "a failure through the lack of enterprise in some of our prominent people, even after the dynamo-electric machines and engines were in place at the old market house on Main Street." Later, on July 19, 1884, he wrote: "That the town should so long have remained behind the age is a mystery to everyone. Scarcely a town which claims half the population of this in the State or Country now which has not this modern improvement."



The old lamplighter was a familiar figure on Philadelphia streets.

The editor was to continue his crusade to establish electric lighting in Germantown. We read in the Independent for July 28, 1884: "As the hour of 8 P.M.

struck, the machinery was put into motion, and the carbon tips in the two lamps on the circuit were simultaneously ignited. From that time until 10 P.M. the pedestrians kept the pavements between the two points (lights) pretty well blockaded." The lights referred to by Editor McCann were in the vicinity of Main Street and Cheltenham Avenue, in front of the pharmacy of William Conner. Still later, on September 13, 1884, we read: "Success of light assured; charter has been obtained." We sign in sympathy with the editor as the edition of April 11, 1885, nine months later, yields the following: "For a time the light was held in bad repute on account of unsatisfactory results given. . . . It is proposed in a short time to increase the plant to a capacity of one hundred lights." It is, nevertheless, a tribute to Editor McCann because his pioneering led to the establishment of the Germantown Electric Company. The gaslight remained the dominant method of illumination in Philadelphia, and in its twenty-second ward, until the 1930's.

Perhaps the proponents for both sides of the lighting controversy have won. Germantown now is part of a huge, modern municipal system of electric lighting with interruptions in service a rare occurrence; public service country-wide prefers the electric light for power and illumination. It is not so with almost 800,000 private individuals in the United States. These, for many and varied reasons, still cling to the friendly warm light of the mantle both as a means of light and as a direct reminder of an unforgettable age in American architecture and lighting. They have placed the gaslight on lawns, at gateways, on patios, on curblines and as bracket lamps to decorate the front of buildings. Gaslighting has advanced too, for at the peak of municipal street lighting by gas, in 1914, there were only 300,000 lamps in the entire country, and today there are 800,000.

How little we realize that we all are actually contemporary with the three major means of lighting: the candle which adds warmth to the evening meal, the gasjet on the stove which cooks the meal, and the electric street lamp which lights the street outside.

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