Joseph Priestley is best remembered for his pioneering work in chemistry, and in particular for the discovery of oxygen. But he was also a prolific theologian, an innovative educator, and a liberal political philosopher. Northumberland, Pennsylvania, his American home from 1794 until his death in 1804, encompassed about 100 houses when Priestley, age 61, emigrated from England seeking haven from political and religious persecution.

Joseph Priestley was born on a cloth dresser in Fieldhead, an English village near Leeds, on March 13, 1733. His family were Dissenters—nonconformists to the Church of England, the established church. From an early age the studious young man had aspired to the ministry. In 1752 he entered Davenant Academy and there he began the religious journey that led him eventually to Unitarianism, which he was to endow with formative ideas. Priestley was foremost a Christian minister, and over half his published writing is devoted to theological discourse.

In 1755 he began his ministry at a small church in Needham Market, and in 1761, while still ministering, began seven years of teaching at Warrington Academy, the leading institute for Dissenters. In 1762 he married Mary Wilkinson, his wife for 34 years.

Priestley, little taught in science, began in his early thirties to teach himself. By 1767 he had published The History and Present State of Electricity, and by 1772 The History and Present State of Discoveries Relating to Optics, Vision and Colours. These were significant works and widely read. In 1773 he became librarian to the Earl of Shelburne, and with the leisure thus afforded he made his most notable contributions to science, isolating eight gases—oxygen in 1774—and describing the basic process of photosynthesis.

Priestley's mind, moreover, could never be confined. Discrimination against Dissenters drew his attention to politics and confirmed him as an exponent of liberty. His support for the American Revolution and for British reform and his continued criticism of the Anglican Church alienated many. Finally, his defense of the French Revolution, beginning in 1799, exposed him to the harsh retorts of the popular press. In 1791 Birmingham's anti-French rioters destroyed Priestley's house, laboratory, and library. Escaping to London, he, his wife, and their three sons departed in 1794 for America (daughter Sarah, who was married, remained in England). His destination was a proposed colony for English Dissenters to be settled near Northumberland. Though the colony did not become a reality, Priestley built here a fine house.

In Priestley's last ten years, he identified carbon monoxide as a distinct "air" and published more than 30 scientific papers. He also wrote more than a dozen religious works, including his six-volume History of the Christian Church. He conducted Sunday services in his home and gave impetus to the Unitarian Church of Philadelphia. Joseph Priestley died February 6, 1804, at his home. After his death the house had a succession of owners. In 1874 many of America's leading chemists gathered here to commemorate the centennial of oxygen, a meeting that led to the formation of the American Chemical Society.

The Commonwealth acquired the house in 1961. It and its furnishings reflect the period of Priestley's residence, and the exhibits help the visitor to understand this many-faceted man.
The Priestley House

Soon after their arrival in Northumberland, Joseph Priestley and his wife Mary began construction of a house on land overlooking the Susquehanna River. It was intended as the re-creation of a self-contained, English gentleman’s estate. The Priestleys’ pleasure in their new habitation is reflected in their letters. Joseph Priestley wrote, “I do not think there can be, in any part of the world, a more delightful situation than this.” It was Mary Priestley, however, who took the greater delight in the planning; sadly, two years after their arrival in Northumberland, she died and was never to see the completion of her house.

Priestley the widower resided here with his eldest son Joseph, Joseph’s wife, Elizabeth, and their children. In addition there were servants.

The exterior and plan of the house are typically Georgian in style, with some decorative elements more characteristic of the Federal style of architecture, the hallmark of which is an attention to balance and symmetry. The embellished deck on the roof and the semi-circular fanlights above the main entrance doors are characteristics of this style. Arches in the entrance and second floor halls attest to a stylish and grand design for the house. The construction, which employed local workers and carpenters from Philadelphia, continued from 1795 to 1798. The original formal dining room was littered for two weeks at the site. In 1689-90, the Commonwealth restored to the house its original features.

Visitor Center

Outbuildings included in the original architect’s plan for the house have been reconstructed and the visitor’s tour begins in the carriage barn/visitor center where an introduction and orientation film depict the life and achievements of Joseph Priestley. Visitors can also purchase tour tickets, shop in the gift center, and find accessible public restrooms.

Pond Building

In 1919, Dr. George Gilbert Ford, Professor of Chemistry and Director of the School of Natural Sciences at Pennsylvania State College, now Pennsylvania State University, purchased the Priestley House at auction. After his death, trustees of the college cared for the property from 1937 until 1955. In 1956, the trustees erected the small brick building and dedicated it in Memory of Dr. Ford. Designed as a fireproof museum for Priestley’s artifacts, it served later as the site’s visitor center. The building will be converted to exhibit and public program space in the future.

Isolating Oxygen

It was on August 1, 1774, in Carlisle, England, that Priestley first isolated the gas which he called "dephlogisticated air" - the element oxygen. Using a burning lens capable of generating high temperatures by focusing rays of the sun, Priestley heated a quantity of mercuric oxide to collect the "air" in a pneumatic trough. Pneumatic chemistry was in its early stage, and chemists were demonstrating that many "airs", having different properties, existed in association with "common air." Priestley tested his newly discovered "air" and found a candle burned with remarkable vigor, and that it would sustain a mouse twice as long as common air.

Priestley’s laboratory, where he isolated carbon monoxide in 1799, is in a wing attached to the north side of the house. In a short time he had gathered apparatus for a well-equipped facility - not an easy accomplishment considering his distance from England and Philadelphia. The laboratory was a well-lit room and had a fume hood built to ventilate noxious gases.

Carbonated Water

The carbonated beverage industry owes a debt to Joseph Priestley, who first carbonated water by mixing it with carbon dioxide. Fascinated by the gas that formed above vats of fermenting beer, he noticed that water exposed to it acquired a sweet, effervescence quality. Called "fixed air", carbon dioxide was created by mixing dilute sulfuric acid and chalk (calcium carbonate). Priestley then mixed this with common water, “shaking it vigorously” until the fixed air was dissolved.

Electrical Machine

In 1767 Joseph Priestley published his History and Present State of Electricity, a survey of this new field of experiment. Not only was this book widely read, its preparation introduced him to Benjamin Franklin, then the Pennsylvania envoy to Great Britain. Franklin was 27 years Priestley’s senior and became a mentor, helping the younger man’s career. On Franklin’s last day in London in 1775, they visited together, discussing politics, and they continued their friendship by correspondence until Franklin’s death in 1790. The principal apparatus for electrical experimentation was the electrical machine, a contraption that created electricity by means of friction on a rapidly spinning glass sphere.

Bracket Clock

The furnishings in both style and number are those of an upper-class household. This tasteful style is termed Federal because it coincided with the period after America’s Revolution. It is a delicate style, discarding much of the ornamentation of earlier periods. The line of the furnishings tends to be straighter than more curvaceous preceding styles, such as Chippendale. Because the family did not reside here after 1811, we have little that is original.

Several pieces, such as the bracket clock pictured, can be traced to Joseph Priestley.

Plans for a Colony

Because of his Dissenting religion and radical political views, in particular his support of the French Revolution, Priestley suffered persecution in the popular press, culminating in the destruction of his home in Birmingham, England, by a mob in 1791. After that, Priestley resided in London for three unhappy years. During that time his sons Joseph, William, and Henry, joined with other Englishmen to form a company to purchase land 60 miles north of Northumberland to establish a colony for Dissenters. The colony never materialized, but wishing to remain near his sons and finding Philadelphia too crowded and expensive, Priestley elected to stay in Northumberland.