



Healthy Roots and Pennsylvania's Industrial Past

When Europeans first explored the eastern shores of North America, trees covered more than 90 percent of Pennsylvania's 28,692,480 acres. Early Pennsylvanians used what seemed like an inexhaustible supply of trees for home building, heating, cooking and tanning. Pennsylvania was also rich with iron ore and millions of acres of trees were harvested to make coal necessary to the production of iron.

In addition to iron, Pennsylvania contained vast deposits of coal, natural gas, slate, clay, sandstone, limestone and sand. Northwestern Pennsylvania abounded in oil seeps that oozed thick black crude into streams. As early as 1400 c.e., Native Americans were digging shallow wells and scooping out small amounts of crude oil to use in body paints or as medicines. Later, settlers came to believe that these oils were medicinal, and bottles of the cure-all "Seneca Oil" were sold as early as 1792. The Allegheny and Kiskiminetas river valleys also contained so much oil that as early as 1815 it was recognized as a common contaminant of brine wells that supplied salt to the Pittsburgh area. In fact, many brine wells were abandoned because of crude oil infiltration.

In the early 1850s, a Pittsburgh druggist named Samuel Kier began selling bottled oil from his father's brine wells as "Pennsylvania Rock Oil". Petroleum was fouling the senior Kier's brine wells. At first, the Kiers dumped the useless oil into the nearby Pennsylvania Main Line Canal. But after an oil slick caught fire, they were forced to stop the practice. Kier's tonic was later processed by an entrepreneur named Colonel A. C. Ferris, to make lighter oil to burn in lamps. When production reached the five-barrel capacity, Pittsburgh city fathers forced lamp oil operations into the suburbs for fear of an explosion.

When George Bissell, learned of Pittsburgh's nascent oil operations, he hired Benjamin Silliman Jr. of Yale University, to distill Seneca Oil to produce several fractions, including an illuminating oil already known as "kerosene". The "Seneca Oil Company" was formed. Kier and Silliman established America's first oil refinery in Pittsburgh in 1850.

During the 1860s, Oil Creek, the Allegheny River north of Pittsburgh, and the Kiskiminetas River were heavily polluted. On the banks of Oil Creek, spindly derricks rose out of the denuded landscape and rickety towns emerged from the black mud around the brand-new oil wells. Western Pennsylvania was, officially, the site of the world's first oil boom and by the 1870s the boom was in decline. What was left in the wake of America's first black gold rush was nothing short of an environmental disaster.

In addition to oil, anthracite (hard coal), from northeastern Pennsylvania fueled the shops and mills of Philadelphia, the nation's first great manufacturing center. It fueled the steam locomotives of the great Pennsylvania Railroad. Bituminous, or soft coal, deposits of western Pennsylvania fueled the furnaces of Pittsburgh's steel mills and factories. Coal from Mount Washington (also known as Coal Hill), stretching north and east of the city of Pittsburgh, was considered to be the single-most valuable mineral deposit in the world. This area was so heavily mined to provide coal and



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coke for the steel industry that more than 1,300 mines are known to exist in an area stretching from Fairmont, W.Va., north to Pittsburgh, and from the Greensburg and Uniontown areas west to the northern panhandle of West Virginia.

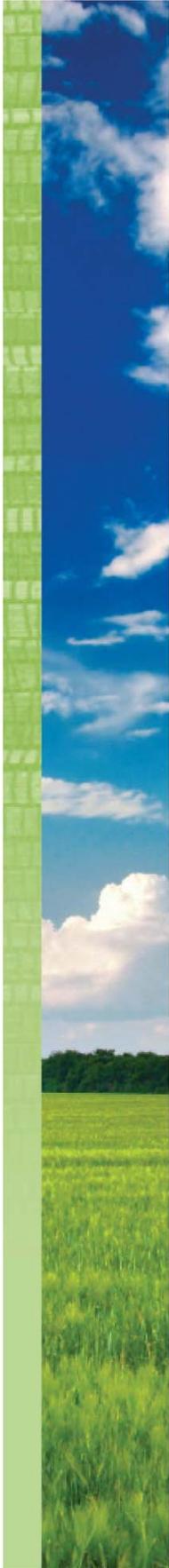
Mining, drilling, iron and railroads were all heavily polluting industries. Production took place in factories, mines and refineries that generated enormous volumes of smoke and fumes. Pennsylvania's waterways were used to carry away wastes. The manufacture of iron filled Pennsylvania's skies with smoke since the time of William Penn. The earliest furnaces that smelted iron ore into pig iron were fueled by charcoal made from hardwoods, mainly maple trees. To convert wood to charcoal, great bundles of hardwood were stacked in large mounds, which were covered with damp soil. These mounds were then ignited and allowed to burn slowly from three to ten days. These cones gave off huge clouds of thick, dark, smoke that mingled with the smoke pouring out of the chimneys of the iron furnaces to blanket the surrounding valleys. There was no single area of Pennsylvania left unaffected by some form or byproduct of industrial activities.

Today, Oil Creek and many formerly blighted areas of Pennsylvania bear little resemblance to their 19th century industrial condition. Oil Creek and the upper Allegheny run through lush state parks and forests where deer, bear and even bald eagles now thrive. Fishermen and boaters cast for trout or water ski in idyllic conditions. Where there were once drills, steam engines, and the smell of burning crude, there are now bike paths, hiking trails, bed-and-breakfasts, museums, microbreweries and thriving residential communities.

However, some of the age-old contaminants remain. Heavy metals like arsenic and lead tend to remain entrained in soils and remnant ashes from a bygone era. Polynuclear Aromatic Hydrocarbons (PAHs) – the first known human carcinogens may also remain from more recent industrial activities and the deposition of soot.

With Pennsylvania's rich industrial history in mind and the nations growing energy needs before us, the **Healthy Roots Project** has been developed to help residential developers and homeowners understand that suburban homes and building locations may not be free from contaminants that are often associated with heavy industry and urban areas. Heavy metals, PAHs and pesticides from farming practices may be present in soils around their homes above state health criteria.

Knowing whether these contaminants exist and if so, at what level, is the first step toward understanding and managing health risks that can accrue from their presence. Knowing whether risks exist empowers property owners, developers and managers, enabling them to make rationale decisions about their health, the health of their clients, their families and communities.



THEHEALTHYROOTSPROJECT.COM



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