



## Energy Lights Maine



This small pottery lamp made out of clay burned animal fat and plant oils. Lamps like these were first used in the first century A.D. by Egyptians. Some of the oldest oil lamps were made using rocks and shells.

Using oil as a fuel for light can be difficult to do. The oil must be very hot before it will burn.

*Why would this be a problem?*

People learned to use a “wick” – a thin cord of absorbent material that soaks up the oil so that it burns a little at a time. Rock, shell, and pottery lamps were the first step toward the invention of the oil lamp.



A stick rubbed very quickly against another piece of wood can become hot enough to make tinder catch on fire. *How does this happen?*

Native people mastered the art of starting a fire without matches using a fire plough and hearth or bow and hand drill. These techniques are still used by people today, including Maine sportsmen and sportswomen today.



Did you know that matches create a flame by a chemical reaction? Match heads are coated with a material called phosphorus. This phosphorus ignites from the heat of the friction as it is struck against a surface.

Early matches sometimes caught fire without being struck at all! That surely does sound dangerous. Modern “safety” matches work only when struck against the matchbox.



During the 19th century, American cities and towns used gas lamps to light their streets. Because of this streets were finally able to be lit at night. People were glad that their streets weren't so dark anymore.

These gaslights were made from iron and copper and had to be lit by hand. These street gas lamps gave off a bad odor and burned dimly. Later, gas lamps were made with “mantles.” Mantles are small net like bags that are coated with a chemical that makes them glow brightly when heated.



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Firelight gave humans the first portable light. Wood has long been the traditional fuel for fire. The color of the flame can change depending on what is being burned. In order to keep a fire burning, it needs to have a continuous source of fuel.

Using fire indoors for light can cause a lot of smoke which make it difficult for some people to breathe easily. Fire is also difficult to contain and if not contained properly it can destroy homes.



The word “candle” comes from a Latin word meaning “to shine.” A candle can be thought of as an oil lamp with solid oil. Before the 1800s candles were often made of tallow (animal fat) or beeswax. Because they could be made at home many people used them to light their homes. These candles produce a lot of smoke but little light.

Many people use candles today as decorations, for their scent, or as emergency lighting. Candles are rarely used on a regular basis today to light homes because of the danger of causing house fires.



Before the invention of gas lighting, lamps that burned oil were common. Oil came mainly from the fat of sea animals, such as whales, seals, and even penguins. The oil was boiled down in huge vats to make “tallow.” This Betty Lamp, found in a hunting camp in Maine, was fueled by pine pitch.



Flaming torches allowed light to be fastened to walls or carried from place to place. When Maine forts were in operation they were lit using torches. Poles topped with burning tar or rags gave off a bright yellow light. The open flame, fumes, and intensity of light made use of torches dangerous indoors.





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Flint and iron pyrite are two minerals that give off sparks if they are hit with something hard. They were probably the first pieces of fire making equipment used by our ancestors.

To produce a fire, the sparks had to land on tinder – a dry, light material such as wood dust, feathery plant seeds, or fungus. Flint and iron were later used to ignite gunpowder in “flintlock” rifles.



*Can you imagine Maine without lighthouses? What would the ships do? Can you also imagine a single wick emitting as much light as seven candles?*

Well that's exactly what the first style of lamp used to light lighthouses did! The wicks were not only circular but they were hollow. The hollow design allowed air to move up inside the wick as well as all around it allowing more air. Later, reflective plates were placed behind the lamp making the light brighter and able to be seen further away.



This photo from the Maine State Museum shows a wick style kerosene oil-ceiling lamp from a Maine kitchen around the turn of the 19th century. The small, white fuel tank houses the oil, which is sometimes called paraffin. A cotton wick is partially submerged in the oil. Once the top of the wick is lit, a yellowish flame is produced.



On October 21, 1879 lighting changed forever. Thomas Edison's perfection of the incandescent light bulb dramatically changed how many people obtain light. This is the biggest filament electric light bulb in the world. It is located at the Toshiba Science Museum in Kawasaki.