

First Electric Lights

It may be a tricky idea to get your head around, but for most of human history, we lived in the dark. It wasn't until 1780 CE that people finally had access to oil lamps. Until then, nearly all of the light that people had at night came from candles. When you open your fridge and that little light pops on, it is brighter than most houses were until the late 1800s.

Oil lamps and then gas lamps became popular in the 1800s. Gas lamps were expensive and mainly only used in street lamps at first. If people wanted them in their houses, then they had to get a gas pipe fitted. These were dangerous and often exploded, so most people didn't bother. Both gas and oil lamps were a huge fire risk. What people needed was a safer way to illuminate their world.

Early lights weren't particularly successful. A man named Sir Goldsworthy Gurney found a way to use a type of stone called lime to create an incredibly bright light. His lamps burned the lime so efficiently that the light could be seen from sixty miles away. It was also the first light that could be focused into a beam or spotlight. This made them very popular in theatres - it's where we get the saying "in the limelight" from. Unfortunately, they were also incredibly hot and burned down many theatres.

Bulbs known as arc lights were invented in the mid-1800s. They used a strong electric current to create a spark between two wires in the bulb. These created an incredibly bright light and were used in lighthouses and train stations, but they were very expensive and too bright for indoors.

What inventors tried to do next was create a type of arc light that was smaller, cheaper and not as bright. They realised that adding a thin wire between the two other wires (called a filament) would solve this. Unfortunately, nobody could find a way to make a filament that didn't burn out almost immediately.

In 1840, a lawyer named Sir William Grove managed to create a filament bulb that lasted for several hours. It was still very expensive, so it never went on sale. Another man named Joseph Swan turned his hand to the problem and made some progress, but then he stopped working on it for 30 years!

In the 1870s, a man named Hermann Sprengel found a way to remove all of the air from a glass bulb. This is called creating a vacuum. Without any air, filaments



would burn for significantly longer times. An American inventor named Thomas Edison set about trying to find the perfect filament.

In 1879, Edison was finally able to show off his first bulbs. Little did he know that Joseph Swan had also been experimenting back in England. Edison showed off his design on the last day of the year, but Swan beat him by eight months!

Edison was better than Swan at organising things. His first demonstration lit up half of Manhattan in New York. He installed miles of cables and built the first electricity grid in the world. By 1882, he was able to flick a switch and light up eight hundred bulbs in eighty-five businesses across New York. The public were amazed and Edison became even more famous.

Electric lighting had begun, but it wasn't until after the First World War that people finally began to experience electric lighting in their own homes. Some of these early lights were still dangerous and sparked whenever you turned them on!

RETRIEVAL FOCUS

1. When did people finally create oil lamps?
2. Who created a way to make vacuums?
3. Which type of stone was used to make lights in theatres?
4. What were the lights used in lighthouses called?
5. What is the name of the thin piece of wire used in bulbs?

VIPERS QUESTIONS

S

How are modern houses different to those of the 1700s, according to information in the text?

S

Why was it important to find different lights to gas and oil lamps?

V

Write a definition for a "vacuum".

V

Find and copy a word that tells the reader how people reacted to Edison's display in 1882.

I

Why might Joseph Swan have been annoyed at Edison?