



Joseph Swan

1828 - 1914

By 1850 gas lighting was used everywhere, in streets, shops and even in the home. But, frankly, it was smelly, smoky, rather expensive and - moreover - poisonous.

Joseph Swan, a British inventor, physicist and chemist was among those who first became interested in the construction of an incandescent electric lamp to be used instead of gas.

Joseph Wilson Swan was born as he said 'on the Eve of All Hallows' in the year 1828, in Sunderland, in the North East of England. His father and mother, John and Isabella Swan, both belonged to families of Scottish descent, who had settled in the county of Durham at about the middle of the eighteenth century. The family had a good income.

Swan grew up an inquisitive boy who was interested in everything surrounding him. When he was still small he knew how iron bars were transformed into nails and how lime was made. Years later he remembered that when he was about five or six years old he had been in Deptford glass house and '*seen the red hot metal twirled about at the end of a long tube, blown into and rolled and shaped into a bottle*'. He had watched the working of the potter's wheel and the making of cups and saucers.

Although Joseph was going to school, he was allowed much liberty. At first he was sent to a Dame school kept by 'three dear ladies'. From there he went to a large boys' school near Sunderland. On leaving school at the age of thirteen he was apprenticed to a firm of chemists. After three years he joined his friend in his business as a chemist and druggist in Newcastle. There, he spent much time with chemical and electrical experiments. He invented several new processes for the development of photographs. This business became afterwards the well known firm of 'Mawson and Swan'. In 1864 Swan patented his carbon process for permanent photographic prints.



He improved the development of photographic films



He devised the electric light bulb



His interest in electric lamps started before 1848, when he learned about the principle of electric lighting by means of a piece of wire connected to a battery. There was a problem, however: the wire had to be thin to give a bright enough light, but it would melt or burn out immediately if there was any oxygen near it. Swan experimented with all sorts of different materials. He chose carbon, which did not melt below 3500°C. He produced various artificial filaments by cutting strips of cardboard or paper and baking them at high temperatures. His wife and daughter helped him and 'knitted' some of the material. When making his first lamps, he connected the ends of the filament to a wire and placed the filament into a glass bottle with a cork, usually the filament burned away in the remaining air.

He succeeded only after the vacuum pump and the sources of electric current became perfect enough to make the filament burn brightly. He first demonstrated his successful lamp to a few people in 1878 and then, on the 3rd of February, 1879, to an audience of seven hundred people at the Literary and Philosophical Society of Newcastle-upon-Tyne. Thomson Edison had made a similar discovery in America. Swan thought the idea too obvious to be worth patenting, but later on Edison took out a patent. The first arguments between the two inventors eventually turned into an agreement and they both set up a joint company: 'The Edison and Swan United Electric Light Company'.

S.E.