Famous Scientists

Marie Curie

Marie Curie or Maria Sktodowska-Curie was born on the 7th of November 1867 in Warsaw, Poland. She had four sisters and was the youngest in her family. Her father was a school teacher and her mother passed away when she was very young. Her father taught her Physics and Mathematics which is where her passion for the sciences and where her future career came from.

When she was 24, she moved to Paris to continue her studies at university where she was the first woman to receive a doctorate in France. She then went on to teach at the University of Paris (or La Sorbonne) and in fact was the first woman to do so. She was interested in examining the magnetic properties of different steel types. Another teacher at the University who was also very interested in magnetism was Pierre Curie. This common attraction is what drew them together and after a year they were married.

As a team they started to research into radioactivity and together they discovered the element Polonium in 1898 which Marie named after her homeland of Poland. She and her husband both received Nobel Prizes for Physics for their amazing research into **radioactivity** (the energy released by atoms when they are broken apart). This made her the first woman to win a Nobel Prize.

Unfortunately her husband was killed in a traffic accident where he slipped and fell on the road and was run over by a large, heavy horse drawn carriage and one of the wheels fractured his skull killing him instantly. Marie continued her work without her husband and dedicated her life to researching and experimenting with radioactive materials.

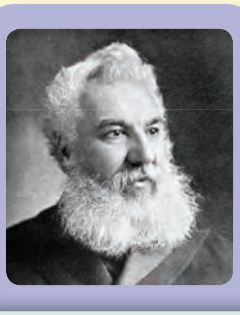
She went on to discover and isolate pure Radium. This earned her a second Nobel Prize but this time in the field of Chemistry. This remarkable achievement also meant that she was the first person in history to receive two Nobel prizes in different areas of science and the only woman to win two Nobel Prizes. The only other person to win two in different fields was Linus Pauling for his work on chemical bonds (prize for chemistry) and for trying to stop nuclear testing (prize for peace).

During WWI she created and set up mobile X-Ray stations to help treat wounded soldiers. She developed a way to treat infected tissue by injecting it with radon gas that she purified herself. It is thought that over 1 million French soldiers were treated with her special X-Ray units. Marie tried to sell her and her husband's gold Nobel Medals to help with the war effort but the bank refused to take them. Instead she used the prize money to help.

Because she worked with radioactive materials for much of her life and didn't wear protective clothing while working using X-Rays, she suffered numerous health issues including **cataracts** (clouding of the lens, stopping you from seeing clearly), kidney problems and eventually died from **leukaemia** (a type of cancer) on the 4th of July 1934. Despite all her suffering she never said that the radioactive substances were dangerous. After her death, her remains and those of her late husband were shifted to the Panthéon in Paris where the bodies of famous and important French people are kept. She was the first woman to be put here for her own achievements and not for those of her husband.

Because she was such a tremendous scientist and paved the way for many female scientists as well as initiating the study of radioactivity, it is said that her name should be written in gold letters to honour her.

Alexander Graham Bell



Alexander Graham Bell was born on the 3rd of March 1847 in Edinburgh Scotland. His mother and wife were both deaf and his grandfather, father and brother all worked in the field of speech and pronunciation. This family fascination with sound, hearing and speech lead Alexander to his life's work. He started experimenting with hearing devices that helped the deaf and this resulted in his creation of the first practical telephone. His father educated him from a young age until he won a place in Edinburgh's Royal High School. However, due to his low grades and poor performance he left at the age of fifteen. When he was just 12 he invented a machine that took the **husks** (outer shells) off grain, which he developed for his neighbour's flour mill. As payment he was given a small space to work at the mill so he could create more inventions. Alexander Graham Bell moved with his family to Canada when he was 23. From here, the family bought a farm in Ontario USA where he set up an inventing laboratory.

While he continued to work on developing a machine that used electricity to transmit sound, he taught in many places in the USA and England. He even ran his own school that focused on teaching deaf students how to speak. He eventually married one of his students, Mabel Hubbard who was deaf from scarlet fever which she contracted at age five.

In 1873 he decided to give up teaching and focus on his experiments with sound. Before the invention of the telephone, messages were transmitted using a device called a telegraph. This was a machine that had a needle that pointed to different letters spelling out words. The needle moved due to electrical impulses but this had limitations and was replaced in America by the use of Morse Code through the telegraph line. This was a special alphabet made up of dots (dits) and dashes (dahs) to represent letters. They were transmitted using electricity through a single wire. For example, dit dit dah dit is an F. This system was widely used but only one telegraph message could be sent at one time and it was a slow process sending and receiving the code. Another problem was that you needed special training to both send and receive messages through Morse Code.

Alexander Graham Bell started to experiment with a way to send sounds (voices) over a wire using electricity. He used the skills of a talented electrical engineer named Thomas Edison to help him to develop a machine that worked. In 1875, Bell and Edison created a device that used an instrument to create sounds like human voices to transmit words over a wire.

There is a lot of controversy about who invented the first working telephone but Alexander Graham Bell was the first to **patent** (gain a licence for the invention that meant no one else could make and sell the same invention) the invention in 1876. Elisha Gray claimed that he invented the first telephone and had a system that used water to transmit sound. They both put in their patent applications on the same day but Bell's was granted first. It is rumoured that the man issuing the patent licenses owed a lot of money to Bell's lawyer so chose to put his claim through first.

An Italian man named Antonio Meucci also claimed to have invented the telephone before Alexander Graham Bell in 1873. In fact, he sued Bell for the rights to the telephone but died before a decision was made, so the case was dropped.

He formed the Bell Telephone Company in 1877 which made him millions of dollars as it produced telephones for use across the world. Despite the invention making him a lot of money he refused to have one in his office as he found it to be very distracting and it interrupted his thinking.

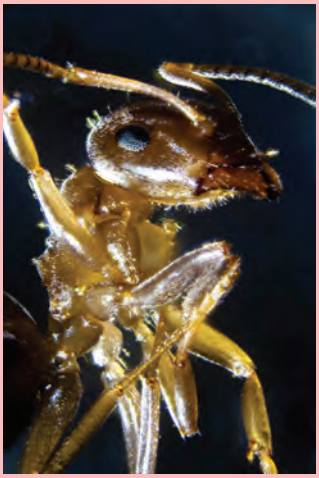
Alexander Graham Bell is also noted for his work on the Photophone which used light to transmit sounds. This later became the modern system of fibre optics. He also worked on making things for the aviation industry such large box kites that could carry a man. He also toyed with the idea of the hydrofoil which is a boat that uses giant fans and air to move it.

He also invented the first metal detector. When President James Garfield was shot by an assassin, they couldn't find the bullet so Bell quickly put together a device that detected metal. However, due to the bullet being too deep and because the President was lying on a bed that contained metal he could not locate the bullet and the President died.

E. O. Wilson

E. O. Wilson was born on the 10th of June 1929 in the state of Alabama in the USA. His full name is Edward Osborne Wilson but prefers to be called E. O. He is a Biologist, Researcher, Theorist and Naturalist. He specialises in Myrmecology or the study of ants. In fact, he is classed as the world's top ant specialist. E .O. was interested in Science from an early age and went on to study at the University of Alabama and Harvard University where he later taught.

He blinded himself in one eye while he was out fishing by getting a hook stuck in his eye but he didn't stop fishing to get medical help because he loved the outdoors so much and didn't want to leave his fishing spot. A few years later he had surgery to remove the lens of his eye that he had damaged as it had gone cloudy. The surgery restored some vision in his eye but it wasn't very good and he had trouble seeing things clearly, especially far away objects. Because his eye sight was so bad he started looking close up at small things, like insects.



He loved collecting insects and used to make his own nets to collect butterflies which he kept in large collections pinned inside boxes. On one of his insect hunting trips as a young boy he took a piece of bark off a dead tree and found it swarming with a type of ant called citronella ants. They were fat, bright yellow and smelt like lemons. This event stuck in his memory and made him very interested in ants. Also during WWII there was a shortage of the pins that he used to collect his butterflies so he started collecting ants in vials (small glass containers) instead. He was the first person in the USA to discover the painful stinging Fire Ants.

He has written many papers and books, including books on socio-biology. This looks at how social behaviours such as mating patterns and fighting are **inherited** (passed from one generation to another). He states that some animal behaviour changes slowly over time and becomes more common if they help the animals in some way. An example of this is how male lions kill any cubs that they have not fathered. This means that only their genes are passed on and so the behaviour of cub killing is also passed on.

He also wrote a book on consilience, where he believes that science and things like art, languages and psychology can all be used together to study different things such as phobias, addictions and religions.

His most famous work was produced with another scientist called Bert Hölldobler on ants. It is called 'The Ants' and is an encyclopaedia all about ants and the ways that they behave and communicate using chemicals.

He has won numerous awards for his work in the many areas of science. He has won two Pulitzer Prizes for his books on Human Nature and The Ants. These prizes are for outstanding non-fiction. He has also won the Heartland prize for fiction for his book about saving a forest, entitled 'Anthill - A Novel'. As a child he was a Boy Scout and after 25 years of work in the sciences he was awarded the Distinguished Eagle Scout Award. In 1993, he won the International Prize for Biology which was created for the Emperor of Japan and has a prize of 10 million yen (about $120,000 NZD). In 2007, E. O. Wilson won the Addison Emery Verrill Medal for his work in the natural sciences. During this year he also won the TED Prize for positively impacting the planet. As well as a further 92 awards and honours he was awarded the EarthSky Science Communicator of the year award on 2010 where 600 of the world's scientists voted for him.