

# Amazing Medical People

By F.H. Cornish

## Chapter 1: Edward Jenner

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1749-1823

The man who fought the terrible disease, smallpox

When I was a child, I was 'variolated' at my school. This treatment protected me from a terrible disease called smallpox. But the treatment was very unpleasant. When I became a doctor, my ambition was to find a better way to protect people.

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I was born on 17th May 1749, at Berkeley, in the western part of England. My father was the priest at the church in Berkeley. When I was young, I went to schools which were near my home. Then, when I was 14 years old, I became an apprentice for seven years. I worked for a doctor in another town. I learnt from him the skills of a surgeon and the skills of a family doctor.

At that time, many people suffered from smallpox. Smallpox was a terrible disease. People who had it first had a fever and a rash, then pains in the head and back and stomach. After that, their bodies became covered with blisters. Many people who got smallpox died quickly.

When I was still at school, my friends and I were variolated. This treatment - variolation - protected people from smallpox. In fact, it gave people the disease, but the disease didn't kill them. I'll tell you how it was done. Some pus was taken from a blister on the body of someone who already had the disease. Then cuts were made in our arms and the pus was put under our skin. Then we were put in a building on our own and the door was locked. For several days we stayed there. We all became very ill. We had fevers and pains and we couldn't eat anything. It was terrible, but we didn't die.

When I became a doctor, I knew that protection against smallpox was important. I worked as a family doctor in Berkeley, and in this job I saw many people who had the disease. They hadn't been variolated, and the disease

usually killed them. It often killed the people who looked after them too - their families and friends.

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One day, I met a woman called Catherine Kingscote. We fell in love and we were married in 1788. Catherine and I had three children. Now I had a problem - how could I protect them from smallpox? At that time in England, one child in every three children died of the disease. And we didn't have a useful treatment for it. I thought about variolation, but that treatment was horrible. I knew that from my own memories.

But was variolation the only answer to the problem? No, there was another answer. Some people who lived in villages in the countryside already knew about it. I'll tell you how I found out about it. In May 1796, a young woman called Sarah Nelmes came to see me. She worked on a farm, getting the milk from cows. She had a rash and I thought it might be a smallpox rash. I asked her, 'Have people in your village got the disease?'

'No,' she said. 'None of us has it, and none of us will get it, doctor. We've all had cowpox, and nobody who's had cowpox gets smallpox. I got cowpox from Blossom - she's one of the cows that I take milk from.'

'Is Sarah's story true?' I asked myself. Cowpox was a disease which cows often got, and people got it from them. It was a disease, but it wasn't as terrible as smallpox. People got a fever and some blisters, but they never died of cowpox. 'Can cowpox protect people against smallpox?' I asked myself.

I decided to test the idea and this is how I did it. A man who worked in my garden had a young son. The man was worried about his son. 'Will the boy get smallpox and die?' he asked me. I said that I had a new treatment and I wanted to test it. I could test it on his son. On 14th May 1796, I made cuts in the boy's arms and I put cowpox pus under his skin. He had a fever for a short time, but it wasn't a bad one. Then on 1st July, I variolated him with smallpox pus. The treatment didn't make him ill.

I tried the test again with 23 other people. None of them became sick. Sarah Nelmes was right! People who'd had cowpox didn't get smallpox. And I quickly found out that I could take cowpox pus from people with the disease to treat other people. The pus didn't have to come from a cow each time.

I was pleased with my tests. When the news of them was printed in 1798, I was happy. Other British doctors could use my treatment, and we could stop the smallpox moving from one person to another - that's what I thought. But doctors who used variolation were unhappy. They wanted to use the treatment that they knew about. They didn't want to change. I hadn't got the support of my colleagues.

I soon found out that several other doctors, in different countries, had also tried the cowpox treatment. Like me, they hadn't got the support of their colleagues.

Some of our problems came from religious people. They thought that putting pus from animals into human bodies was wrong. 'God will be angry with you,' they said. But I thought that doctors could save millions of people's lives if they used my treatment. I called the treatment 'vaccination'. The name came from the Latin word 'vacca', which means 'cow'.

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Year after year, my work became more famous. The British government gave me money to help me with the work between 1802 and 1807. All my tests showed that Sarah Nelmes had been right.

Vaccination wasn't my only interest. I was very interested in the behaviour of birds and I spent a lot of time studying them. I wrote about that subject. But I'll always be remembered best for the work that I began after I talked to the farm girl, Sarah.

Vaccination with cowpox saved people's lives in Britain and in other parts of the world. People in France soon used my method of vaccination too, and later, doctors in other countries accepted it. In Britain, King George the Fourth gave me a job as Physician Extraordinary - a doctor for the royal family. I also became Mayor of Berkeley.

When I died on 26th January 1823, at the age of 73, there was still work to be done. But finally, during the 1840s, variolation was stopped in England, although vaccination was not made compulsory until 1853. I hoped that, one day, smallpox was going to disappear from the world.

## **The Life of Edward Jenner:**

1749 - Edward Anthony Jenner was born in Berkeley, England, on 17th May.

1754 - Both his parents died when Edward was 5 years old.

1757 - Edward began his education. While he was at school, he was variolated - treated with smallpox to protect him from the disease.

1763 - He started to work for a doctor called Daniel Ludlow.

1770 - Edward went to London to study at Saint George's Hospital.

1773 - Edward returned to Berkeley and became a family doctor.

1784 - Edward became interested in birds and their behaviour. He studied the birds called cuckoos.

1788 - His work was published in Philosophical Transactions of the Royal Society. He became a Fellow of the Royal Society. Edward married Catherine Kingscote. They later had three children.

1792 - Edward studied medicine at the University of Saint Andrews, in Scotland.

1796 - Edward discovered that he could protect a person from smallpox by using cowpox.

1798 - Edward published his work on protection against smallpox.

1802 - The British government gave Edward 10,000 pounds to continue his work.

1805 - He became a member of the Medical and Chirurgical Society. Later, the society's name changed to the Royal Society of Medicine.

1815 - His wife, Catherine, died of the disease called tuberculosis.

1820 - Edward had a serious illness of the brain, but he recovered.

1821 - Edward became Physician Extraordinary to King George the Fourth. He also became the Mayor of Berkeley.

1823 - He died on 26th January, in Gloucestershire, England.

## Chapter 2: Florence Nightingale

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1820 - 1910

The nurse known as 'the lady with the lamp'

My first name comes from a beautiful Italian city and my second name comes from a beautiful bird. But during my career, I saw many things that weren't beautiful. I saw soldiers with terrible wounds. I helped them, and other sick people, to survive.

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I was born on 12th May 1820, in Florence, Italy. My parents, who were English, lived in Italy at that time. I had a sister called Parthenope. Both of us were given the names of the places where we were born. My family moved back to England in the year after my birth. My father was a rich man and we had two large houses in the countryside. I grew up in these houses and I had my lessons at home. I enjoyed learning languages - I studied Latin, Greek, German, French and Italian.

When I was 17 years old, I decided that I wanted to work as a nurse. I didn't tell my parents at first. I knew that they didn't want girls from rich families like ours to work. But I looked at the poor people who lived near us. Their lives were very difficult and sad. The Poor Laws in England at that time were very cruel, and I wanted to improve them. And I cared about sick people and I wanted to help them. When I finally told my family this in 1844, my mother and sister were very unhappy. I knew what I wanted to do, but I hated upsetting my family.

I visited Kaiserswerth, in Germany, at about this time. There was a training college for nurses there. Treatments for sick people in England were bad, but in Kaiserswerth, I saw much better treatments.

When I returned to England, a man asked me to marry him. The man who wanted to marry me was a politician - a member of the British parliament. His name was Richard Monkton Milnes. Again, I upset my family when I refused to marry him. I didn't want to marry anyone.

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My health wasn't good, and my family were angry with me, so my health became worse. I wanted to leave England again. I spent some time in Rome, where I hoped to recover. During my stay there I met Sidney Herbert, another British politician. He became a close friend, and later he supported my ambitions.

In 1850, my family sent me to Egypt because my health was still not good. They hoped that warm, dry weather could help me. While I was there, I made some decisions about my future. I had no more doubts. I wanted to be a nurse. The next year I went back to Kaiserswerth. I began my training there.

When I returned to England in 1853, I started to treat sick women in London. My father didn't agree with my decision, but he supported me with money. Henry Manning, a famous priest, helped me too, and he became a good friend.

At this time, Britain was fighting Russia in the area called Crimea, on the north shore of the Black Sea. I heard sad news about the British soldiers who were fighting there. Many were wounded and many were sick. The treatment they received in the British military hospitals - the hospitals belonging to the army - wasn't good. I decided to help them. In October 1854, I took 38 other female nurses to Scutari, a town which is now part of Istanbul, in Turkey. Many wounded and sick British soldiers were in the British military hospital there. I saw the terrible conditions in the hospital and I quickly understood something. Many men were dying there, but their wounds weren't killing them. Diseases were killing them. Bad hygiene was the reason for this. The diseases called typhus, cholera and dysentery were killing the men because they had no fresh water to drink. And the disease called gangrene was killing them because their wounds weren't kept clean.

Most of the military doctors in the hospital didn't listen to our advice, because we were women. In fact, they made our work more difficult. But we began our nursing work and we washed the men's wounds and asked for better hygiene in the hospital. There were no antibiotics in those days, so we couldn't treat the men with drugs. But we changed their bandages regularly, and always kept new, clean ones for them. We were fighting a war within a war - a war against infections.

I often visited the men late at night. I carried a lamp and I looked carefully at each of my patients. People called me 'the lady with the lamp' - and they remembered that name for the rest of my life.

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We worked hard at Scutari, but 4,077 soldiers died during our first winter there. More of them died from infections after they were wounded than died because of their wounds. I collected statistics about this to show to the British government. The war had shown that the people in charge of the army had important medical problems to think about. I needed to support my ideas about hygiene, so I became a statistician.

When I returned to Britain, I was sick myself, and I had to stay in bed for a long time. But I didn't forget my work. My friend Sidney Herbert told me that Queen Victoria wanted my advice. I wrote a report - more than 1000 pages long - about my ideas. I sent the report to a Royal Commission which had been established. I thought that preventing infections was much better than treating them.

But how could we prevent infections? Diseases were a problem in Britain as well as in Crimea. Clean water for everyone and better drains were my two answers. Many people died from diseases after they drank water that wasn't clean. The bacteria that cause some diseases lived in the bad drains of our British towns and cities.

I continued to collect statistics about health. In 1858, I became the President of the Royal Statistical Society. The next year, I wrote two books - 'Notes on Hospitals' and 'Notes on Nursing'. Before I left Scutari, a Nightingale Fund had been established. A large amount of money - 45,000 pounds - was given to this fund. I used the money to establish The Nightingale School of Nursing. This school opened in London in 1860. Nurses were trained in the school and they went to work in many parts of the country.

In my later years, I campaigned for better hygiene and for better training for nurses. But I also campaigned for women's rights. I wanted women to have good careers. Many people disagreed with me. They said, 'Women from rich families must stay at home.' But I continued with my work. And in 1869, my friend Elizabeth Blackwell and I established The Women's Medical College. I also wrote many more books, although most of them were not printed until after my death.

Slowly, people accepted my ideas about hygiene. Often the doctors in hospitals were the last people to accept them. But I worked to improve British nursing

until 1895, when I became blind. And after I lost my sight, I was still interested in the improvements that were made by other people.

I died in London on 13th August 1910. I was 90 years old.

Two years after my death, a Florence Nightingale medal was created. It was given to nurses who did important work.

### **The Life of Florence Nightingale:**

1820 - Florence was born at the Villa Colombaia, in Florence, Italy, on 12th May. Her parents were English.

1821 - Her family returned to live in England.

1827 - Florence's education began. She loved learning languages.

1837 - She started to think about being a nurse.

1838 - She began to tour Europe with her family.

1840 - She returned to England with the family, and she attended Queen Victoria's birthday party.

1842 - Florence met the politician Richard Monckton Milnes, who became her friend.

1844 - She finally decided to become a nurse.

1847 - Richard Monckton Milnes wanted to marry Florence. She refused, but they were still good friends. She met Sidney Herbert, another British politician, in Rome and he became her friend too.

1850 - Florence continued her travels and visited Egypt and Greece. She also visited Kaiserswerth, in Germany, where her training as a nurse began the next year.

1853 - She worked at the Institute for the Care of Sick Gentlewomen, in Upper Harley Street, London.

1854 - Florence went to Scutari, in Turkey. Sidney Herbert asked her to nurse British soldiers who were wounded in the Crimean war. She was given the name, 'the lady with the lamp'.

1855 - Florence established the Nightingale Fund, which raised money for the training of nurses. She became sick with an illness called 'Crimea Fever'.



1856 - Florence wanted the government to study the health of the British Army. She was invited by Queen Victoria to give her views on the medical problems.

1857 - A Royal Commission was established by the government to study nursing, but women were not allowed to be members of it. Florence sent her views to the commission.

1858 - She was the first woman to become a member of the Royal Statistical Society.

1859 - Florence published two books, 'Notes on Nursing' and 'Notes on Hospitals'.

1860 - Florence established the Nightingale Training School for nurses at Saint Thomas's Hospital, London.

1869 - She established the Women's Medical College in London with the doctor Elizabeth Blackwell. Elizabeth believed in the rights of women.

1883 - Florence was given a medal - the Royal Red Cross - by Queen Victoria.

1895 - Florence's health became worse and she lost her sight.

1907 - Florence became the first woman to receive the Order of Merit from the British king, Edward the Seventh.

1910 - Florence died in London, aged 90, on 13th August.

## Chapter 3: Elizabeth Garrett Anderson

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1836-1917

England's first female doctor

I was the first English woman to work as a doctor in my own country. During my long life, I tried to improve the lives of women. And I helped to create Britain's first medical school for women.

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I was born in Whitechapel, East London, on 9th June 1836. I was the second of my parents' 11 children. My father, Newson Garrett, worked for a company that bought and sold jewellery. He also made silver jewellery himself. But he wasn't a Londoner. His family lived in Suffolk, in the eastern part of England. They lived in a small town called Leiston, and my father was born there. His family owned a factory in Leiston that made things from iron. My father had two brothers who worked for the company, so he decided to have a different career.

My father was successful and he earned a lot of money in London. But when I was about 5 years old, he decided to move back to Suffolk. He bought a company that sold coal and also barley. My father built a large factory in Snape, which was a few miles from Leiston. The workers in the factory malted the barley.

My father paid for a good education for all his sons and daughters. But when I left school, I became interested in feminism - the rights of women. I met a young woman called Emily Davies who was also a feminist. We wanted men and women to have equal rights. We talked about that a lot. My ambition was to become a doctor. But at that time, there were no women doctors in England. I wanted to be a student at a medical school, but none of the medical schools accepted me. They told me that women could never be doctors.

I couldn't study to be a doctor in England, so I decided to become a student nurse in London. I began to learn about medicine in the hospital where I trained. I was sometimes allowed to watch the doctors while they worked. But I wanted to be a doctor myself, not a nurse. I couldn't take examinations to qualify as a doctor at an English medical school. I decided to try something different.

There was a Society of Apothecaries in London. Apothecaries prepared drugs and gave them to sick people. They often worked as family doctors. But they weren't surgeons - they didn't operate on people. The society held examinations for people who wanted to become apothecaries. And the rules of their society didn't stop women taking their examinations. So I joined the society and worked as an apprentice apothecary for five years - now I was training to be an apothecary.

During that time, I visited Scotland. English medical schools weren't helpful to me. But the medical schools in the Scottish universities were more helpful to women. Doctor Day, the Professor of Medicine at Saint Andrew's University, allowed me to listen to lectures with the male students. Doctor Simpson, in Edinburgh, also helped me. I learned things in Scotland that I couldn't learn in England. But some of the teachers there refused to teach me too. One of them wrote that ladies could only be bad doctors, so there was no need for them.

I returned to London, and I continued to work as a nurse in hospitals there. The conditions were terrible. Surgeons operated on people without any hygiene. Many of the patients got infections and died. I wanted to make operations safer for them.

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In 1865, after my time as an apprentice finished, I was ready to qualify as an apothecary. But suddenly, there was a problem. The Society of Apothecaries tried to stop me taking their examinations. My father said that he was going to sue the society, and it knew that he had a strong argument. So I was allowed to answer the examination questions. I passed the examinations and I qualified as an apothecary. The society changed its rules after that, so that women couldn't take their examinations. But the society couldn't take away my qualification. So, at last, I was a sort of doctor.

I was still not able to work as a doctor in any British hospital. But my father helped me to establish a dispensary for women in London. I was able to treat women's illnesses there. And fortunately, I met some people who had the same ideas about women's problems. One of them, Elizabeth Blackwell, had qualified as a doctor in America. The two of us established several medical centres for women. And also in 1865, my friend Emily Davies and I established the Kensington Society with some other women. This was a society of feminists.

At that time, women couldn't vote in elections in Britain. We wanted women to be able to vote so we sent a petition - a document signed by a lot of people - to the British government. But the government didn't listen to us. As a result, a new society - the National Union of Women's Suffrage Societies - was created. 'Suffrage' was the right to vote. Women who wanted this right were called 'suffragettes'.

One person who listened to our ideas was a man called Henry Fawcett. He was a member of the British parliament, and he was blind. He invited me to have dinner with him one day, and after that we often met. I liked him a lot, and soon he asked me to marry him. I didn't want to do that, but we stayed friends. Later, Henry married Millicent, one of my sisters. Millicent later became a very famous suffragette.

My main ambition was still to help women and children who were ill. Many poor people came to my dispensary for help and advice. But I needed to qualify as a hospital doctor to do the work that I wanted to do in England.

The English medical schools still refused to teach women. But in France, it was possible for women to study in medical schools. So I learned some French and I travelled to France. And at the University of Paris, I earned a medical degree at last.

After that, I thought that I could start my medical career in England. But I was wrong. All doctors had to be members of the British Medical Register if they worked in British hospitals. This was a list of people who were qualified as hospital doctors. The men who controlled the Register refused to accept my French qualification.

Now I knew that qualifications weren't enough. Political changes were needed too. So I had to become a well-known person and then to fight for my ideas. First, I became involved in education. In 1870, I was elected to the East London School Board. This was a group of people who controlled education in the East London area. I was the first woman who was ever elected to a school board in England.

A man called James Anderson was involved in my election campaign. He worked for the Orient Steamship Company, and he was very successful businessman. We became very close and in 1871, we were married. After that, I was called Elizabeth Garrett Anderson - that is the name most people now remember.

James and I had three children together - two girls and a boy. Unfortunately, one of our daughters died when she was very young.

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I already had my dispensary. Then in 1872, I decided to change it into a hospital - the New Hospital for Women. I had to collect money and find a new building. And I had to find staff - people to work there. But it was my own hospital, so all the staff were women when the hospital opened in 1874. Before that happened, in 1873, I became the first woman member of the British Medical Association. It was 19 years before there was another female member of that society, because the Association changed its rules after I joined. Most British doctors didn't want women to join them.

While I worked at the hospital, I continued with my political work. I wanted politicians to give women more opportunities. Talking to politicians was hard work, but in 1876 my feminist friends and I had a great success. In that year, the British parliament passed a new law. It allowed women in Britain to qualify as doctors and to be listed on the Medical Register. This new law encouraged girls to study medical subjects. Universities began to establish more medical courses as a result. Change was slow, but it happened.

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In 1883, I became the head of the London School of Medicine. By now I knew that people needed more than medicine and doctors to improve their lives. People's living conditions had to change. Poor people lived in awful houses. Often, many people lived in one room. The drains in the large cities were very bad. Diseases were common in conditions like these. I tried to improve conditions for the people who came to me for advice.

I continued my fight until I stopped working as a doctor. Then in 1902, when I was 66, we moved back to Suffolk. We lived in Aldeburgh, a small town on the coast. It was only a few miles from Leiston and Snape and it was a place which I knew well from my childhood. We became involved in Suffolk politics. My husband became the Mayor of Aldeburgh. We tried to improve conditions for the poor people of the town. James died in 1907, but the people of the town elected me as their next mayor. I became the first female mayor in England. But I was still interested in national politics, and in feminism.

I became a member of the Women's Social and Political Union and I often joined the suffragettes in London. We wanted votes for women and we complained about the government. We stood and shouted outside government buildings and we didn't let the politicians forget about us.

Because of my age, the police didn't arrest me. But many suffragettes were arrested and sent to prison. My daughter Louisa, like me, was a doctor and a suffragette. I was proud of her. We fought together for women's rights and for children's rights. Although some suffragettes believed that only violence could change the government's ideas, I didn't agree. Those women broke windows and damaged buildings, but I tried always to use peaceful arguments.

When I died, on 17th December 1917, I'd lived a long and useful life. By then, there were many woman doctors in Britain. And 11 years after my death, all British women over the age of 21 finally got the vote.

### **The Life of Elizabeth Garrett Anderson:**

1836 - Elizabeth Garrett was born on 9th June, in Whitechapel, London. She was one of 11 children born to Newson Garrett and his wife, Louisa.

1841 - The family moved to Suffolk. Her father became a successful businessman in Snape.

1849 - At the age of 13, Elizabeth went away to school.

1854 - Elizabeth met Emily Davies, a young feminist, while visiting a friend in London.

1859 - Elizabeth met Elizabeth Blackwell, the first woman in the United States to qualify as a doctor. Elizabeth decided that she also wanted a career in medicine.

1860 - Elizabeth became a student nurse at the Middlesex Hospital in London. She also became an apprentice apothecary.

1865 - She qualified as the first British woman apothecary. Elizabeth helped to form a feminist group called the Kensington Society.

1866 - Elizabeth established the Saint Mary's Dispensary for Women and Children. She went to study at the University of Paris.

1870 - Elizabeth passed the examinations and qualified as a doctor in Paris. She wasn't allowed to join the British Medical Register, but she became a visiting doctor at the East London Hospital.

1871 - Elizabeth married James Skelton Anderson, a successful businessman. She became Elizabeth Garrett Anderson. Elizabeth and James had three children, Louisa, Margaret and Alan. Margaret died when she was very young.

1872 - Elizabeth opened the New Hospital for Women in London. The doctors and nurses were women and so were the patients. Elizabeth Blackwell was one of the doctors who worked there.

1873 - Elizabeth became a member of the British Medical Association.

1874 - Elizabeth and her friends established the London School of Medicine for Women.

1876 - The British parliament finally made a law that allowed women to qualify as doctors in British medical schools.

1883 - Elizabeth became head of the London School of Medicine.

1889 - She became a member of the Central Committee of the National Society for Women's Suffrage.

1897 - Elizabeth was elected President of the British Medical Association in the East of England.

1902 - She retired from medicine and she returned to Suffolk. She lived in Aldeburgh. Elizabeth continued her interest in politics there.

1907 - Elizabeth's husband died.

1908 - Elizabeth was elected Mayor of Aldeburgh. She was Britain's first woman mayor. She also became a member of the Women's Social and Political Union.

1917 - Elizabeth died in Suffolk on 17th December, aged 81. The London School of Medicine for Women became the Elizabeth Garrett Anderson Hospital. It is now part of the University of London.

## Chapter 4: Carl Jung

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1875-1961

The doctor who wanted to understand the human mind

I was a doctor, but my main interest was in people's minds, not their bodies. My ambition was to help people who had personality problems. I tried to understand their minds. I became a kind of philosopher as well as a doctor.

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I was born in Kesswil, in Switzerland, on 26th July 1875. My father was a priest who worked in the countryside and in small villages. I was the fourth child of my parents, but I was the only one who lived to be an adult.

When I was young, my parents taught me about their religious beliefs. My mother believed in God, but she was very unhappy. She suffered from depression. She often stayed in her bedroom all day. She said that spirits - ghosts - visited her in the night and talked to her. I became very interested in these strange events when I was a child. They were called 'occult phenomena'.

I was always a thoughtful child and I spent a lot of time alone, thinking about myself. I decided that I had two identities. One was the identity of a shy schoolboy who lived in the nineteenth century - the person who my friends and family knew. But I also had the identity of a much older person from the eighteenth century. This other identity was someone who was powerful and clever. He was someone whose words people believed. I thought that I could help other people in their lives because of this powerful second identity.

One day at school, another boy knocked me over and I was unconscious for a short time. For the next six months I didn't attend school. Every time I thought about school, or tried to do some schoolwork, I became unconscious again. I stopped thinking about my future and I let my fears control my life. Later in my life, this event helped me to understand neurosis, a mental condition that makes people worried and afraid for a long period of time. But when I was young, it was my father who helped me to deal with my problem.

One day, I heard my father talking to someone else about me. He said that he was worried about me. He thought that I would never be able to get a job and earn money for myself. And he was worried because he didn't earn enough money to help me. At that moment I understood that my father was a poor



man. He never talked to me about that. And I understood that I had to continue with my education and find a career for myself.

My main ambition at that time was to become an architect, but the University of Basel, near our home, didn't teach that subject. Instead, I studied to become a doctor.

I studied medicine at Basel from 1895 to 1900. During this time, I became very interested in psychiatric medicine - treatments for people with mental illnesses. Unfortunately, my father died the year after I began my medical studies.

After I qualified as a family doctor, I studied for another degree at the University of Zurich. My teacher there was a famous psychiatrist called Eugen Bleuler. The thesis that I completed after my three years' study with him was about occult phenomena. The thesis was published - it was my first book. And after that, I published many books and articles during my long life.

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During the next few years, I met two people who became very important in my life. As a result of the first meeting, in 1903 I married a woman called Emma Rauschenbach. She was a member of one of the richest families in Switzerland. Emma and I had five children, and we were married for more than 50 years. And in 1906, I sent a copy of my new book, 'Studies in Word Association' to Sigmund Freud. Freud, the famous Viennese doctor who developed psychoanalysis, was twenty years older than me. Psychoanalysis is the treatment of someone who has mental problems by talking about their past life and their feelings. Freud was very interested in my book. When we met, the next year, we talked for many hours. Between that year and 1913, we wrote to each other frequently and worked on various problems of psychology together.

Together, Freud and I developed many ideas about human behaviour. But by 1913, there were differences between us. Freud was convinced that libido - sexual energy - was the most important factor in human development. I thought that it was one important factor, but certainly not the only important factor. Also our ideas about the psychology of religion were very different. I thought that humans had a need to believe in something - that they were born with this need. Freud wasn't interested in religion at all and he disagreed with me. I explained what I thought in my book, 'Psychology of the Unconscious',

and when it was published in 1912, Freud and I argued about it. The next year, we stopped working together.

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In 1914, the First World War began and during the next four years millions of people died. Switzerland was a neutral country - it didn't fight on either side. But it was a time of stress for everyone. I started to work as an analyst - a doctor who treats people with mental problems. I had many patients who'd lost their interest in life. I treated them by talking to them. They told me about their fears and they told me about their dreams.

I learned a lot from my patients. Then, in the years after the war, I studied people's cultures and their languages. My wife was rich, so we were able to travel. We travelled in many European countries. We also went to North Africa, Kenya, the USA and India. During those travels I found many links between different peoples and different cultures.

I became very interested in Eastern philosophies. They increased my feeling that people's beliefs were important. I was already involved in medicine, psychology and psychiatry but now I became interested in archaeology too. But treating patients with mental problems was always my main ambition.

When I returned to Switzerland, I had more and more patients. They were all trying to understand their lives. No technologies, no drugs, and no prayers could solve their problems. But I helped them to understand their thoughts and their behaviour.

I asked my patients about their present lives and their future wishes, instead of talking always about the past with them, like Freud did. I wanted them to ask themselves, 'Who am I?' And I wanted them to ask, 'Where am I going?'

Freud had written a lot about the unconscious mind, but I thought that his understanding of it was too simple. I thought that people had a 'personal unconscious', which was only theirs. But I thought that there was also a 'collective unconscious' which was shared by all people. I thought that an analyst needed to work with both of these types of unconscious mind. And I also thought about the groups of people that psychologists called introverts or extroverts. This also was too simple. There were different types of personality within these groups. Examples of these are 'thinking types' and 'feeling types'.

So, over the years, I helped people to find personal answers to their problems. I helped them to understand their lives, sometimes by thinking about different philosophies and religions. I helped them to accept the negative parts of their own personalities. By doing all this, I developed my personal method of treatment - analytical psychology. This was very different from Freud's psychoanalysis. In 1948, I established the C.G. Jung Institute in Zurich. This college trained many analysts to use my methods.

My work took me into many mental worlds - the worlds of dreams and mythology, the worlds of religion and philosophy, the worlds of art and alchemy. I wasn't the type of doctor who used medical drugs - I tried to give equal importance to science and belief for each patient.

I never retired. My analytic work, and the many books that I wrote, kept me busy until my death on 6th June 1961. One of my last books was an autobiography - the story of my life.

### **The Life of Carl Jung:**

1875 - Carl Gustav Jung was born in Kesswil, Switzerland, on 26th July.

1879 - His mother, Emilie, suffered from depression and the Jung family moved closer to her family in Kleinhuningen, Basel.

1887 - During his teenage years, Carl was often unwell. He became unconscious many times when he thought about his school.

1895 - He attended the University of Basel and studied medicine there.

1896 - His father, Paul, died.

1900 - Carl became an assistant doctor at a psychiatric hospital, the Burgholzli Hospital, Zurich.

1902 - He completed his Master's degree at the University of Zurich and published his thesis, *On the Psychology and Pathology of So-Called Occult Phenomena*.

1903 - He married Emma Rauschenbach and they later had five children.

1905 - Carl lectured in psychiatry at the University of Zurich.

1906 - Carl's *Studies in Word Association* was published. He sent this to Sigmund Freud in Vienna.

1907 - Carl met Sigmund Freud and they had many conversations.

1909 - Carl travelled to America with Sigmund Freud and the Hungarian psychoanalyst, Sandor Ferenczi.

1910 - Carl became a leader of the International Psychoanalytical Association.

1912 - Carl published *Psychology of the Unconscious*. He had arguments with Freud because of this book. After this, they were not close friends.

1914 - During the First World War, Carl worked as an army doctor. He left the International Psychoanalytic Association.

1923 - Carl's mother, Emilie, died.

1924 - Carl travelled to Taos in New Mexico, where he studied the Pueblo Indians.

1925 - Carl travelled to East Africa and studied the people of Mount Elgon in Kenya.

1933 - He was leader of the International part of the General Medical Society for Psychotherapy. He also became Professor of Psychology at the Federal Polytechnic University of Zurich.

1937 - During a tour of India, Carl became seriously ill. He spent two weeks in a hospital.

1942 - He retired from The Federal Polytechnic University of Zurich.

1944 - Carl was Professor of Medical Psychology at the University of Basel. His book *Psychology and Alchemy* was published.

1948 - The C.G. Jung Institute in Zurich was established.

1955 - Carl's wife, Emma, died in Zurich.

1957 - He began writing his autobiography '*Memories, Dreams, Reflections*', which was published two years after his death.

1959 - '*Flying Saucers: A Modern Myth of Things Seen in the Skies*' was published.

1961 - Carl died on 6th June in Kusnacht, Zurich, after a short illness. He was 85 years old.

## Chapter 5: Jonas Salk

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1914-1995

Man who defeated the dangerous illness, polio

Find out where the enemy lives. Study how the enemy behaves. Find out how the enemy's numbers increase. Then attack the enemy! That was what I told myself and that was my method during my life as a scientist. For me, the enemy was a disease.

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I was born on 28th October 1914, in New York City, USA. My parents were Jewish Russians, but they moved to America to find a better life. They learned a new language and a new kind of life. I had two brothers and a sister, and my parents worked hard to give us all a good home.

When I graduated from high school, my parents wanted me to attend college. At first, I planned to study law at City College in New York. But I was more interested in science than in law, so I decided to study medicine. I attended the New York Medical School and qualified as a doctor there. And in 1939, I married a girl called Donna Lindsay.

At that time, in the later 1930s, there was a terrible depression in America. Many people were very poor. Many people didn't have jobs. Many people were ill. I wanted to help people. But I decided not to become a family doctor. I decided to work in medical research. I wanted to study viruses.

After I qualified, I worked for a short time with Doctor Thomas Francis in Michigan. We wanted to find a vaccine to protect people against flu. Good progress was made on that project, but the work stopped for a while because of the Second World War. In those years, it was more important to do other projects. But later, we worked on flu again for the US Army.

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After the war, I moved to Pittsburgh and worked at the university there. At this time, my interest was in a vaccine against poliomyelitis. Polio, as it was usually called, was a terrible disease. It could cripple people and it could kill people. It could attack young people and old people. The disease had been identified in 1789. But 150 years later, it still crippled and killed millions of people. In 1952,

in the USA, more than 21,000 people died as a result of polio. Some people who had the disease survived, but had to live in a machine that helped them to breathe. Others were able to live better lives, but with weak limbs. These people were often unable to move their legs properly so they couldn't live normal lives.

Polio was my enemy. Day after day, and night after night, I saw the enemy at work. The disease was caused by a virus - I knew that. A man called Landsteiner had identified the virus in 1908. But I needed to know how the virus worked. I also needed to know how it moved from one person to another. Then perhaps I could find a vaccine that could stop the disease from doing this.

Perhaps an answer to my problem was immunization - protecting people by giving them injections. This had been successful with other diseases. Was it possible to protect people from a serious attack of polio by giving them a form of the disease which wasn't serious? I thought that this might be the correct answer to my problem, but lots of work was needed on the virus.

From 1950, it was possible to grow the virus in a laboratory because of the work of two other doctors. It was now possible to have large amounts of the virus to work on. I worked on this 'laboratory virus' and I found something useful. I found that the chemical called formaldehyde made the virus much weaker. 'If I inject this very weak virus into healthy people, will it protect them from getting polio?' I asked myself I tested the idea by injecting animals. It worked - the animals didn't become sick and they didn't get polio. Next I needed to test the injection on people.

I knew that the danger from a serious polio attack was much worse than the danger from my very weak laboratory virus. So I asked my wife Donna, 'Can I inject you and our three sons?' She agreed and I injected them, and also myself. None of us became ill.

I wanted to protect healthy people from polio. But I also wanted to improve the lives of people who already had the disease. I was able to inject some children who already had polio. The injections were successful. They made the lives of the children better. It was time to offer the treatment to many more people.

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By 1954, vaccinations had begun in the USA. Doctor Thomas Francis from Michigan was very helpful to me again. As a result, two million children, aged 6-9, were involved. And this was only the start.

Two years later, the number of people who got polio in the USA had fallen by 85 percent. The number of deaths from the disease fell, too. And by 1959, the vaccination was used in more than 90 countries.

In 1961, a man called Doctor Albert Sabin made a new kind of vaccine. It was an oral vaccine - it was put in patients' mouths and they swallowed it, so there wasn't an injection. This made it much easier to give the vaccine to children. Together, we were beating the enemy.

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There was still a lot of work to do. That's why, in the 1960s, I established a new laboratory - The Salk Institute for Biological Studies in La Jolla, California. We worked on treatments for many diseases there. By 1994, there was no poliomyelitis in the USA. But there was still a lot of polio in four countries - Nigeria, India, Pakistan, and Afghanistan. So the fight continued. My own research in my later years was on treatments for the HIV virus, which causes the disease called AIDS. That virus became a big problem around the world.

Disease will always be the enemy. Medical people will always have to fight against new diseases. But when I died, on 23rd June 1995, I knew that I'd made the world a better place.

### **The Life of Jonas Salk:**

1914 - Jonas Edward Salk was born on 28th October in New York City, USA. His parents, Daniel and Dora, were from Russia.

1921 - Franklin D. Roosevelt, who later became the American president, became ill with poliomyelitis. Many people in the world had this disease in the early twentieth century.

1930 - Jonas started to study law at the City College of New York. Then he decided to study medicine instead.

1934 - Jonas graduated with a Bachelor of Science degree and started to study at The New York University School of Medicine.

1939 - Jonas graduated from the New York University School of Medicine. He worked with Doctor Thomas Francis in Michigan, on research into flu. Jonas married Donna Lindsay and they later had three children.

1940 - Jonas worked as a doctor at Mount Sinai Hospital in New York.

1941 - He went to the University of Michigan to continue his work in virology. He was taught by Doctor Thomas Francis, and worked in his laboratory. Jonas and Doctor Francis developed a flu vaccine which was used by the US Army.

1944 - Jonas became Research Associate in Epidemiology.

1947 - He became the Director of the Virus Research Laboratory at the University of Pittsburgh.

1950 - Two scientists, Doctor William Hammon and Doctor Enders, found important new information in work on the polio virus. As a result, Jonas developed a vaccine.

1954 - National testing of the vaccine began.

1955 - Doctor Francis studied the vaccine and found that it was safe and that it worked. After that, the Salk Vaccine was used in every part of the USA.

1956 - President Eisenhower gave Jonas a Congressional Medal for Distinguished Civilian Service. By the following year, over 100 million people were injected with the vaccine.

1962-1963 - Polio was not a big problem any longer. Building began at The Salk Institute for Biological Studies in La Jolla, California. The first laboratory opened in 1963.

1968 - Jonas and Donna's marriage ended.

1970 - Jonas married Françoise Gilot. She had been a friend and model for the artist, Pablo Picasso.

1972 - Man Unfolding was published, followed by The Survival of the Wisest, one year later.

1976 - Jonas was named American Humanist of the Year.

1977 - President Jimmy Carter gave Jonas the Presidential Medal of Freedom.

1985 - President Ronald Reagan named 6th May as Jonas Salk Day in the USA.



1993 - China started a national project to vaccinate people against polio and over the next few years, other countries did the same.

1994 - By now, there was no more polio in America.

1995 - Jonas died on 23rd June in La Jolla, California, USA. He was 80 years old.

## Chapter 6: Christiaan Barnard

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1922-2001

The first man to replace a human heart

I became a doctor because I had a special ambition. My ambition was to give seriously ill people some extra years of life. For this reason, I became a heart surgeon. I became the first surgeon to transplant a human heart.

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I was born on 8th November 1922, in Beaufort West. Beaufort West is a town in the Karoo region of South Africa. My father was a missionary in the Dutch Reformed Church there - he taught people about religion. I had four brothers, but one of them died when he was very young. His name was Abraham and he died of heart failure. That was when I realized that human life is special, and our time on Earth is special.

I had lots of time to think about this because each day, I had to walk to school. Our home was more than two miles from the school. My father was a kind man, and he taught me about kindness. But my mother taught me about ambition. I worked very hard at school, because I wanted to become a doctor - my ambition was to be a surgeon.

I graduated from Beaufort West High School in 1940, and I went to study medicine at the University of Cape Town. By 1946, I had qualified as a doctor. First I worked at the Groote Schuur Hospital in Cape Town, then I worked as a family doctor in a small town in the province. During this time I met Aletta Louw. Aletta was a nurse, and we liked each other immediately. By 1948, we were married and we started our family. We had two children, Andre and Deirdre.

In 1951, we moved back to Cape Town, where I gained a Master of Medicine degree in 1953. The same year, I completed a thesis about the disease called tuberculous meningitis. I earned another degree because I had written that thesis.

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I started to work long hours at the Groote Schuur Hospital. This was when I became interested in the pump that we call the human heart. Memories of my

brother's death from a heart problem had never left me. 'How can I help other people with heart problems?' I asked myself. I wanted to learn more, so in 1956 I went to the USA to study heart surgery.

It was an exciting time, because new ideas about heart surgery were talked about in America. Doctor Norman Shumway and his colleagues were helpful to me. I wrote another thesis about a part of the heart called the aortic valve.

We discovered that we could probably replace diseased hearts, because of research with animals. But, many people didn't want doctors to replace human hearts. This was strange. For a number of years doctors had replaced other organs in the human body. Perhaps people could change their minds about hearts.

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When I returned to South Africa, I began to work on kidney transplants. In 1959, I did the first kidney transplants in South Africa. I was taking organs from dead people to give to living people. By doing this, I was keeping people alive. 'If it isn't wrong to transplant other organs, why is it wrong to transplant hearts?' I asked myself. Some people who didn't like the idea of heart transplants were religious people. And some of them were politicians. These people's reasons weren't medical ones. But some of my medical friends were unhappy about heart transplants too.

I did more tests with animals. The transplant operations were successful for a time, although the animals died later. The main problem was rejection - the animal's body could not accept the new heart.

I needed to test my ideas on a human. Louis Washkansky, a man aged 53, was dying from heart failure in my hospital. He couldn't live much longer. He agreed to have a heart transplant. Now we waited for a patient with a good heart to die from some other problem.

On 3rd December 1967, Denise Darvall died at the hospital. She was very badly hurt in a car crash, and she died soon after the accident. The transplant operation took five hours, with a team of 30 people - doctors and nurses. We took Denise's heart and transplanted it into Louis's body. The operation was a success, but only for a short time. Louis lived for 18 days, then his body rejected the new heart and he died.

The world's newspapers, radio and TV stations heard about the transplant. Suddenly, I was famous. The operation gave hope to many people, but we had to solve the problem of rejection. Then we could save the lives of many dying people.

On 2nd January 1968 we tried again. My team and I gave a new heart to a man called Philip Blaiberg. This time we dealt with the problem of rejection better. Philip lived for 19 months after the operation.

That operation was the second of my 165 heart transplants. Each time we did the operation, we learned more about how to improve the survival rate. The fifth person, a woman called Dorothy Fisher, lived for 12 years after the transplant. My sixth patient lived for 24 years after her operation.

All this was good. But transplanting a heart wasn't always the answer to a sick person's problem. I became interested in artificial heart-valves. Sometimes replacing a valve, not the whole heart, was a better way of solving a problem. This was especially true when children had heart problems.

There were problems again because some religious people and politicians didn't like the idea of artificial heart-valves. Some of them thought that using artificial valves was worse than transplanting human hearts! But for me, there was no problem. I remembered my little brother. I thought that everyone had the right to live.

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I was a famous person, with many famous friends. Film stars wanted to know me. But I continued with my work in heart surgery for as long as I could. When I stopped, in 1983, the reason was a medical one. I had arthritis in my hands. This medical condition made my hands very painful and I couldn't operate well on small organs.

I couldn't do operations, but I continued to speak on radio and TV. I wrote some books. I tried to help my colleagues by talking to the government. I talked to the politicians, but I disagreed with the government of South Africa, about many things. I hated its racist attitude to people who didn't have white skin.

One day, when I was 78, I had a pain in my chest. On 2nd September 2001, my own heart stopped working.

## **The Life of Christiaan Barnard:**

1922 - Christiaan Neethling Barnard was born on 8th November in Beaufort West, Western Cape, South Africa. Christiaan had four brothers. One brother, Abraham, died of a heart problem at the age of 5.

1940 - Christiaan graduated from the Beaufort West High School.

1941 - He began studying medicine, at the University of Cape Town's Medical School.

1945 - He graduated from the University of Cape Town with Bachelor of Medicine and Bachelor of Surgery degrees.

1946-1950 - Christiaan worked first at the Groote Schuur Hospital, Cape Town. He then worked as a family doctor in the town of Ceres, Western Cape.

1948 - He married Aletta Gertruida Louw, a nurse. They later had two children, Andre and Deirdre.

1951 - Christiaan returned to Cape Town and worked at the City Hospital, and at the Groote Schuur Hospital.

1953 - He completed his Master of Medicine degree and then he earned another degree, both at the University of Cape Town. The first kidney transplant was done in the United States in this year.

1956 - Christiaan went to the USA to study heart surgery. While he was at the University of Minnesota, Minneapolis, he met Doctor Norman Shumway.

1958 - He received a Master of Science degree in Surgery and then a Doctor of Philosophy degree from the University of Minneapolis. Christiaan returned to South Africa.

1959 - Christiaan did the first kidney transplant in South Africa.

1967 - With a team of 30 people, Christiaan did the first successful human-to-human heart transplant on Louis Washkansky. Washkansky lived for 18 more days.

1968 - Christiaan did another heart transplant. The patient, Philip Blaiberg, lived for 19 months after surgery.

1969 - Christiaan published a book about his life, 'Christiaan Barnard: One Life'.

1971 - He did a heart transplant on Dirk van Zyl, who then lived for 23 more years.

1977 - He used an animal heart as a temporary transplant in a human patient.

1983 - Christiaan developed arthritis in his hands and he stopped doing operations. He went to the Baptist Medical Centre in Oklahoma, to study what happens to bodies as people get older.

1993 - He published his second book about his life, The Second Life.

1990-2000 - Christiaan spent time in Austria, where he started the Christiaan Barnard Foundation for children. He often returned to his farm in Beaufort West, South Africa.

1997 - His book, The Donor, was published.

2001 - Christiaan died on 2nd September while he was on holiday in Paphos, Cyprus. He was 78 years old.

- THE END -