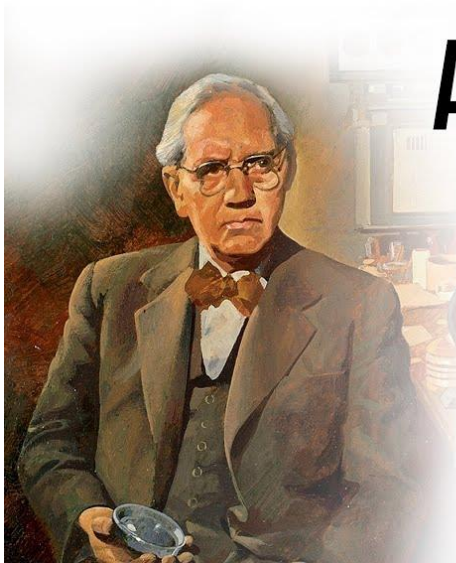


BIOGRAPHY OF ALEXANDER FLEMING



Biography of Alexander Fleming |



PENICILLIN

“It is not difficult to make microbes resistant to penicillin in the laboratory by exposing them to concentrations not sufficient to kill them, and the same thing has occasionally happened in the body. The time may come when penicillin can be bought by anyone in the shops. Then there is the danger that the ignorant man may easily underdose himself and by exposing his microbes to non-lethal quantities of the drug make them resistant.”

EARLY LIFE

- Born on 6 August 1881 at Lochfield farm , in Ayrshire, Scotland, Alexander was the third of four children of farmer Hugh Fleming from his second marriage.
- Hugh Fleming had four surviving children from his first marriage. He was 59 at the time of his second marriage, and died when Alexander was seven.
- Alexander’s earliest schooling, between the ages of five and eight, was at a tiny moorland school where 12 pupils of all ages were taught in a single classroom. Alexander arrived in London early in 1895, age 13.
- Alexander attended the Polytechnic School, where he studied business and commerce. His teachers soon realized he needed more challenging work. He was moved into a class with boys two years older than him and finished school at the age of 16.

MEDICAL SCHOOL

- His elder brother, Tom, was already a physician and suggested to him that he should follow the same career, and so in 1903, the younger Alexander enrolled at St Mary's Hospital Medical School in Paddington; he qualified with an MBBS degree from the school with distinction in 1906.
- He gained M.B. B.S. with Gold Medal in 1908, and became a lecturer at St. Mary's until 1914.
- Fleming served throughout World War I as a captain in the Royal Army Medical Corps. He and many of his colleagues worked in battlefield hospitals at the Western Front in France. In 1918 he returned to St Mary's Hospital, where he was elected Professor of Bacteriology of the University of London.

RESEARCH

- During World War I, Fleming witnessed the death of many soldiers from sepsis resulting from infected wounds. Antiseptics, which were used at the time to treat infected wounds, often worsened the injuries.
- Antiseptics worked well on the surface, but deep wounds tended to shelter anaerobic bacteria from the antiseptic agent.
- At St Mary's Hospital Fleming continued his investigations into antibacterial substances. Testing the nasal secretions from a patient with a heavy cold, he found that nasal mucus had an inhibitory effect on bacterial growth
- This was the first recorded discovery of lysozyme, an enzyme present in many secretions including tears, saliva, skin, hair and nails as well as mucus.

PENICILLIN

- In the month of August 1928, Fleming did something very important. He enjoyed a long vacation with his wife and young son.
- On Monday, September 3, he returned to his laboratory and saw a pile of Petri dishes he had left on his bench. The dishes contained colonies of Staphylococcus bacteria.
- A fungus was growing and the bacterial colonies around it had been killed. Farther from the fungus, the bacteria looked normal.
- Hoping he had discovered a better natural antibiotic than lysozyme, Fleming now devoted himself to growing more of the fungus. He identified that it belonged to the Penicillium genus and that it produced a bacteria-killing liquid. On March 7, 1929 he formally named the antibiotic penicillin.

WORLD FIRST ANTIBIOTIC

- Fleming published his results, showing that penicillin killed many different species of bacteria, including those responsible for scarlet fever, pneumonia, meningitis, and diphtheria. Furthermore, penicillin was non-toxic and it did not attack white blood cells. Unfortunately, the scientific world was largely underwhelmed, ignoring his discovery.
- Fleming faced a number of problems: It was difficult to isolate penicillin from the fungus producing it, he could not find a way of producing penicillin in high concentrations, penicillin seemed to be slow acting, clinical tests of penicillin as a surface antiseptic showed it was not especially effective
- Fleming's boss, Almroth Wright, had a generalized dislike of chemists and refused to allow them in his laboratory.

NOBEL PRIZE

- Regardless of these issues, Fleming continued with some work on penicillin in the 1930s, but never made the breakthrough he needed to produce it in large, concentrated quantities. Others, however, did. • In the early 1940s a team of scientists led by pathologist Howard Florey and biochemist Ernst Boris Chain at the University of Oxford transformed penicillin into the medicine we know today.
- In 1945 Alexander Fleming shared the Nobel Prize in Medicine or Physiology with Florey and Chain.

PERSONAL LIFE

- In 1945 he toured America, where chemical companies offered him a personal gift of \$100,000 as a mark of respect and gratitude for his work. Typically of Fleming, he did not accept the gift for himself: he donated it to the research laboratories at St Mary's Hospital Medical School.
- Their only son, Robert, became a general medical practitioner. In 1944 Fleming was knighted and became Sir Alexander Fleming. His wife Sarah died in 1949.
- In 1953 Fleming married Dr. Amalia Koutsouri-Voureka, who was working in his research group at St Mary's Hospital Medical School.
- On March 11, 1955 Alexander Fleming died age 73 in London of a heart attack. His ashes were placed in St Paul's Cathedral.