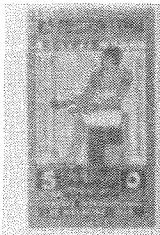
by Mr. Rex Stanbridge, FRCS

This article illustrates some of the important men who created the break throughs in Medical science over the ages. All those mentioned and in bold type have been honoured on postage stamps. Some by many countries and others by only a few. Where possible, the stamps of the country of their birth are used, but there are some notable exceptions.

Each illustration shows the man honoured, his country of origin and the detail of the stamp.



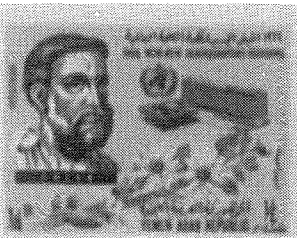



Fig. 1 *Fig. 2* *Fig. 3* *Fig. 4*

The origins of medicine go back many thousands of years B.C. The early Egyptians trained physicians. **Imhotep** (Fig 1) was the most famous Egyptian phsysician, he lived around 290 B.C. and was later made a god. The Greeks also had their gods of healing – Aesculapius, the son of Apollo – but **Hippocrates** (Fig 2) born in Cos in 460 B.C. laid down the foundations of medicine in Greece both as an art and as a profession – the Hippocratic Oath. His descriptions of diseases and philosophies remained important for centuries aided considerably by another Greek, **Galen** (Fig 3), who practised in Rome around 130 – 201 A.D. Galen extended the writings of Hippocrates and became a giant of medical knowledge, unshakeable throughout the middle ages. Indeed, so strong were the Galenic views that any challenge caused the beholder a fate worse than death.

One of the first to seriously challenge Galen's doctrine was **Vesalius** (Fig 4) (1514 – 1564), a Belgian anatomist whose major treatise 'de Humani Corporis Fabrica 1543' was obtained after much dissection in the mortuaries and from the gallows. **William Harvey** (Fig 5) (1578 – 1657) also had much trouble getting his famous discovery of the circulation 'de Motu Cordis' accepted by his peers when he published this in 1628. These two men turned round many of Galen's theories and seriously altered the medievil doctrine thereby laying down a more scientific basis for medicine.

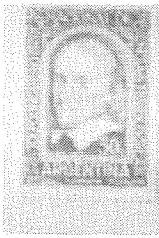




Fig. 5 *Fig. 6* *Fig. 7* *Fig. 8* *Fig. 9*

The first phase of this medical renaissance was the discovery of many inventions which became invaluable in the later years of clinical or pathological diagnosis and treatment. These discoveries included the invention of the microscope by **van Leeuwenhoek** (Fig 6) (1632 – 1723) in 1672; the discovery of

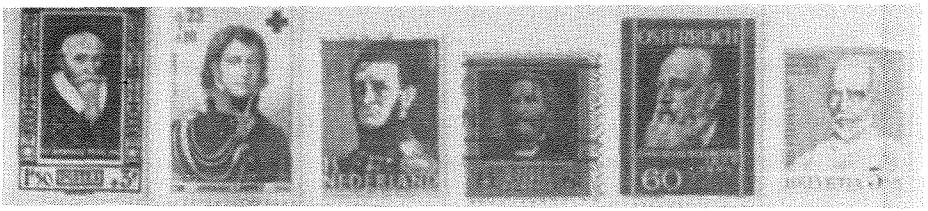


Fig. 10 *Fig. 11* *Fig. 12* *Fig. 13* *Fig. 14* *Fig. 15*

percussion by **Auenbrugger** (Fig 7) (1722 – 1809) in 1761; of oxygen by Priestly and **Lavoisier** in 1775 and of the stethoscope by **Laennec** (Fig 9) (1781 – 1826) in 1819.

Practical skills were improving with the knowledge learned from the anatomists and pathologists **Pare** (Fig 10) (1517 – 1590) introduced many modern foundations for surgery and revolutionised the treatment of trauma, introducing ligatures to control bleeding. Two centuries later **Larrey** (Fig 11) (1766 – 1842) a young surgeon attached to Napoleon's army, created the concept of 'flying ambulances' for the evacuation of battle casualities; and at Borodino he showed his skill by performing 200 amputations in 24 hours. Another distinguished military surgeon **Mathijsen** (Fig 12) (1805 – 1878) invented the plaster of paris in 1842 which was a considerable advance in the treatment of fractures and orthopaedic conditions.

Throughout these early, years alcohol was the substitution for anaesthesia until 1844 when Dr. Crawford **Long** (Fig 13) first used ether. With the advent of adequate anaesthesia the whole field of surgery was as it were opened up. Out of this new field emerged two brilliant surgeons. One was **Billroth** (Fig 14) (1829 – 1894) and the other **Kocher** (Fig 15) (1841 – 1917). Billroth used Listers antiseptic methods (see below) performing many operations for cancer on the upper gastrointestinal tract. Those he described for the stomach are still used today (Billroth 1 and 2 gastrectomy). Kocher was a Swiss surgeon who founded thyroid and neurosurgery for which he received the Nobel prize in 1902.

Fig. 16 *Fig. 17* *Fig. 18* *Fig. 19* *Fig. 20*

During the latter half of the 19th century heralded by the many medical discoveries the gates of knowledge of disease were at last being opened. **Rokitansky** (Fig 16) (1804 – 1878) was one of the pathfinders in pathology and one of the great men who made the Vienna School of Medicine supreme in the world at that time. Indeed the stamp honouring Rokitansky is one of the famous 1937 series of nine great Austrian doctors. The others include Auenbrugger, Billroth (illustrated), Von Arlt, Hyrtle, Von Hebra, Meynert, Skoda and Van Sweiten (not illustrated). **Virchow** (Fig 17) (1821 – 1902) was another great pathologist who dismantled the Hippocratic concepts of the four humours and set up the concepts of cellular pathology describing many important

diseases upon which its clearer understanding could now direct treatment.

One therapeutic discovery of immense benefit to the world was that of radioactivity by **Becquerel** (Fig 19) (1852 – 1908) in 1896 and of radium in 1898 by **Marie Curie and her husband Pierre** (Fig 18). After Pierre's tragic death in a street accident, Marie Curie went on to be the only person in the world ever to receive two Nobel prizes and in different fields of work (Physics and Chemistry). Although not realised at the time, radiation, was also the basis of the discovery of X-rays by **Roentgen** (Fig 20) (1854 – 1923) in 1898 from a screen coated with barium platino-cyanide. The X-ray is still one of the most important tools in the diagnosis of disease.

Fig. 21 *Fig. 22* *Fig. 23* *Fig. 24*

Infections

Infection was a great scourge to mankind during the years up to the 20th century. Not only was there no treatment, there was also no understanding of what caused each of the infective illnesses. Beginnings of understanding and treatment started with **Edward Jenner** (Fig 21) (1749 – 1823) who discovered vaccination. In 1775 he was certain that cowpox would protect against smallpox and in 1796 he tested his theory by injecting material from the sore of a milkmaid into a healthy 8-year-old boy. Two months later attempted to innoculate the same boy with smallpox. This failed to take. This was the discovery of immunisation as a preventive treatment for infective diseases. It was 100 years before this discovery was used again for any other conditions however. Meanwhile the elimination of infections (antisepsis) by hygiene and sterilisation were being recogised as being important. **Semmelweiss** (Fig 22) (1818 – 1865) introduced disinfection of the hands in 1847, thereby reducing the very high maternal mortality associated with childbirth.

Pasteur (Fig 23) (1822 – 1895) initiated the 'germ theory' of diseases: he developed a method of protecting wines from damage, a method known as pasteurisation which was later used to sterilise milk: and he created a vaccine against rabies trying it out in a young boy in 1885, just like Jenner had done a century earlier. After studying Pasteur's work, Joseph **Lister** (Fig 24) was sure that germs were the cause of putrification he had seen in wounds and in 1865 he introduced carbolic acid to treat compound fracture, thereby preventing

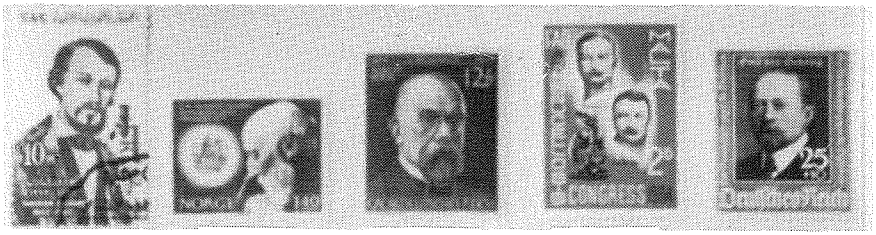


Fig. 25 *Fig. 26* *Fig. 27* *Fig. 28* *Fig. 29*

amputation in 10 of 11 subjects. His concept of antisepsis of the hands, instruments and wounds was the basis for clean, safe, modern surgery.

Much attention in the later half of the 19th century was given to the finding of the causative germ of the various infective illnesses. The first discovery was by **Bilharz** (Fig 25) (1825 – 1862) a German working in Egypt, who discovered the parasitic worm schistosoma in 1851 as the cause of schistosomiasis or Bilharzia, as it was later named. The bacillus for leprosy was discovered in 1871 by **Hansen** (Fig 26) (1841 – 1912) a young Norweigen who, at that time, studied this disease which was common in Norway and he dedicated his life to Leprosy. The greatest bacteriologist of the era however was **Robert Koch** (Fig 27) (1843 – 1910). He discovered the anthrax bacillus in 1876, the tubercle bacillus in 1882 and the cholera vibrio in 1883 together with proving its method of transmission through water. In 1890 he introduced innoculation against tuberculosis with tuberculin. This was a complete failure but led to a diagnostic test for TB – the Koch phenomenon, a basic immunological reaction still used today.

The next scene for discovery was set in Malta. The Australian **Bruce** (Fig 28) (1855 – 1931) discovered the organism micrococcus melitensis in 1856 in the spleen of 10 people dying of undulent fever. **Zammit** (Fig 28) (1864 – 1935) found an abnormal blood test in goats which led to their joint discovery that 50% of the islands goats carried the organism and 20% passed it on in their milk. Removal of goats milk from the diet of the British troops led to a fall in the incidence of undulent fever. Bruce went on to discover the organism trypanosoma in cattle and how the disease could be transferred to humans through the tsetse fly (sleeping sickness).

Fig. 30 *Fig. 31* *Fig. 32* *Fig. 33* *Fig. 34*

The diphtheria toxin was discovered in 1888 by **Roux** (Fig 30) (1853 – 1933) and **Yersin** (Fig 31) (1863 – 1943). The antitoxin was discovered by **Von Behring** (Fig 29) (1854 – 1917) in 1890 which he introduced for immunisation in 1891: Roux then mass produced this antitoxin by using horses and showed it had great value in prophylaxis of diphtheria in over 300 cases. Meanwhile Yersin went to an outbreak of bubonic plague in Hong Kong in 1893 and isolated its causative organism parsturalla pestis.

In India, **Ross** (1857 – 1932), who had been stimulated by the great tropical specialist Manson, discovered the malarial organisms in the stomach of the mosquito on August 20th 1897 and subsequently showed the life cycle of the organisms through the mosquito. Another mosquito borne infection, yellow fever, was suggested by **Carlos Finlay** (Fig 34) in 1881 to be carried by the mosquito, but this was not proven until 1901 by U.S. army major **Reed** (Fig 33) (1851 – 1902) who used volunteers in the Cuban outbreak following the Spanish/American war. Many of these volunteers died as a result. Mosquito control was the basis for prevention of both malaria and yellow fever and this was especially useful during the building of the Panama Canal from 1904 – 1914.

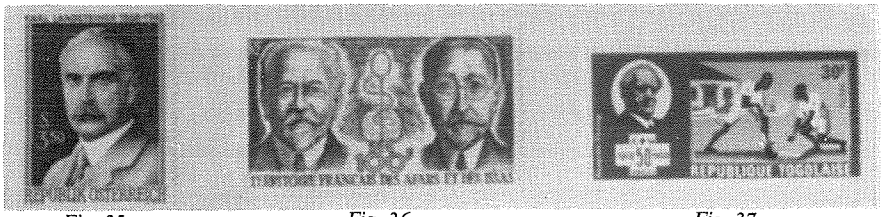


Fig. 35 *Fig. 36* *Fig. 37*

Darkfield microscopy, for the diagnosis of primary syphilis, was introduced by **Landsteiner** (Fig 35) (1868 – 1945), who also cultivated the rickettsia organisms and did pioneering work with immunochemistry. However, he is best remembered for his pioneering work in the discovery of the human blood groups in 1901 which found the basis for safe blood transfusions for which he was awarded the Nobel prize in 1930. By this stage the great era of discoveries had been passed and modern medicine was now looking at a more scientific approach, carefully evaluating methods of treating their newly understood diseases. **Calmette** (Fig 36) and **Guerin** (Fig 34) studied a method of immunisation against tuberculosis for over 10 years. It was not until they were certain that the bacillus-Calmette-Guerin (BCG) was safe and effective that this became introduced world wide and reduced the incidence of tuberculosis. However, the greatest discovery in the treatment of the infectious diseases was made by **Alexander Fleming** (Fig 37) working at St. Mary's Hospital Medical School in 1932. He noticed that on one of the culture plates growing staphylococcus there appeared a mould, which not only grew, but showed antibacterial properties on the culture plate. This mould was penicillin and from this discovery arose the antibiotic era which has revolutionised our management of infective diseases and allowed for increasingly complex medical and surgical procedures to be carried out with safety.

OBITUARY

We regret to announce the death of Chev. E.V. Cremona who passed peacefully away on the 29th January 1987.

Our sincere condolences go to his wife Lilian, his son Marco and his wife Marthese, his daughters, Ann, Sylvana, Nadia and their husbands Pierre, Ronald and Andrew.

A commemorative lecture was held on the 3rd March 1987, which will be published in the August 1987 issue.