

# War and Medicine

## GENERAL POINTS

Wars gave surgeons plenty of practice. They could see what the problem was and see how effective their treatment was. They developed tools which could help them e.g. one for extracting arrows and could even carry out some types of plastic surgery. The development of gunpowder brought new problems. Lead balls or shrapnel could be propelled deeply into the body and it was difficult to find and remove them. It was not until the 1840s that doctors could use effective anaesthetics and they often did not have them on the battlefield. It was not until the 1930s and 1940s when the sulphonamides and penicillin appeared that wound infections could be successfully treated. The problems of pain, infection, bleeding and replacing lost blood faced surgeons.

## PARE AND COOLING LOTIONS

Pare ran out of boiling oil - the usual way of treating wounds and reluctantly decided to use a cooling mixture of eggs, oil of roses and turpentine. The wounded treated with this lotion recovered much more quickly than those treated with boiling oil.

## FLORENCE NIGHTINGALE AND THE CRIMEAN WAR

When Florence Nightingale read about the poor conditions for the wounded in the Crimean War. She nagged and bullied the authorities to be allowed to go out with a team of volunteers. Her insistence on cleanliness and good food for the wounded reduced the death rate and made her think of ways to improve hospitals and the training of nurses back in Britain.

## HIGH DEATH RATES FROM DISEASE

In every major war before 1904 more soldiers died of disease than battle injuries e.g. in the Boer War which ended in 1901 5 times as many British soldiers died of disease as those killed by bullets. Soldiers were weakened by carrying loads over long distances. They were usually poorly fed. Diseases like smallpox could quickly spread. Their drinking water was often polluted and this could spread diseases like cholera, typhoid etc.

## WORLD WAR ONE AND BLOOD TRANSFUSIONS

The discovery in 1901 that there were 4 main blood groups made safer blood transfusions possible. Because so many soldiers in WW1 were bleeding to death before they reached the casualty stations a way had to be found of giving blood transfusions in front-line trenches. It was discovered that the blood cells could be separated from the liquid part (plasma) and then preserved in a glucose solution. Bottles of corpuscles could be packed in ice and then diluted with a warm saline solution when a transfusion was needed.

## EFFECTS OF WW1 ON FLEMING

Alexander Fleming was a doctor with the Army Medical Service. He saw that chemical antiseptics could not prevent septicaemia and gangrene in deep bullet and shrapnel wounds. He wanted to find a way of killing germs inside the body and worked at this after the war. In 1928 he discovered penicillin but could not produce it in quantity

## **WORLD WAR 2 AND THE MASS PRODUCTION OF PENICILLIN**

In 1939, when WW2 began, a new team of scientists took a look at the "magic mould". In 1940 Chain and Florey managed to produce pure penicillin in a long-lasting form but they could not produce it in quantity. They had to go to the USA since the British chemical industry was fully involved in the war effort. A way was found of growing the mould at depth. By 1943 enough penicillin was being produced to treat the British and American wounded.

## **WW2 AND PLASTIC SURGERY**

Pilots had terrible burns. Archbald Macindoe was a famous surgeon. He took skin from undamaged parts and grafted it onto the damaged parts. Penicillin helped reduce infection.

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