



## 60 JOSEPH LISTER

1827 - 1912

Joseph Lister, the British surgeon who introduced the use of antiseptic measures in surgery, was born in 1827, in Upton, England. In 1852, he received a medical degree from University College in London, where he had been an excellent student. In 1861, he became surgeon at the Glasgow Royal Infirmary, a position he was to hold for eight years. It was primarily during this period that he developed his method of antiseptic surgery.

At the Glasgow Royal Infirmary, Lister was in charge of the wards in the new surgical block. He was appalled by the high rate of postoperative mortality that occurred there. Serious infections, such as gangrene, were a common aftermath of surgery. Lister tried to keep his wards generally clean; however, this did not prove sufficient to prevent a high mortality rate. Many doctors maintained that "miasmas" (noxious vapors) about the hospital were the cause of these infections. However, this explanation did not satisfy Lister.

Then, in 1865, he read a paper by Louis Pasteur, which introduced him to the germ theory of disease. This provided Lister with his key idea. If infections were caused by microbes, then the best method of preventing postoperative infections would be to kill the microbes before they got into the open wound. Using carbolic acid as a germ-killer, Lister instituted a new set of antiseptic procedures. He not only cleaned his hands carefully before every operation, but made sure that the instruments and the dressings that were used were also rendered completely sanitary. Indeed, for a while he even sprayed carbolic acid into the air in the operating room. The result was a dramatic drop in postoperative fatalities. During the period 1861-1865, the postoperative mortality rate in the male accident ward had been 45 percent. By 1869, it had been reduced to 15 percent.

Lister's first great paper on antiseptic surgery was published in 1867. His ideas were not immediately accepted. However, he was offered the Chair of Clinical Surgery at Edinburgh University in 1869, and during his seven-year stay there his fame spread. In 1875, he toured Germany, lecturing on his ideas and methods; the following year, he made a similar tour in the United States. But the majority of doctors were not yet convinced.

In 1877, Lister was given the Chair of Clinical Surgery at King's College in London, a position that he held for over fifteen years. His demonstrations of antiseptic surgery in London aroused great interest in medical circles, and resulted in increased acceptance of his ideas. By the end of his life, Lister's principles of antiseptic surgery had won virtually universal acceptance among physicians.

Lister received many honors for his pioneering work. He was president of the Royal Society for five years, and was Queen Victoria's personal surgeon. Married, but childless, Lister lived to be almost eighty-five. He died in 1912, in Walmer, England.

Lister's innovations have completely revolutionized the field of surgery, and have saved many millions of lives. Not only do far fewer people die today from postoperative infections, but today surgery saves many persons who would be unwilling to undergo

operations if the danger of infection were as great now as it was a century ago. Furthermore, surgeons are now able to undertake complicated operations that they would never have attempted in earlier days, when the risk of infection was so great. A century ago, for example, operations that involved opening the chest cavity were not normally contemplated. Although present-day techniques of aseptic surgery are different from the antiseptic methods that Lister used, they involve the same basic ideas, and are an extension of Lister's principles.

One might claim that Lister's ideas were such obvious corollaries of Pasteur's that Lister is not entitled to any significant credit. However, despite Pasteur's writings, someone was required to develop and popularize the techniques of antiseptic surgery. Nor does the inclusion of both Lister and Pasteur in this book amount to counting the same discovery twice. The applications of the germ theory of disease are of such significance that, even when the credit is divided up, Pasteur, Leeuwenhoek, Fleming and Lister all are fully entitled to a place on this list.

There is another possible objection to Lister's being placed so high on this list. Almost twenty years before Lister did his work, the Hungarian doctor, Ignaz Semmelweiss (1818-1865), working in the Vienna General Hospital, had clearly demonstrated the advantages of antiseptic procedures, both in obstetrics and in surgery. However, although Semmelweiss became a professor and wrote an excellent book setting forth his ideas, he was by and large ignored. It was Joseph Lister whose writings, talks, and demonstrations actually convinced the medical profession of the necessity for antiseptic procedures in medical practice.