

Medical advancements during the industrial revolution

[History](#), [Revolution](#)



Medical Advancements in the industrial revolution

Compared with the other great time periods, the industrial revolution in particular was known to have had one of the largest impacts on the world. Some of the largest being advancements in technology leading to breakthroughs in the field of medicine. It was during the 18th century that scientists were able to discover cures for many previously incurable diseases through the use and application of these “ new” technologies. The government of the time was also forced to improve living conditions in order to create better sanitation, which in turn also helped to lower the risk of disease and raise life expectancy.

Disease accounted for many deaths in industrial cities during the Industrial Revolution. With a chronic lack of hygiene, little knowledge of sanitary care and no knowledge as to what caused diseases (let alone cure them), diseases such as cholera, typhoid and typhus could be lethal. As the cities became more populated, the problem worsened. Prior to advancements in medicine there had been little-to-no sanitation, and accordingly people living during this time had a very short life expectancy. Also, there was little understanding around how and why disease was constantly spreading. One of the major contributing factors was the housing conditions which the majority of the population dwelled: they were overcrowded, meaning that one small room could (and often did) house up to ten people. Houses did not have access to clean water, the water was contaminated with sewage, bacteria and other pathogens. With the majority of doctors knowledge being based upon traditional remedies that had little evidence, and there being

limited diagnostic tools or understanding, this also did not help the health of the population. Before and during the industrial revolution there was a common belief that disease was caused by “ bad smells” and “ invisible poisonous gas clouds.” With increasing numbers of people within cities, diseases and ill-health was on the rise, which promoted scientists to begin searching for scientific reasons behind diseases and thus deducting how to cure them.

Throughout the industrial revolution there have been accounts of poor living conditions coupled with bad building management systems, mass siltation and poor hygiene. FRIEDRICH ENGELS was known to have said ‘ In one of these courts there stands directly at the entrance, at the end of the covered passage, a privy without a door, so dirty that the inhabitants can pass into and out of the court only by passing through foul pools of stagnant urine and excrement.’ (Cotton times, 2012). This quote from his memoir shows the extent of pollution and the mismanagement of waste disposal. This also shows just how filth stricken and unhygienic the streets were. This abundance of pollution and waste was defined aided the spread of disease.

Until the occurrence such medical advancements surgery and other medical practices remained a task frequently done by barbers merely because they possessed the correct tools. The lack of any such pain killers, along with the continuing social disapproval due to such mortalities, created a continuous cycle where few people underwent surgery thus leading to limited knowledge and research done in the field. Therefore surgery and medicine in general progressed very little throughout the middle ages and all of that

changed in the industrial revolution due to revolutionary medical advancements.

It all began with the discovery of the properties of chloroform and ether in the 1850's by numerous scientist, thus making surgery effectively painless, though there was still a significant amount of pain after the effects of the anaesthetic wore off. On screen is a chart that shows the evolution of surgery and medicine in general. Even knowing this the number of people willing to undertake surgical procedures multiplied in the following years. This caused the increase of the death of patients post operation presumably due to bacterial infection. In the decades prior such a small quantity of people were willing to undergo surgery and the patients that did most likely died on the operating table therefore bacterial infection was relatively rare and thus their causes such as operating conditions, unclean surgical instruments as well general poor hygiene where remained unexplored. After countless deaths and a plethora of research came the answer: germs

In the 1850s Louis Pasteur make a significant breakthrough with his revolutionary germ theory of disease. He discovered the microorganisms were causing decay because they were constantly spreading. He concluded that these microorganisms where the cause of many diseases. He carried out his experiments by collecting air in flasks and determining which ones contained more bacteria. The flasks that had more bacteria were noted as containing air from places that had been very overpopulated and dirty. He extended his theory to explain the causes of many deadly diseases such as anthrax, cholera as well as TB. Now scientist could cure sicknesses based on

the discoveries made by Pasteur. Without Louis Pasteur the field of microbiology would not have existed. His contributions were crucial to the development of the Industrial Revolution and his discoveries are still relevant to this day. They have acted as building blocks for further discoveries and started a general trend in medicine. His contributions include, instituting changes in medical practices, to minimize the spread of disease, discovering that weak forms of disease could be used as an immunisation and finally he introduced the concept of viruses to the medical world. Because of his glowing accolades many regarded him as the “father of microbiology”. Personally I believe that he deserves such title because without his work many of modern medical discoveries would not have occurred but I do not credit him solely because I believe that the advancements made in the industrial revolution were a group effort and that many scientists contributed to its occurrence.

Although his research was neglected by the medical community for several years due to his unorthodox methods of practice, Edward Jenner revolutionised the study of medicine forever by creating a cure for Smallpox which has changed the practice of the prevention of many diseases with vaccines today saving countless lives. He built upon the work done by Louis Pasteur and created a vaccine for smallpox by inoculating his patients with cowpox. It was successful and became mandatory in Britain in 1852. With economic growth living standards were able to improve. Britain was able to turn the field of public health into a socio-medical vital to community health. Soon enough the new chapter of the revolution included focussing on the

public health movement and supporting the poor who were unable to pay for medical treatment. So the Public Health Act was passed, making sanitary improvements in the slums and stationed medical officers in every district in England. Infant mortality rates were decreasing and life expectancy was finally flourishing. After several medical findings such as relief from typhoid and surgery started to become widely practised.

In order to have surgery patients need to go under anaesthesia. To create anaesthetics mixed numerous chemicals and experimented to find out what effects they would have on humans. *Humphrey Davies* realised by experimentation that laughing gas was one factor that could reduce pain. Since this wasn't the most effective method therefore ether was used due to its ability to put patients to sleep. In 1847 James Simpson was the first to discover chloroform's ability to render patients unconscious. With this medical breakthrough surgery was able to become a quicker and a more efficient process. A problem with early surgery was that surgeons did not use antiseptics this caused infections in patients and many deaths.

Joseph Lister discovered that spraying patient's wounds with carbolic acid spray would kill microbes thus preventing the occurrence of infection and allowing the patient to heal correctly without infection. His spray was eventually used in public places as a sanitary precaution but some individuals at the time reported to having reactions to this acid.

In 1895 Wilhelm Röntgen discovered the use of x-rays in medical imaging, this brought great advancement to the medical world and surgery itself.

Without such a discovery the world's medical history would not have been the same. All of these inventions and progressions in medical technology have paved the way for a successful medical world as we know it. The machines, drugs, surgeries have all originated from the time of the industrial revolution. Of course they have progressed and evolved over the years and will continue to evolve as time goes on. If there was never a revolution such as this one the world would have never seen change. Our lives and lives to come will forever be different due to the medical advancements in the industrial revolution.

The industrial revolution was a turning point in history because its medical advancements improved health in the medical word, life expectancy and the spread of disease. There are many points that be argued as the most important part of the industrial revolution and turning points in history.

Although many historians like to say that the advancements in medicine where not as crucial to the occurrence of mass industrialisation as agriculture, per se. While I acknowledge their points and am in no way saying that the changes in agriculture was not important but I believe that the medical advancements and the change in legislation due to these advances where crucial to the continuation and sustainability of the industrial revolution. Because, a healthy workforce is a productive workforce. Without a healthy workforce industrialisation could not have occurred and workplace based injuries would not have been able to be treated and in the case of the agricultural revolution

While some people today like to focus on the work of just one person as “the” breakthrough which influenced the remainder of the Industrial Revolution, and as such shaped the medical field as we know it today, however, I disagree. I do not think it is possible to name just one man as the founder of modern medicine. Each of the scientists that I have named had unique contributions to the field, each independent of the other. Without any one of these, there would still be disease and ill-health throughout the world. To name just one man would be an injustice, thus I acknowledge each of these breakthrough scientists for their contributions and efforts to enable myself to live the safe and healthy life that I do today. I believe the most productive work that aided humanity has been done in collaboration throughout history. I believe that these advancements were a sheer coincidence and the correct number of scientist gathered at the right time under the correct circumstances lured by economic opportunities.

The medical advancements in the industrial revolution caused the worldwide improvement in life expectancy and public health. That world wide phenomenon had a domino effect throughout the following years and lead us to where we are today. Without the industrial revolutions medical advancements we would not be in the position we are in today with public health and life expectancy.