Was there a Medical Revolution?

Medicine 1750–1900

The term '**revolution**' means rapid change. We often refer to this period in history as the **Industrial Revolution** because there was rapid change in the way industry was organized and the way it functioned.

There was also an agricultural revolution (change in farming), social revolution (birth of a new middle class), political revolution (change in who could vote), transport revolution (change in ways of travelling around) and so on.

What we will be looking at in this unit is whether there was a **medical** revolution during this time.

Britain during the Industrial Revolution

	1750	1900
Percentage of population living in the countryside:	80 percent	20 percent
Most people worked in:	farming	industry
Machinery was mainly powered by:	hand, horse, or steam	steam
Travelling was quickest by:	sea/river	train
The total population was:	11 million	40 million
Was there state-funded education?	no	yes, for those aged 5–11
Life expectancy was:	35–40	45–50

How did industrialization affect medicine?

- Many people moved to towns to work, resulting in overcrowding and quickly built, poor quality housing. Health was badly affected as diseases spread rapidly.
- Improved communications allowed ideas to be exchanged.
- New factories and better technology could produce more sophisticated medical implements, such as fine syringe needles, or powerful lenses for microscopes.
- Progress in science led to many medical discoveries which were beyond understanding before. Doctors moved away from Galen's ideas and looked for scientific reasons for illness.
- Wars with France and in the Crimea led to improved surgical procedures and nursing care.

Health before the mid-19th century

- The cause of disease was not understood so cures were still based on superstition and ‘old wives’ tales’.
- Few people could afford doctors and most relied on herbal medicine.
- Those who suffered serious injury had little chance of survival.
- No one knew about germs or how infection was spread.
- Surgery was still very basic and dangerous, without **anaesthetics** or **antiseptics**.

Killer diseases of industrial towns

Tuberculosis (TB)	affected 15% of people in the 19th century.
Smallpox	killed or scarred thousands of people of all classes and ages.
Measles	often killed or blinded children.
Whooping Cough	severely weakened children who then often died of other common infections.
Scarlet Fever	killed thousands of children each year.
Diptheria	killed or maimed mainly children.
Influenza ('flu)	outbreaks killed thousands of all ages.

All of these diseases were spread by germs in droplets coughed or breathed into the air.

These diseases were spread by contaminated water:

Cholera killed very quickly and painfully.

Typhoid lasted several weeks and was often fatal.

This disease was passed on by bites from body lice:

Typhus lasted several weeks, often fatal.

Why did all these diseases became an enormous problem in the new industrial towns?

Overcrowded housing (often 10 people in a room);

Lack of sanitation (no proper toilets/sewage system);

Lack of fresh water supply (often contaminated with sewage).

Damp housing, **poor diet**, **pollution and long working hours** in dangerous factories all weakened people's resistance to disease. A mild attack of 'flu easily killed people in this condition.

Why don’t we get these diseases today?

Vaccination

Babies and children today are vaccinated against most of these diseases. Some diseases, such as smallpox, have been eradicated because of vaccination programmes.

Housing conditions

Today, strict regulations govern house building and public health measures control drainage and environmental health matters.

Standard of health

Most people today have a better diet, better working conditions and access to free health care. This makes them less susceptible to infections.

Who invented vaccination?

Until the 19th century, the only way to prevent smallpox was by **inoculation**. This was an ancient Chinese idea which had been brought to England in the previous century by Lady Mary Wortley Montague, who had witnessed 'smallpox parties' in Turkey:

> "…the old woman comes with a nutshell … of smallpox, and rips open [a vein] and puts into the vein as much smallpox matter as can lie upon the head of her needle."

The idea behind inoculation was to give a mild dose of smallpox to give long-term immunity to the disease itself.

While this was usually effective, it had the unfortunate side effect in some patients of giving them the full-blown disease, leaving them horribly scarred or killing them.

Edward Jenner and vaccination

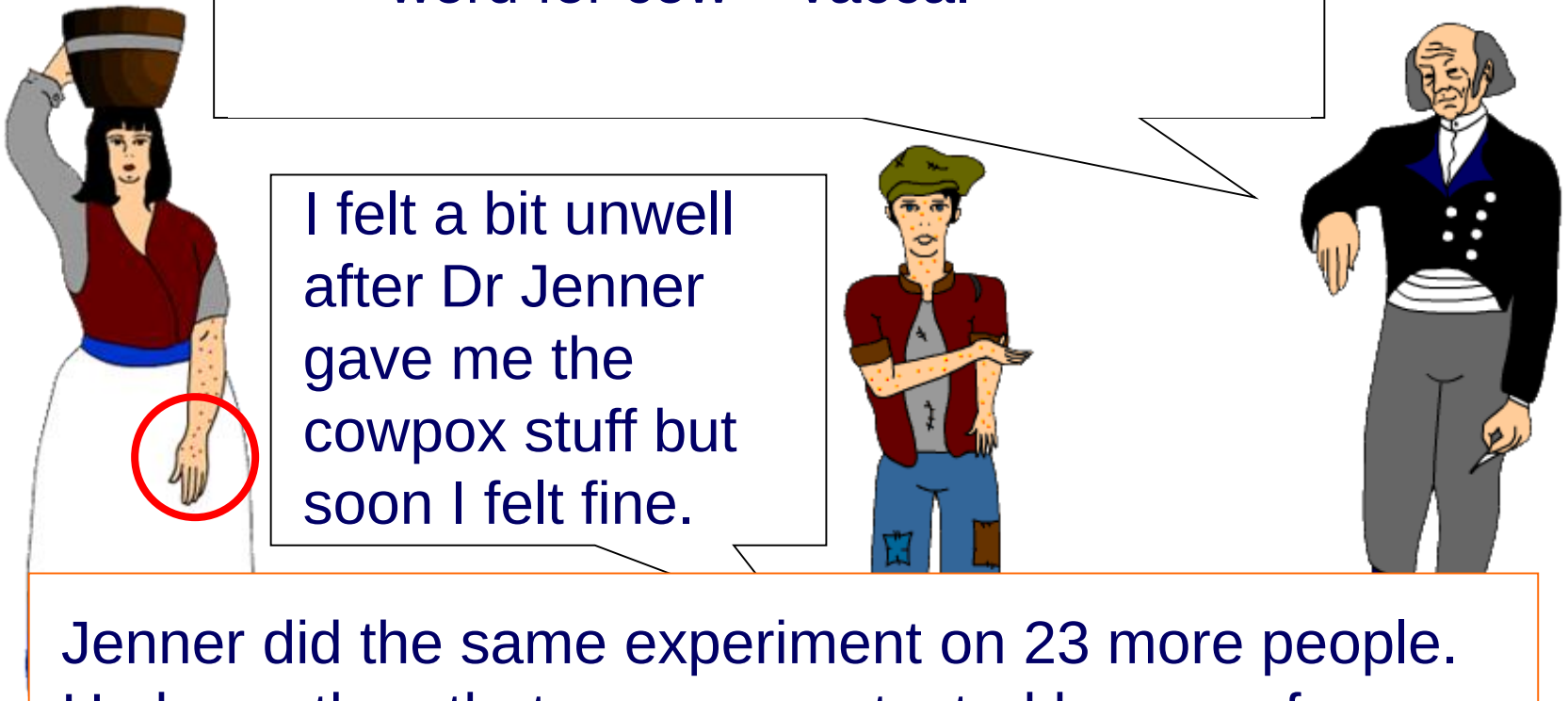
Edward Jenner (1749–1823) trained as a doctor in London under John Hanner, who encouraged him to experiment rather than accept existing ideas.

He returned to his native Gloucestershire where he set up his practice and, like other doctors, offered smallpox inoculation to his patients.

Jenner was surprised to find, however, that many people refused because, according to local folklore, those who had had cowpox (a cattle disease passed on to dairymaids and others in farming) never caught smallpox.

Jenner wondered if he inoculated patients with cowpox whether it would give them immunity against smallpox. It would certainly be less dangerous than inoculating them with smallpox matter because cowpox was only a mild illness.

Jenner's famous experiment



Jenner did the same experiment on 23 more people. He knew then that cowpox protected humans from smallpox, though he could not explain why.

Jenner sent his findings to the Royal Society but many were opposed to his idea and the Society refused to publish his work.

He published it himself in 1798 and it was read by many doctors, scientists and lay people all over the world. Finally, the benefit of his work was recognized and the government gave him £10,000 in 1802 and £20,000 in 1807 to open and run a vaccination clinic in London. This was a huge amount of money.

In France, Napoleon ordered that his whole army be vaccinated. The US president promoted vaccination, it became compulsory in Sweden and across Europe and in Asia people queued to be protected against smallpox.

In 1852 smallpox vaccination became compulsory in Britain.

1) Why do you think the Royal Society opposed Jenner?

2) Explain the part played here by: individuals, chance, and government.

3) How important was Jenner's discovery? Explain your answer and give examples.

Understanding the cause of disease

A major feature of the history of medicine before the 19th century was the lack of understanding of the **causes** of disease. Without that knowledge, attempts at the prevention and treatment of disease were based on superstition and guesswork. Needless to say, life expectancy was short.

In the 1850s, however, one man was to make a major breakthrough in the discovery of what caused disease – **Louis Pasteur**, a French scientist.

Louis Pasteur and the germ theory

Pasteur trained as a chemist in Paris and then developed an interest in biology. Using the latest microscopes he studied micro-organisms that were previously hidden to scientists.

He moved on to Lille university, in the heart of an industrial area. There he specialized in fermentation, in particular the souring of milk and the fermentation of wine and beer. He was asked to investigate why vats of beer kept going bad at a local brewery, and he discovered it was because of a micro-organism in the beer.

He called these **germs** because they were germinating, or growing. His theory was that these germs were causing the decay.

The old theory: Spontaneous Generation

Before Pasteur's experiments, it was believed that the micro-organisms found in rotting matter were formed by the decay. It was even thought that maggots which were found on things like rotting meat were created by the chemical process of decay.

Pasteur’s germ theory

Pasteur proved that living micro-organisms (germs) exist in the air and cause matter to decay. He believed that flies chose to lay their eggs on rotting materials, which hatched out into maggots. He then went on to show that germs in the air can land on people and cause disease.

How did he do it?

Pasteur was not the first to discover micro-organisms. The first microscope was built in the late 1600s by Anthony van Leeuwenhoek, who discovered ‘animalcules’. The poor quality of the lens, however, meant that he could not find out about them. Pasteur had the advantage of the new microscopes developed by Joseph Lister in 1830 which could magnify 1,000 times without distortion.

Needless to say, Pasteur’s ideas were ridiculed by some scientists and he knew he had to have undisputed proof. He carried out a number of carefully planned and recorded experiments. He found his proof and published his ‘germ theory’ in 1861.

You will find how he did it on the next slide. Explain how individual genius and technology helped the discovery of the germ theory.

Pasteur's experiments

To prove that micro-organisms lived in the air, Pasteur collected air in sterile flasks in Paris. He found that bacteria grew in the flasks. By repeating this experiment in different places he found that the air in some places, like Paris, had far more micro-organisms in it than places without so many people or so much pollution.

Pasteur applied his theory of decay by micro-organisms in beer, to the cause of disease in humans. If bacteria could cause beer to go bad then presumably they could make animals and humans ill. He looked at the French silk industry which was suffering because of a disease attacking the silkworms. Pasteur identified the bacteria which was causing the disease.

He also proved that bacteria could be killed by heating a liquid in a flask which he then sealed. It remained fresh. Today we have **pasteurized** milk – heated to kill harmful bacteria.

Robert Koch

Robert Koch was a German doctor who built on Pasteur's germ theory. During the late 1870s he identified the bacteria which caused anthrax, a disease in cattle, sheep and sometimes humans.

He achieved this by meticulous experiments and research. He injected the bacteria that he thought caused anthrax into 20 generations of mice. All the mice caught the disease and the bacteria he isolated in the last generation were the same as these that he had started with.

The main importance of Koch's work was the whole painstaking method of experiment. Using the same process, his team of scientists identified the bacteria causing cholera and TB.

He also developed a medium for growing the bacteria and a method of staining them so that they could be identified and classified.

List Koch's contributions to the progress of medicine.

Koch was critical of Pasteur's methods. He said researchers should be far more systematic, repeating experiments over and over again and recording the results each time to ensure consistency and correct conclusions.

Koch was heavily funded by the German government because of his meticulous research and the importance of his work. Other doctors and scientists followed his ideas closely.

Pasteur was not going to let Koch outdo him. There was great competition between them, not just scientifically, but because of Germany's defeat of France in the Franco-Prussian war of 1871. Pasteur's appeal to the French government for funding was successful and he selected the top French scientists to assist him. The battle now was to be the first to find cures for diseases.

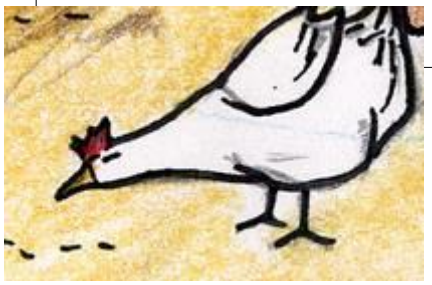
How might Pasteur and Koch's rivalry have been both good and bad for the progress of medicine?

Pasteur's search for vaccinations

Jenner had produced a vaccine against smallpox but could not explain how it worked. Pasteur had discovered the link between germs and disease and Koch had invented methods of identifying the bacteria for different diseases. In 80 years they had revolutionized the theories of the cause of diseases. Yet how could they use their ideas to combat disease?

Pasteur searched for vaccines against diseases by trial and error. He was asked to look at chicken cholera, because it was devastating French farming. He isolated the chicken cholera bacteria and injected chickens with different strengths of it, without success. His laboratory closed for the holidays in the summer of 1879.

Pasteur was now to have a bit of luck. Some chicken cholera bacteria were left out, exposed to the air. They were weakened severely and when injected into chickens had no effect. When subsequently injected with new bacteria (which should have killed them) the chickens suffered no ill effects. Pasteur had found a vaccine against chicken cholera.



Apart from helping the French farming industry, why was Pasteur's discovery so important?

By 1881, Pasteur and his team had developed a vaccine for anthrax. To prove it worked he vaccinated 25 sheep with a weak strain of the disease. A fortnight later he injected them and 25 others with the full strength bacteria. The 25 vaccinated sheep remained fit and well, whereas the unprotected 25 sheep all died.

Despite Koch's criticisms of Pasteur's methods, Pasteur achieved international acclaim for his discovery. Two years later he had developed a vaccine for rabies, a terrible disease in dogs, whose bites were fatal to humans.

Doctors now knew that once the bacteria causing a disease had been identified, a vaccine could be searched for. By the end of the 19th century the causes of the following diseases had been identified:

smallpox, TB, cholera, typhus, tetanus, pneumonia, meningitis, plague, diphtheria and dysentery.

All of these were killer diseases against which there had previously been no protection.

Use your notes so far to complete the following chart:

Date	Doctor/ Scientist	Discovery	Importance
1798	Jenner		
1850s/60s	Pasteur		
1860s	Koch		
1880s	Pasteur		

How had diseases been prevented before?

Although Koch and Pasteur proved the link between bacteria and disease, it had been known for a long time that there was a connection between the two.

The living conditions in 19th-century towns were appalling for most of the working class. Rapid increase in population and mass migration to the new towns resulted in whole families living in one room with no sanitation. A privy (primitive toilet) would often serve 10 or more dwellings. There was no fresh water supply to the houses – a street pump would serve many people. Inadequate drainage systems often resulted in sewage seeping into water supplies.

With the benefit of modern knowledge it is easy to see why there was such a high death rate in these towns.

Problems of towns

Today, any new building scheme has to be approved by the town planning department, but in the 18th and 19th centuries anyone who owned land could build whatever they wanted on it.

There were no laws governing the quality of building, and many landlords built as many dwellings as they could on their land to ensure the highest income possible.

Houses were crammed together, many had no foundations, they were damp and lacked ventilation. Very few had any form of **sanitation** (toilets). Sometimes there was a **privy** (primitive toilet) shared between several houses.

Problems of no sanitation

The next slide gives you evidence collected in 1841–42 about the lack of sanitation in some housing areas. When you have read the evidence make a list of as many problems as you can which these writers found.

Whom would you make responsible for such conditions: the inhabitants, the landlords or the local authority? Explain your answer.

Problems of no sanitation

‘They are built back-to-back without ventilation or drainage. Double rows have a water pump at one end and a privy at the other. These are used by about 20 houses.’ **Evidence given to the House of Lords, 1842.**

‘There are no yards or out conveniences; the privies are in the centre of each row, about a yard wide; over them there is part of a sleeping room; there is no ventilation in the bedrooms.’ **From Edwin Chadwick’s report, 1842.**

‘I found the whole court [12 houses] inundated with fluid filth which had oozed through the walls from two adjoining cesspools, and which had no means of escape, the court being below the level of the street, and having no drain.’ **Report from Dr Duncan, Liverpool, 1841.**

All water had to be fetched by hand from a communal pump. Clothes were washed by hand.

What do you think were the effects of no running water on personal hygiene?

Problems of overcrowding

The shortage of housing often meant that one house accommodated several families, each having one room:

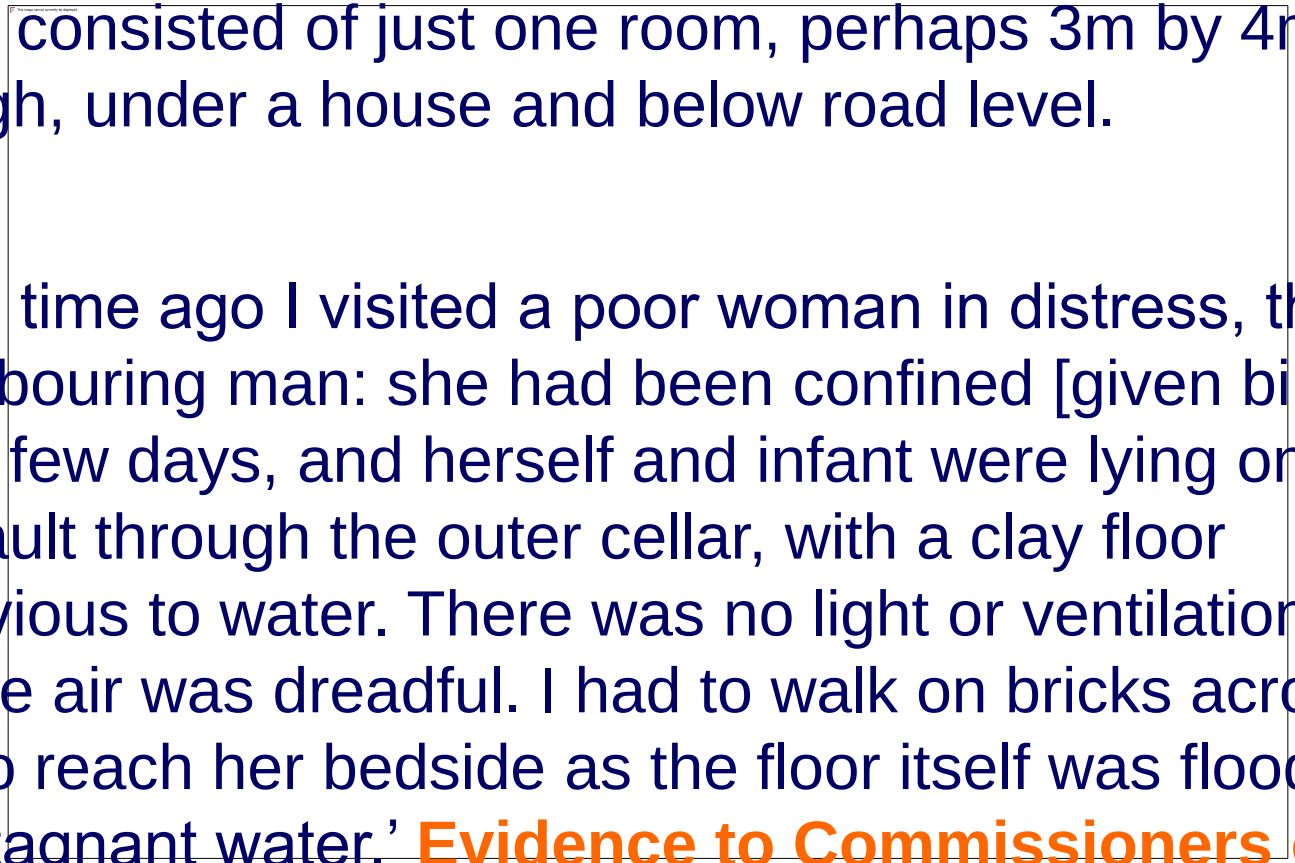
‘On the second floor lived a widow. In her room lived her grown-up son, two daughters, and two or three children of one of these daughters. Above on the third floor lived a market porter, his wife and four children.’ **Charles Booth, 1889.**

Most of these slum dwellings contained little in the way of furniture. Many had just a table, a few chairs and a bed. Some did not even have that. A bed would be shared by several family members, but if some did shift work the bed could be used night and day.

What problems would overcrowding like this have brought?

Cellar dwellings

In many towns the poorest people lived in cellar dwellings. These consisted of just one room, perhaps 3m by 4m by 2m high, under a house and below road level.



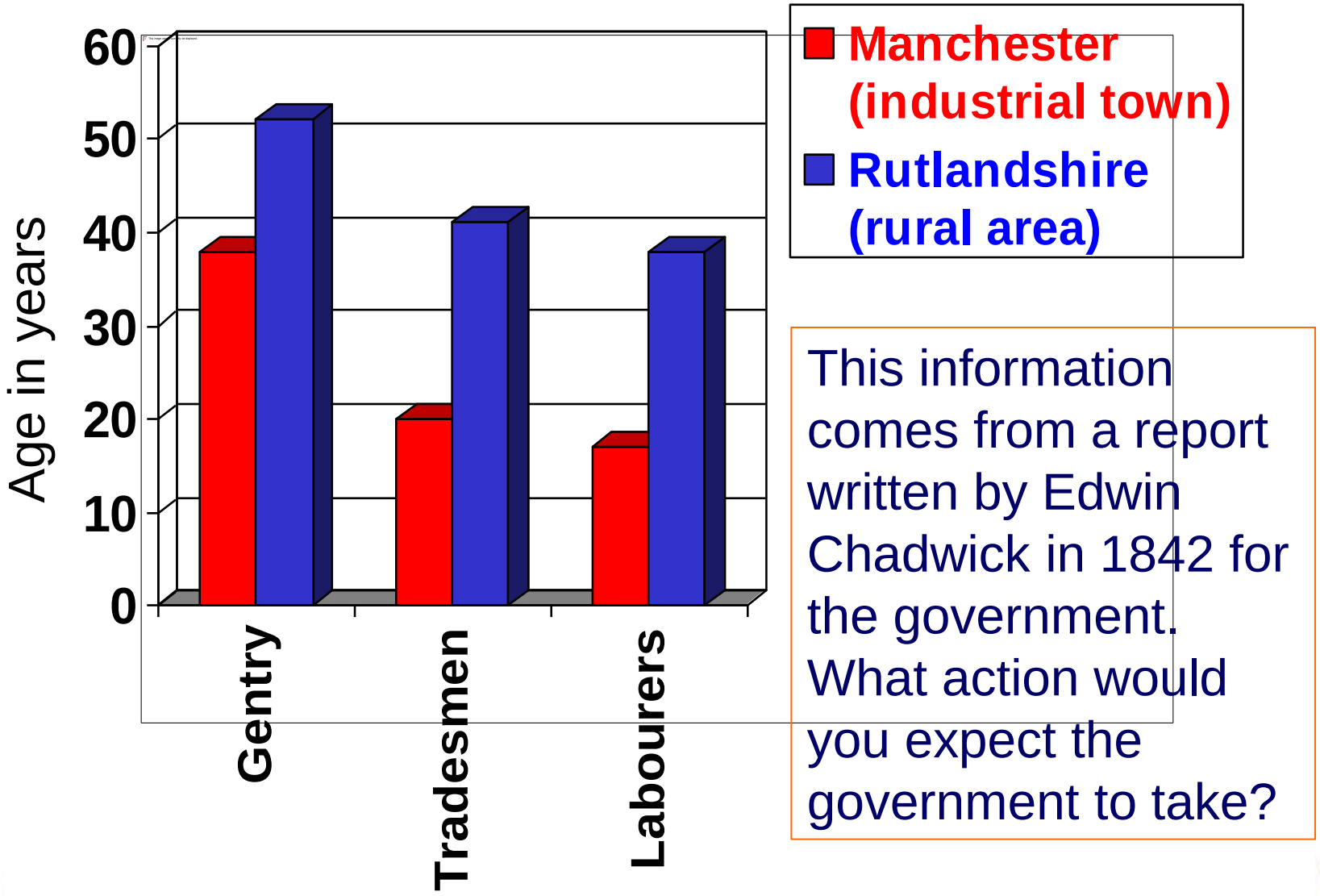
‘Some time ago I visited a poor woman in distress, the wife of a labouring man: she had been confined [given birth] only a few days, and herself and infant were lying on straw in a vault through the outer cellar, with a clay floor impervious to water. There was no light or ventilation in it, and the air was dreadful. I had to walk on bricks across the floor to reach her bedside as the floor itself was flooded with stagnant water.’ **Evidence to Commissioners of one of Liverpool’s 40,000 cellar dwellers, 1845.**

Effects of poor housing

Needless to say the major effect of such poor, overcrowded and dirty housing was poor health. The awful living conditions were an ideal environment for diseases to spread.

TB (tuberculosis), diphtheria, measles, cholera and influenza (‘flu) were just a few of the diseases which claimed hundreds of thousands of lives. Together with dangerous working conditions, long hours, poor diet and pollution, this resulted in an average life expectancy for the labouring class in Manchester of just 17 years.

Life expectancy in town and country



This information comes from a report written by Edwin Chadwick in 1842 for the government. What action would you expect the government to take?

Cholera

In 1832 a disease called cholera was brought to Britain by soldiers returning from India. It terrified people because it could kill them in a matter of hours. It struck people suddenly and at random, with victims losing half a litre of fluid an hour through diarrhoea and vomiting.

It spread through infected drinking water. Often water was contaminated by sewage seeping into water supplies. A number of outbreaks of cholera in the 19th century killed thousands of people. Many of these came from the poorer areas and some of the middle- and upper-classes blamed them for living in such squalor.

Some, however, blamed the authorities or landlords for forcing people to live in such awful conditions. No one at that time knew what caused cholera.

Cholera could kill in a few hours. Epidemics killed thousands of inhabitants in the poorer areas.

John Snow and the Broad Street pump

Following the 1832 epidemic, it was suggested that there might be a connection between cholera and the water supply, but it was not until the outbreak in 1854 that this idea was confirmed. Dr John Snow was a doctor who tried to find the real cause. He interviewed people in one particularly badly hit area of London, and found that the majority of cases had got their water from a pump in Broad Street.

There were some places, such as a brewery nearby, where very few cases of cholera occurred. In his research, however, he found such places got their water from elsewhere or had their own water supply. When he had established that the water from the Broad Street pump must be contaminated he removed the pump handle. The cholera outbreak ended and their were no more deaths. Seven years later Pasteur's germ theory gave further proof.

Edwin Chadwick

Edwin Chadwick and Charles Booth are both famous for publicizing the awful conditions in 19th century towns.

In 1842 Chadwick's report contained many shocking details of what many people had to face every day. He recommended better quality housing, good sewage systems and fresh water. The cost of this, however, would have to be met by the ratepayers. (Only the better-off had to pay rates.)

A Public Health Act was passed in 1848 based on Chadwick's recommendations, but it was not compulsory and only a few local authorities took action. Further acts were passed in 1872 and 1875 and then local authorities **had** to clean up their towns.

Why do you think many local authorities refused to install public health systems until the 1870s?

Charles Booth

In 1889, 47 years after Chadwick's report, a wealthy businessman called Charles Booth published his findings of living conditions in the East End of London.

Like Chadwick, he reported overcrowding, vermin (rats), damp and unventilated housing and infected water supplies.

"The yard behind is barely large enough for a dustbin, closet and water tap, all serving 6 or 7 families. The water comes from a cistern that is always full of rubbish, sometimes a dead cat". **Charles Booth, 1889.**

Look at what Booth found, nearly half a century after Chadwick's report. How effective had a) Chadwick's report and b) the public health acts been? Explain your answer.

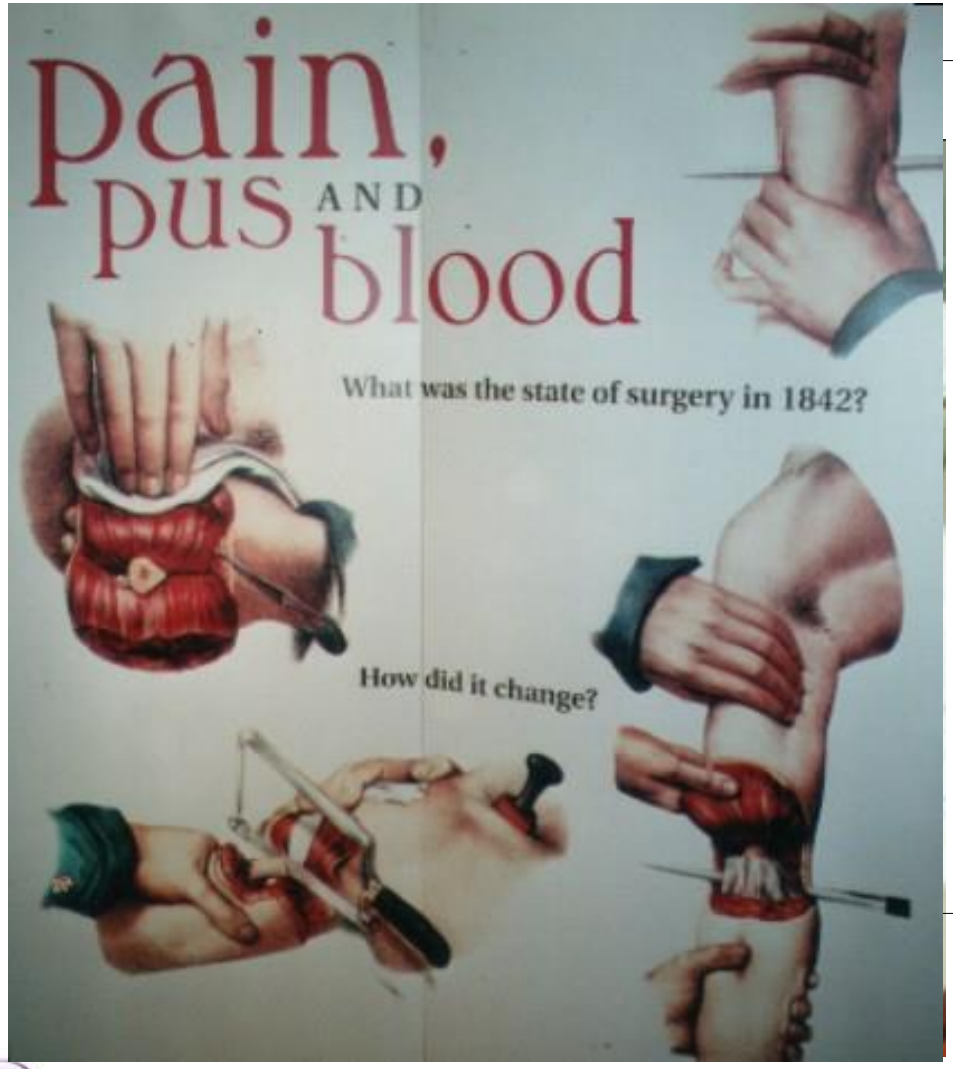
Titus Salt

Some industrialists decided to improve their workers' living conditions. Better housing meant healthier, happier and more efficient workers.

In 1850 Titus Salt, a self-made cotton mill owner, built a new industrial 'village' just outside Bradford which he called Saltaire. As well as a vast new mill and factory, he built 850 houses for his workers. Each house had gas, water and its own privy. In the village he added public baths, schools, a laundry, church, hospital, library and a large park.

Similar villages were built later by George Cadbury, who set up Bourneville in 1895, and W H Lever who built Port Sunlight in 1888.

19th century surgery



"The progress of surgery in the 19th century was due first to individual genius and then advances in science and technology." At the end of this section you will be asked whether you agree with this statement. As you go through each slide, note down the contributions made by each person discussed and the advances made in science.

Before the 19th century, surgery was very dangerous and had a very low success rate. This was due to three major reasons:

No anaesthetics – there was nothing to 'knock out' patients during an amputation or operation, so several assistants had to hold the patient down and keep them still while the surgeon worked very quickly.

No antiseptics – lack of knowledge about germs and what causes disease meant that there was no idea about cleanliness in surgery. Infections from surgery or hospital care killed a lot of patients.

No blood transfusions – cauterization or ligatures were used to stop bleeding, but blood could not be replaced in the way we expect today.

The development of anaesthetics

Surgery without anaesthesia had to be fast and was dangerous. Napoleon's surgeon, Dominique Jean Larrey, amputated 200 limbs in 24 hours at the Battle of Borodino in 1812. Intricate operations were out of the question, though some that would take several hours today were performed in just a few minutes, like novelist Fanny Burney's mastectomy in 1811:

"…when the dreadful steel was plunged into the breast – cutting through veins – arteries – flesh – nerves – I needed no injunctions not to restrain my cries. I began a scream that lasted unintermittingly during the whole time of the incision … When the … instrument was withdrawn, the pain seemed undiminished, for the air that suddenly rushed into those delicate parts felt like a mass of minute but sharp and forked poniards (daggers) that were tearing the edges of the wound."

Having read that horrendous account of an operation, do you think such practises were justified?

During the 18th and 19th centuries, scientists were experimenting with the properties of chemicals and the effect they had on humans. In 1799 Humphrey Davy (who later invented the safety lamp for miners) discovered that pain could be reduced by using laughing gas.

Nearly 50 years later, ether was found to put patients to sleep and was used successfully as an anaesthetic. However, it could cause the patient to cough or vomit, not ideal when a surgeon is cutting them with a knife! It was also highly inflammable.

James Simpson

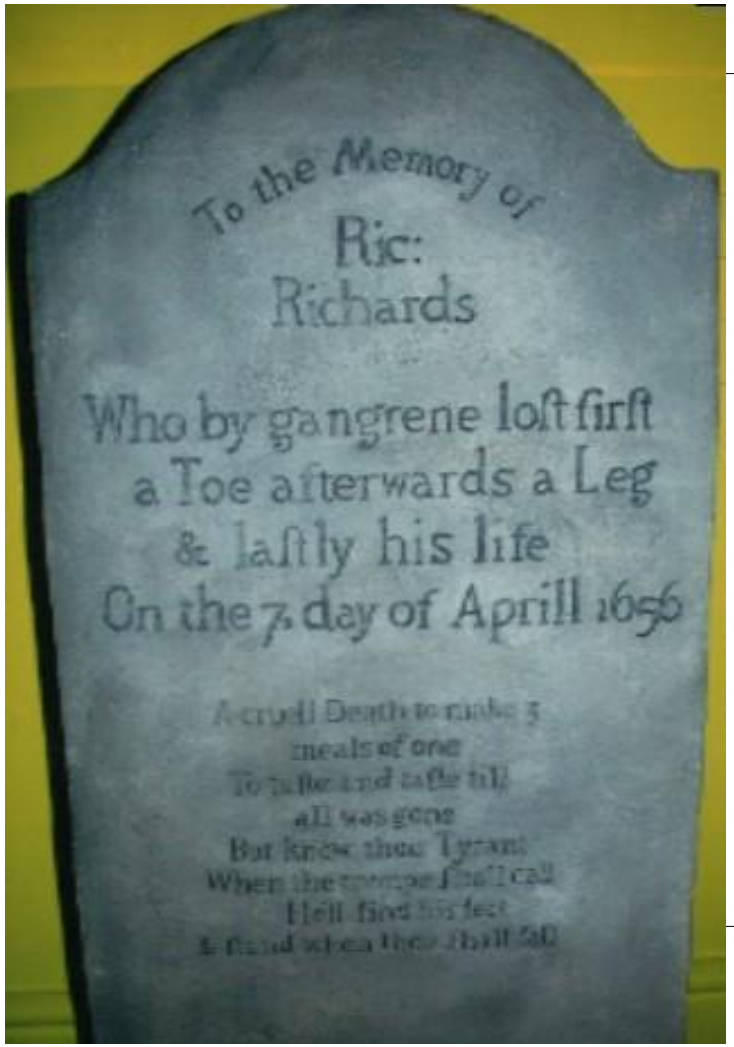
In 1847, a breakthrough was made by James Simpson, a professor at Edinburgh University. He and several assistants tested several different chemicals at his home. In the process a bottle of chloroform was knocked over and when Mrs Simpson entered the room she found them all asleep.

Simpson was so excited with the effects of chloroform that he used it on 30 patients that week.

Now operations could be performed at a sensible speed and more intricate operations could be attempted. Yet many were fiercely opposed to pain relief. Some feared possible side effects from this new anaesthetic, and an overdose could kill. Others objected to pain relief during childbirth, claiming that pain was sent by God and that it “improved the moral character of women…”

In 1853, however, Queen Victoria was given chloroform during the birth of her eight child. Her approval of it was enough to silence the critics and put it into general use.

The development of antiseptics



For generations surgeons had gone from one operation to the next without washing their hands or wearing masks or gowns or overalls. Infection was the cause of many post surgical deaths, with gangrene being very common.

A far higher proportion of women who gave birth in hospitals died of infection than those who gave birth at home.

Ignaz Semmelweis

In a hospital in Vienna in the 1840s Ignaz Semmelweis, a physician, noticed that 'childbed fever' was very high in one maternity ward, with 29% of women dying. In another ward the death rate was just 3%. In the first ward medical students were looking after the women, often straight after carrying out autopsies and without washing their hands or instruments.

Semmelweis moved the medical students to the other ward and the fever problem swapped wards too. Other doctors did not believe him and labelled him a crank. He moved to Budapest where he experimented with chlorine hand washes and the childbed fever death rate fell below 1%.

Why could Semmelweiss not explain his theory about infection? Pasteur's germ theory was not published until 1861.

Joseph Lister

Joseph Lister, a brilliant surgeon, was able to, however. He was the son of Joseph Lister who produced the first powerful microscope in 1830. He specialised in gangrene and septicaemia (blood poisoning) and had studied Pasteur's work with interest.

Lister experimented by spraying wounds with carbolic spray before applying clean bandaging. He found his patients healed without developing gangrene. Like Semmelweiss he promoted hygiene in surgery.

As usual, there was opposition to his ideas by other surgeons– his antiseptics cost money, his methods extended surgery time, many still did not accept Pasteur's germ theory, surgery was dangerous and patients were expected to die of infection. They did not like change.

Lister was helped by Robert Koch, however, in 1878. Koch identified the bacteria which caused septicaemia. An award from the Sorbonne University in Paris for his work in fighting disease further endorsed his methods, and within a few years his antiseptic procedures were finally in place in most operating theatres.

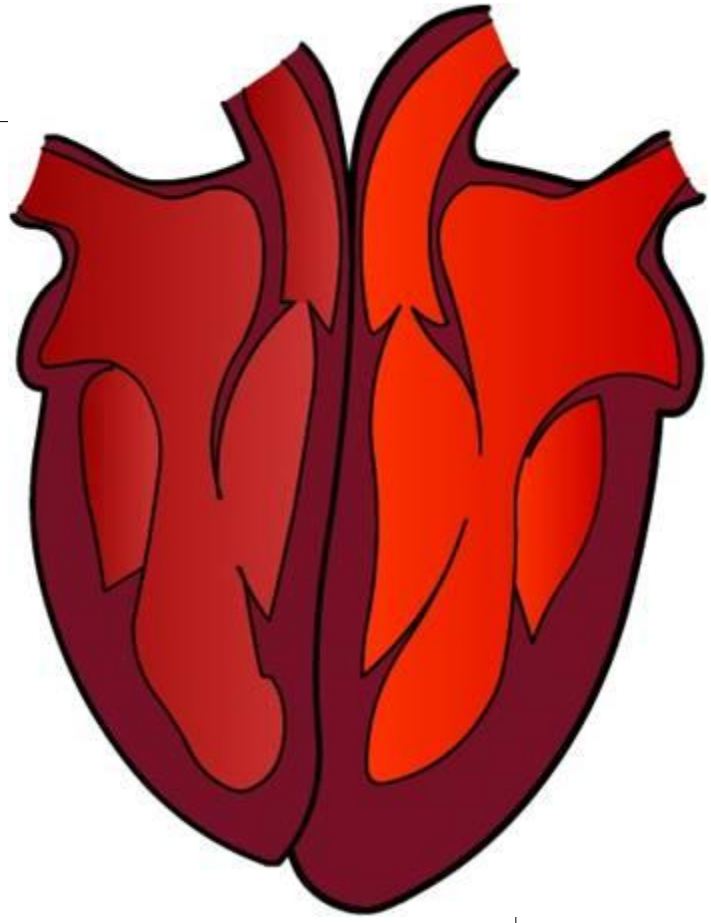
These included:

- meticulous cleaning of hospitals and theatres
- steam-sterilization of all instruments
- use of sterilized rubber gloves.

Lister also applied his antiseptic idea to ligatures. He used catgut which could be sterilized and would be less likely to cause infection.

Blood transfusions

Although Lister had improved the use of ligatures, it was still not possible at the end of the 19th century to replace lost blood by way of blood transfusions. Not only did doctors not know how to stop the blood clotting, but when they did manage transfusion the patient often died, which they could not explain. In the 20th century it was discovered that there were different blood groups.



1) Compare surgery in 1840 with that in 1900.

2) Which of the following do you regard as the most important figure in the development of surgery at this time: Lister, Simpson or Pasteur? Explain why and give examples.

3) Which factor do you think was the most important in the development of surgery in the 19th century?

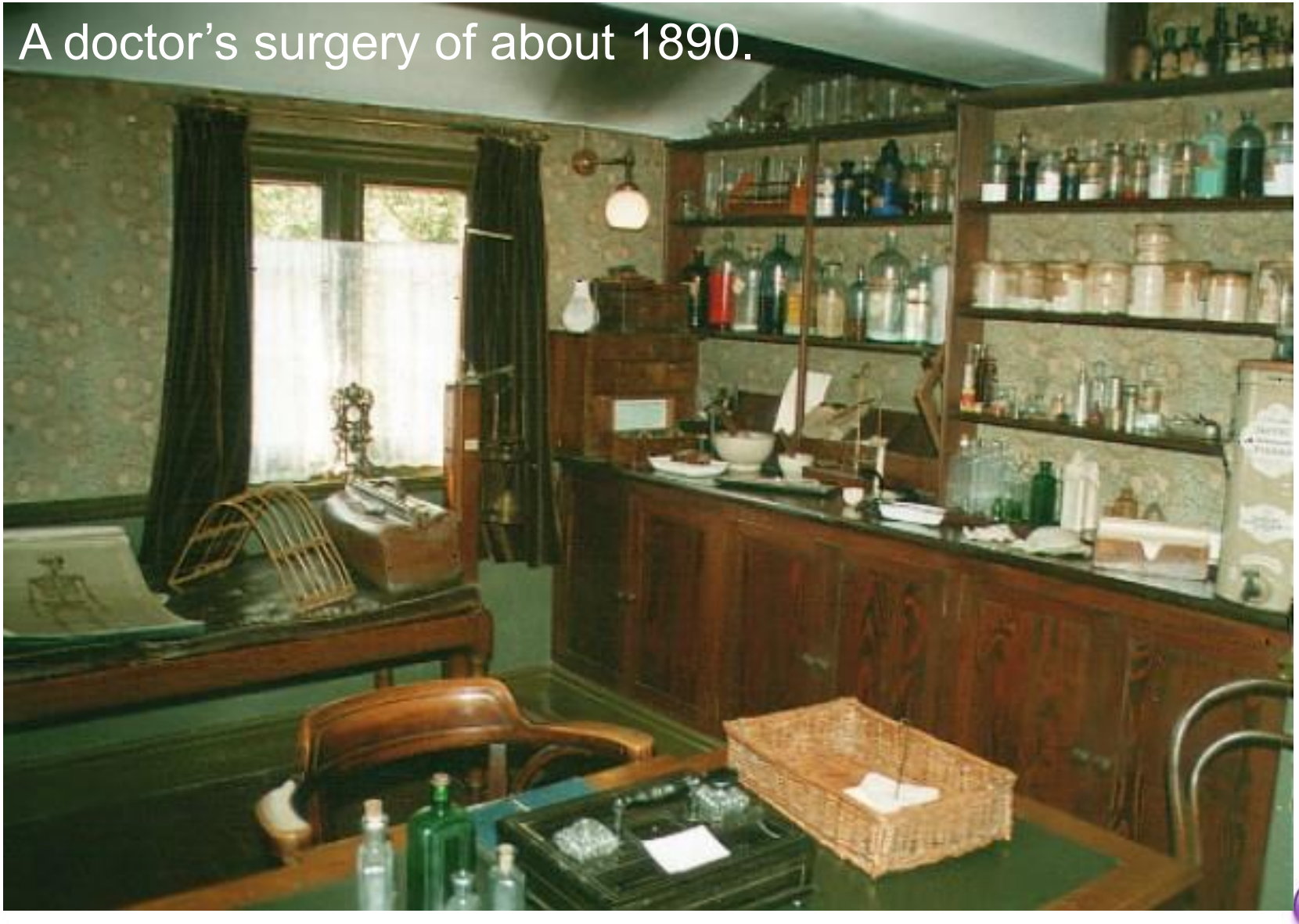
4) “The progress of surgery in the 19th century was due first to individual genius and then advances in science and technology”. Do you agree with this statement?

Who could treat you in the 19th century?

As we have seen, before the work of Pasteur and Koch, no one understood the causes of diseases. Therefore the treatments used either did not work, or worked because of luck. In addition healers did not realise the need for hygiene.

Doctors trained as apprentices, usually under a senior doctor or surgeon. They learnt by observation, lectures and some practical experience. They studied the drugs and remedies used to treat most illnesses.

Once trained they could become a general practitioner (GP). They charged their patients for their services, but most did not charge the very poorest. They also acted as midwives.

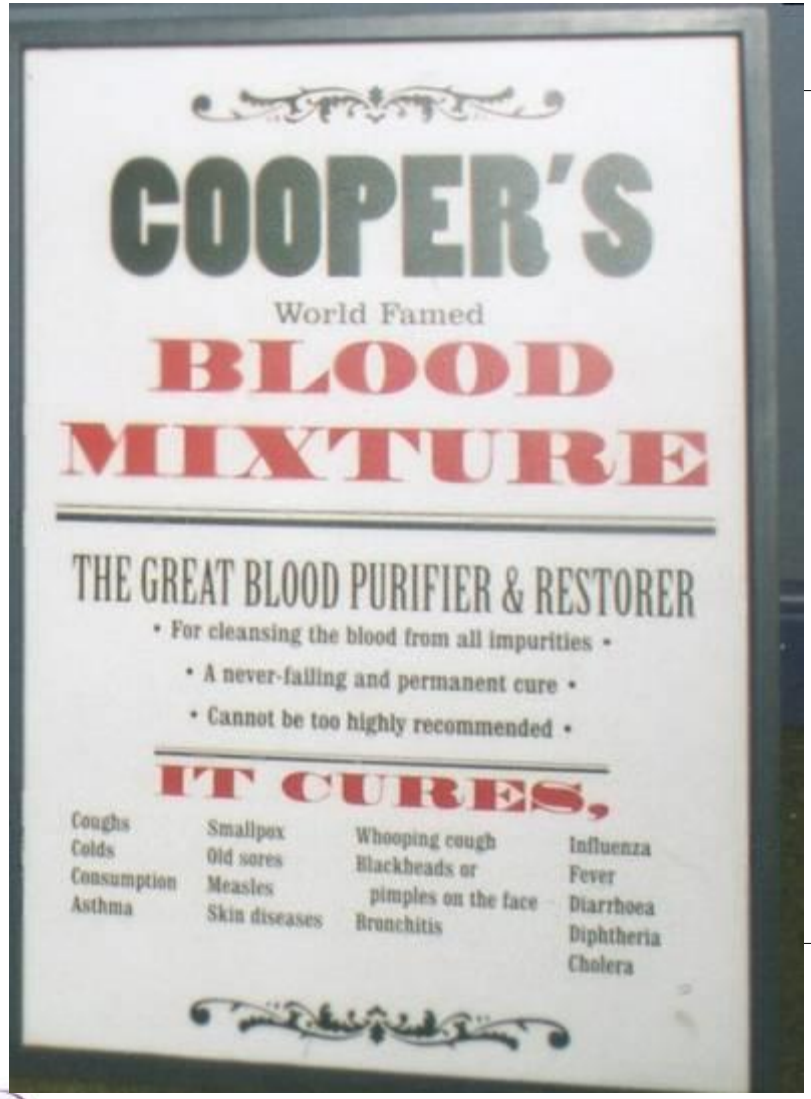


Obtaining medicines

Dispensaries opened up where poorer people could buy medicines. By the 1840s, nearly 50% of the population got treatments from them.

Others still went to apothecaries (chemists), like this one, which kept a huge array of remedies.

Other healers



People could also visit 'quack' doctors, often at travelling fairs or markets. These sold their own 'cure all' medicines.

There were plenty of these new medicines, which claimed to cure just about every type of illness. Many could be purchased by mail order in the late 19th century and newspapers had whole pages devoted to advertisements for them.

Women and medicine

As had always happened, women continued to treat their families' ailments using handed down remedies.
In 1852, all doctors had to join one of the Colleges of Physicians, Surgeons or Apothecaries under the Medical Registration Act. Women were not allowed to join.
Women's role in medicine now was just as nurses and within the family. In wealthier families it was regarded as very degrading for a girl to become a nurse.

Some women, however, did fight to be allowed to become doctors. A very small number from wealthy families attended girls' schools after 1850. Some made huge breakthroughs, such as Elizabeth Garrett who became the first British woman doctor. She had to qualify in France as she was not allowed to in this country, despite coming first in the exams she sat alongside her male colleagues.

Florence Nightingale

Whilst they had lost the right to become doctors, women were still regarded as natural nurses. They tended to come from the middle classes, it being seen as too lowly a job for wealthier girls.

One such girl was Florence Nightingale (1820–1910). Her upper class upbringing had groomed her for marriage to a rich man, not a career. Florence, however, believed that God was expecting her to be a nurse.

Florence Nightingale had visited many hospitals to learn about nursing and was appalled by the conditions of the buildings, the nurses and their level of care.

She learnt her craft in a German hospital in 1851 before running a hospital in London. This was specifically for rich women. She had wanted to nurse the poor, but this job got her started in her profession.

In 1854, the government asked her to go out to the Crimea to help at the army hospitals set up to treat the wounded in the war between Russia and Britain. The conditions were awful and she was not surprised to find that half the soldiers had died in the hospitals.

Up against male prejudices, she transformed the Crimean hospitals in six months. She insisted on good food for her patients, clean airy wards, boiled sheets and taught her team of nurses professional nursing practise.

When the army refused to pay for what she said she needed, she bought it herself. She paid 200 builders to rebuild a hospital. After her improvements she had reduced the death rate amongst her injured soldiers from 50% to 3%. She gained the nickname '**Lady with the Lamp**'.

In 1856 Nightingale returned to England where she was received as a heroine. But she did not want glory, she wanted to improve conditions in British hospitals which she knew still to be bad.

Florence wrote a book called *Notes for Nursing*, which her public acclaim made successful, and she did not find it difficult to raise money to set up a training school for nurses, which set professional and ethical standards that are still adhered to by nurses today.

She had become so highly regarded that her advice was sought when new hospitals were being built, and in old age she was awarded the Order of Merit.

Activities

1) What was the long-term effect of Florence Nightingale's actions?

2) Her achievements were accepted against all the odds, yet her fight for cleanliness came before Pasteur published his germ theory or Lister introduced antiseptic techniques. How would you explain this?

3) We have seen real progress in medicine during the 19th century. What do you think was the most important reason for this progress? Explain your answer fully.

4) Which factor do you think was the most influential?

5) Do you think the term 'Medical Revolution' can be applied to the progress of medicine **and** health between 1750 and 1900?