Write your name here

Surname	Other names

Edexcel GCSE

Centre Number	Candidate Number

History B (Schools History Project)

Unit 3: Schools History Project Source Enquiry
Option 3A: The transformation of surgery, c1845–c1918

Tuesday 7 June 2011 – Morning

Time: 1 hour 15 minutes

Paper Reference

5HB03/3A

You must have:
Sources Booklet (enclosed)

Total Marks

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Answer the questions in the spaces provided
  – *there may be more space than you need.*

Information

- The total mark for this paper is 50.
- The marks for **each** question are shown in brackets
  – *use this as a guide as to how much time to spend on each question.*
- Questions labelled with an **asterisk** (*) are ones where the quality of your written communication will be assessed
  – *you should take particular care with your spelling, punctuation and grammar, as well as the clarity of expression, on these questions.*

Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.

Turn over ▶

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JUNE 2010.

Answer ALL questions.

Look carefully at the background information and Sources A to G in the Sources Booklet and then answer Questions 1 to 5 which follow.

1 Study Source A.

What can you learn from Source A about the work of Joseph Lister?

(6)

2 Study Source B.

What impression of operations has been created by the display shown in Source B? Explain your answer, using Source B.

(8)

3 Study Sources B, C and D.

How far do Sources B, C and D suggest that Lister's ideas were accepted by other surgeons? Explain your answer, using these sources.

(10)

4 Study Sources D and E.

Which of Sources D or E is more useful to the historian who is investigating surgical practice in the 1870s? Explain your answer, using Sources D and E.

(10)

***5 Study Sources A, F and G and use your own knowledge.**

'Lister's antiseptic methods changed surgical practice in a short period of time.'

How far do you agree with this statement? Use your own knowledge, Sources A, F and G and any other sources you find helpful to explain your answer.

(16)

.....

Background information

The development of antiseptic surgery in the 1860s by Joseph Lister led to changes in the number of people surviving operations. To many people this was perhaps the most important improvement in surgery during this period. However, some surgeons opposed its introduction.

This paper presents you with sources about the development of antiseptic surgery. It gives you the opportunity to decide for yourself whether this was a major advance in nineteenth century surgical practice.

Source A: Statistics about operations involving amputations performed by Joseph Lister between 1864 and 1870.

Years	Operations	Patients Recovered	Patients Died
1864–66	35 without carbolic acid	19	16
1867–70	40 using carbolic acid	34	6

Source B: A display in the Science Museum in London showing an operation using an antiseptic spray in 1877.

Source C: From a report in *The Lancet* on 29 August 1868 by the doctor at the Dowlais Iron Works, in South Wales.

> The use of carbolic acid in the treatment of wounds and compound fractures has created a revolution in surgery at the Dowlais Iron Works. During the last twelve months I have used it widely in the treatment of common injuries. I think I may say in every case this has been a great success. Before, in serious cases of compound fracture, amputation was the usual treatment, now it is not often used.

Source D: From *History of Medicine* by L Hartley, 1984. Here he is writing about Lister's development of antiseptic techniques.

> When Lister moved from Glasgow to become Professor of Surgery at King's College Hospital in London in 1877, many surgeons complained that it took too long to keep washing everything. In any case, they refused to believe that infection was spread by dirty operating theatres and tools. People who have new ideas are often regarded as odd. A famous London surgeon at the time could often get a laugh by saying to his students, 'Shut the door quickly or one of Mr Lister's microbes may come in'.

Source E: An account about St Thomas's Hospital opened in 1871, as recalled by James Leeson in 1927.

> I was a first year student at the newly built St Thomas's Hospital. The building cost £600,000, a large sum of money at the time. But what was the result of all this expenditure? As far as surgery was concerned, practically nothing changed. The old enemy infection was as common as ever. We students were allowed to go straight from the post-mortem room to work on the maternity ward. The ways of the operating surgeon then seem almost hard to believe now. An old ward sister, who had spent her life in the service of the Hospital, once said sadly to me, 'I really think the surgeons do as much harm as good'.

Source F: An attack made in 1898 on Lister's methods by Robert Lawson, a specialist in childbirth.

> Let us hear no more of the nonsense about the bad results from surgery before Lister, or the nonsense that Lister cured the problem. This is simply not true.

Source G: A verse from the 1860s and 1870s celebrating Lister's achievements by G Stroymeyer. Stroymeyer was a German surgeon who was a keen follower of Lister's methods in the nineteenth century.

> Mankind looks grateful now on thee
>
> For what you did for surgery,
>
> And Death's aim must often miss,
>
> When smelling antiseptic bliss

JAN 2011

Answer ALL questions.

Look carefully at the background information and Sources A to G in the Sources Booklet and then answer Questions 1 to 5 which follow.

1 Study Source A.

What can you learn from Source A about the problems of treating wounded British soldiers during the First World War?

(6)

2 Study Source B.

What impression has the artist tried to give of the treatment of wounded soldiers in the First World War? Explain your answer, using Source B.

(8)

3 Study Sources A, B and C.

How far do Sources A, B and C suggest that the treatment of casualties was successful? Explain your answer, using Sources A, B and C.

(10)

4 Study Sources D and E.

Which of Sources D or E is more useful to the historian enquiring into the problems experienced by surgeons when dealing with battlefield casualties during the First World War? Explain your answer, using Sources D and E.

(10)

***5 Study Sources E, F and G and use your own knowledge.**

'The First World War led to major improvements in surgical methods and techniques'.

How far do you agree with this statement? Use your own knowledge, Sources E, F and G and any other sources you find helpful to explain your answer.

(16)

Background information

The First World War (1914–18) cost millions of lives and millions more were injured. Much of the fighting took place in France and Belgium in an area known as the Western Front. It was estimated that 56% of those who fought became battle casualties and 12% of those casualties died. This put surgical and nursing staff under enormous pressure especially at times when there were major battles. During the war, new technology and new surgical methods were developed.

This paper presents you with sources about the treatment of the wounded and gives you the opportunity to decide for yourself how far surgery improved during the First World War.

Source A: From the memoirs of a nurse who worked at Clacton-on-Sea Hospital during the First World War.

> The wounded soldiers came straight to us, travelling by boat from France, on to a train in Britain and then to hospital. Headquarters would be notified that a convoy of ninety or a hundred wounded would be arriving at a certain time, so that all the beds would be made ready. Stretcher cases were placed downstairs, with walking-wounded upstairs. Oh, some soldiers were simply dreadful, splattered with blood and dirt and mud. They were still in their khaki uniforms, very muddy, very bloody and terribly, terribly tired. Some had been gassed. Some were angry that they had gone through all they had, and were rather disturbed mentally.

Source B: A wartime painting showing the treatment of wounded soldiers by the Royal Army Medical Corps during a battle in 1917.

Source C: From *Death's Men* by the historian Denis Winter, published in 1979.

> The only tools the medical officer had on the battlefield were knives, bandages and morphine, a painkiller. Behind the front line of the battle were the casualty clearing stations. These dealt with surgical cases and were run by the Royal Army Medical Corps, who did an efficient job. During the war they dealt with 9 million wounded cases, providing over a million doses of drugs, over 1.5 million splints, over 100 million bandages and 22,386 artificial eyes. Two and a quarter million were so severely wounded as to require treatment in England but over half of these cases were patched up sufficiently to be returned to France.

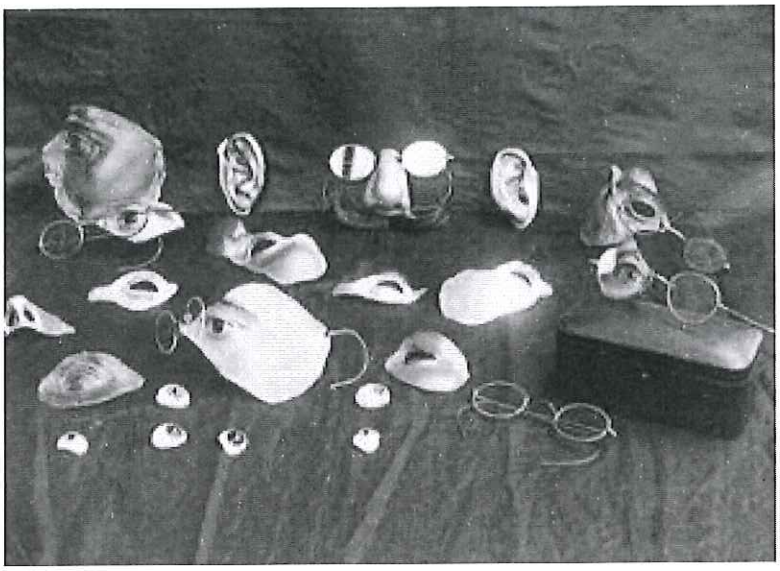
Source D: From a recent exhibition at the National Army Museum about the treatment of the wounded during the First World War.

> Infection was the great killer in the First World War. Much of the Western Front stretched across farmland, the soil fertilised by animal manure. The trenches were unhealthy, so battle injuries were always contaminated with dirt and other material from the moment of injury. Jagged shell fragments forced pieces of uniform and bacteria deep into open wounds. Many injuries resulted in deadly infection, requiring medical staff to develop new ways to repair them and fight infection.

Source E: From an account by Henry Percy Pickerill, a pioneer of plastic surgery. He is recalling surgical techniques used in 1917 to rebuild the faces of the wounded.

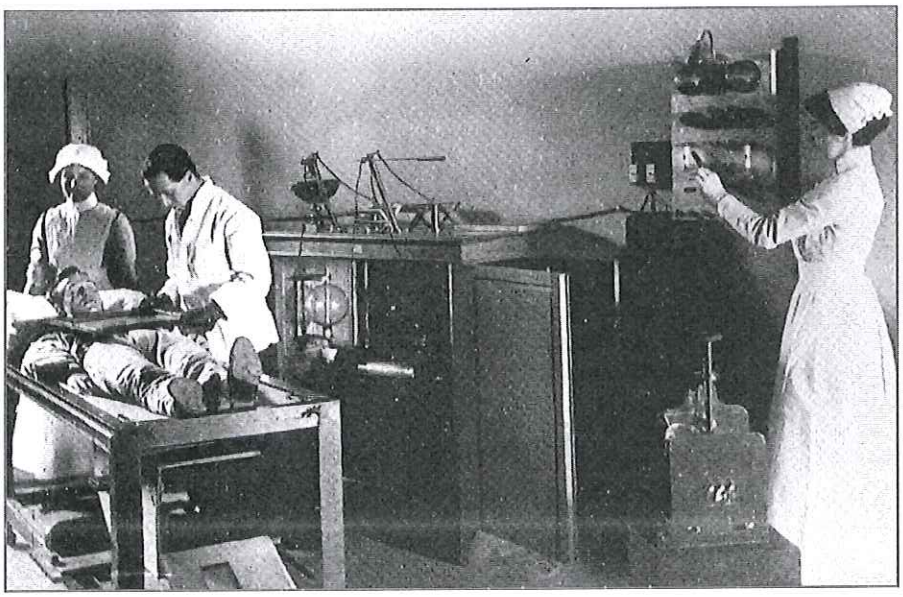
> During the First World War, the techniques of skin grafting were only just being developed. Tin masks were still in use in severe cases to replace lost parts of the face and sometimes to replace missing eyes. These masks were painted as best as possible to blend with natural colouring. They were much hated by the men and surgeons alike. The alternative required the sort of skin grafting which no surgeon thought possible at that time.

Source F: A photograph of tin masks and attachments for covering facial injuries during the First World War.



©Imperial War Museum

Source G: A photograph showing x-raying for shrapnel during the First World War.



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Edexcel Limited gratefully acknowledges the following source used in the preparation of this paper:

Source A: ***All Quiet on the Western Front: An Oral History of Life in Britain During the First World War,*** **Steve Humphries and Richard van Endem, ©Pearson Education**

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Answer ALL questions.

Look carefully at the background information and Sources A to H in the Sources Booklet and then answer Questions 1 to 5 which follow.

1 Study Source A.

What can you learn from Source A about surgery in the first half of the nineteenth century?

(6)

2 Study Source B.

What impression has the author tried to give of how surgery was performed in the mid-nineteenth century? Explain your answer, using Source B.

(8)

3 Study Sources C, D and E.

How far do Sources C, D and E suggest that blood transfusions were effective in dealing with the problem of blood loss during the nineteenth century? Explain your answer, using these sources.

(10)

4 Study Sources A and B.

Which of Sources A or B is more useful to the historian enquiring into the way operations were carried out during the first half of the nineteenth century? Explain your answer, using Sources A and B.

(10)

***5 Study Sources F, G and H and use your own knowledge.**

'New scientific knowledge was the main reason why methods of dealing with blood loss improved in the period before 1918'.

How far do you agree with this statement? Use your own knowledge, Sources F, G and H and any other sources you find helpful to explain your answer.

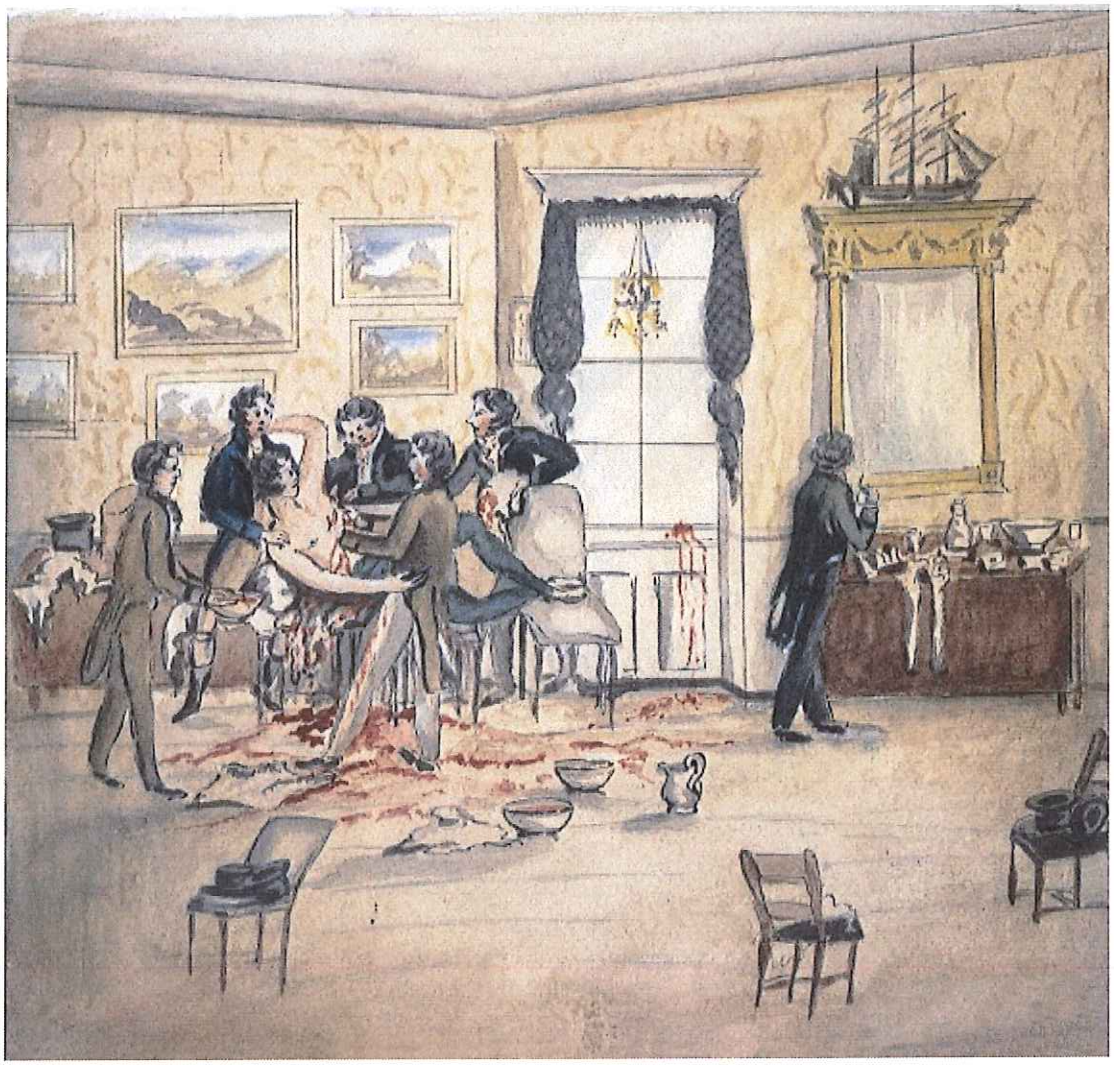
(16)

Background information

One of the major reasons why early surgical operations were often unsuccessful was massive blood loss. In the nineteenth century increased efforts were made to deal with this problem but success was limited until the beginning of the twentieth century.

This paper presents you with sources about attempts to fight blood loss and gives you the opportunity to decide for yourself why progress was made in the period before 1918.

Source A: A painting of a surgical operation from the first half of the nineteenth century. It was not unusual for operations to take place in the home at this time.



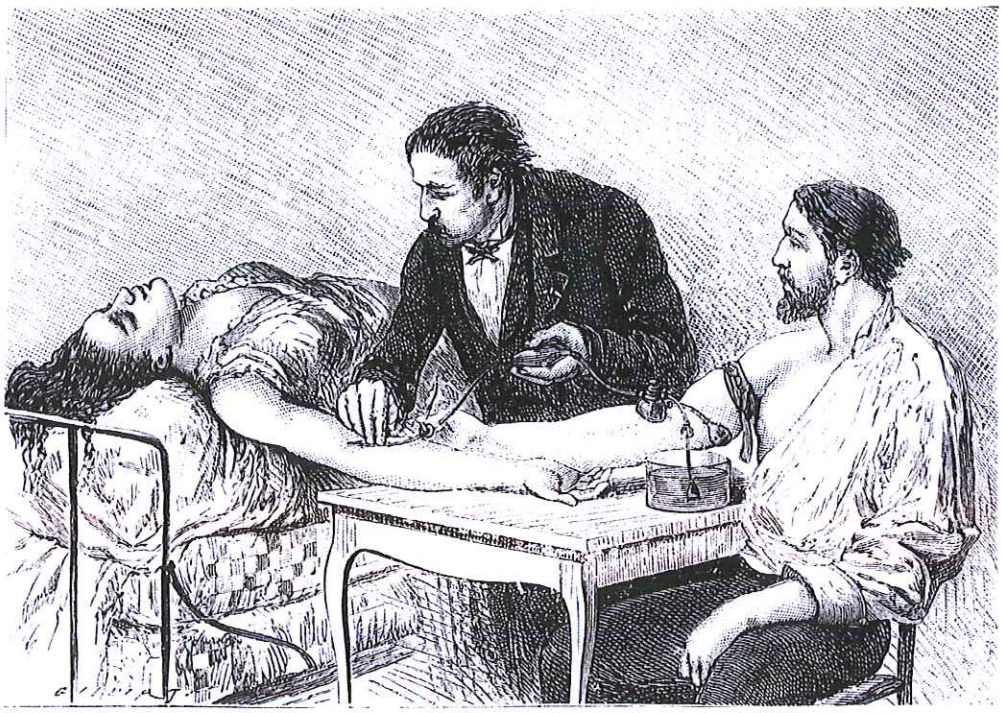
Source B: From *Blood and Guts, A History of Surgery* by Richard Hollingham, published in 2008. Hollingham is a scientific journalist. Here he is describing an amputation in the 1840s.

> The surgeon, Mr Liston, clamps his left hand across the patient's thigh, picks up his favourite knife and in one rapid movement makes his first cut. An assistant immediately tightens a tourniquet to stem the blood. As the patient screams with pain, Liston puts the knife away and grabs the saw. With an assistant exposing the bone, Liston begins to saw through it.
>
> Suddenly, the injured leg drops into a waiting box of sawdust. Liston, however, is still busy, tying off the main artery of the thigh and then tying off other smaller blood vessels, at one point even holding the thread in his mouth. As the tourniquet is loosened, the flesh is stitched.
>
> The operation is over. And it has taken just 30 seconds.

Source C: From a nineteenth century article about surgery, by Doctor Leacock.

> Transfusion is not needed to deal with moderate blood loss from surgery or wounds since other remedies will do. But when the blood loss is severe and other methods won't work, for example when a soldier is at the point of death from loss of blood, what reasons are there for not using transfusion as a last hope to save a life?

Source D: A drawing published in a medical journal. It shows a direct blood transfusion from a husband to his wife in 1882.



Source E: From *A Short History of Blood Transfusion* by P Learoyd, published in 2006 by the Leeds Blood Centre.

In the nineteenth century, many people believed that transfusions were dangerous and that they may have caused the death of some patients on which they were used. They also claimed that most of the patients who had benefited from transfusions would have recovered anyway. However, some doctors argued strongly in favour of transfusions, noting that the dangers of blood loss were far greater than the possible danger from transfusion.

Source F: From the records of Joseph Lister. He is describing the use of catgut ligatures in 1881 to tie off blood vessels.

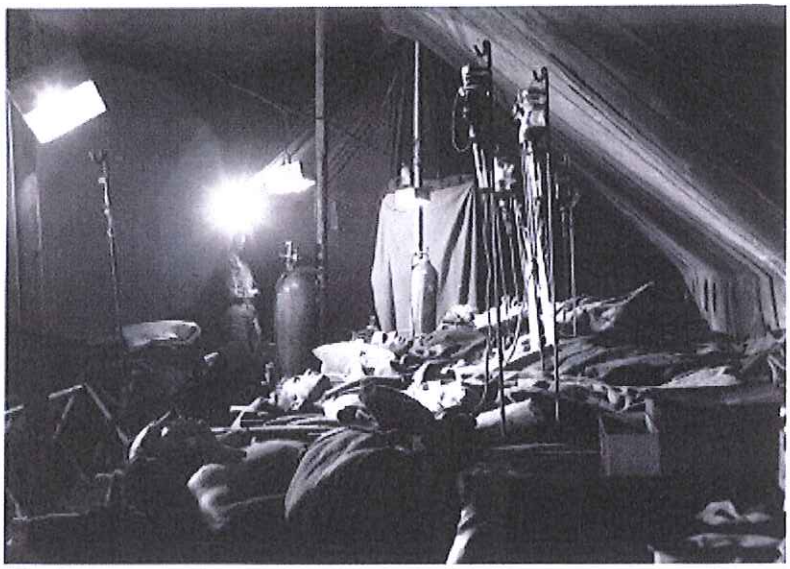
It is clear that there is a risk in using silk as a ligature even if it has been soaked in carbolic acid first. This means there are serious reasons why it should not be used. If catgut is used antiseptically, it is easily absorbed and does not cause the problems which silk does.

Source G: From *Medicine and Health through Time,* a history textbook published in 2009.

The first breakthrough came with the discovery of the different blood groups in 1900. Karl Landsteiner, a doctor from Austria, identified the blood groups and demonstrated that some blood groups were incompatible with others.

However, although blood transfusions were now possible, the patient and the donor had to be in the same place. So blood transfusion was possible, but it needed an emergency to make it more commonly used and to solve the problem of storing blood for later transfusion. That emergency was war – the First World War.

Source H: A photograph of wounded soldiers in a field hospital receiving blood transfusions from bottled blood supplies towards the end of the First World War.



Jan 2012

Answer ALL questions.

Look carefully at the background information and Sources A to H in the Sources Booklet and then answer Questions 1 to 5 which follow.

1 Study Source A.

What can you learn from Source A about surgery before the use of anaesthetics?

(6)

2 Study Source B.

What impression has the artist tried to give of Simpson's experiment? Explain your answer, using Source B.

(8)

3 Study Sources C, D and E.

How far do Sources C, D and E suggest that doctors and surgeons accepted the use of anaesthetics in operations? Explain your answer, using Sources C, D and E.

(10)

4 Study Sources F and G.

Which of Sources F or G is more useful to the historian who is investigating public attitudes to the use of anaesthetics in the late 1840s? Explain your answer, using Sources F and G.

(10)

***5 Study Sources A, D and H and use your own knowledge.**

'The use of anaesthetics in surgery in the years to 1870 brought more problems than benefits'.

How far do you agree with this statement? Use your own knowledge, Sources A, D and H and any other sources you find helpful to explain your answer.

(16)

Background information

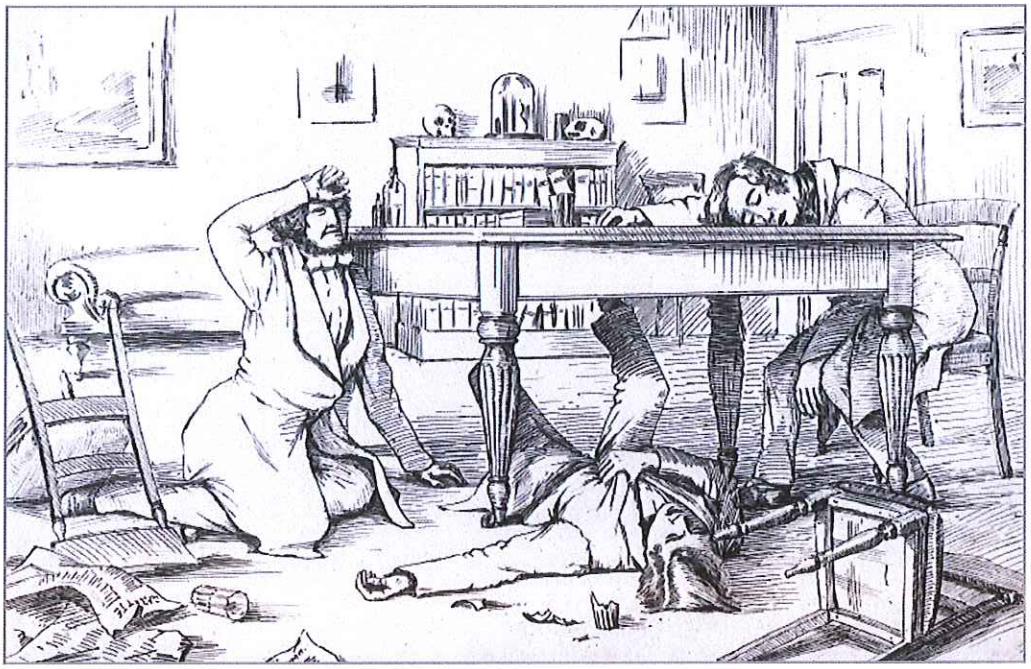
The use of ether and chloroform as anaesthetics developed in the mid-nineteenth century and changed surgical practice. However, some surgeons were very opposed to the use of anaesthetics.

This paper presents you with sources about the development and use of anaesthetics and gives you the opportunity to decide for yourself whether it brought more problems than benefits.

Source A: From *The Discovery of Ether* by William Hayden, published in 1896. He was a surgeon and is describing an operation before the use of anaesthetics.

> The patient is brought into the operating theatre, which is crowded with men who are keen to see the operation and the shedding of blood. She is laid upon the table. She knows the intense agony which she is about to suffer. The surgeon tries to reassure her with kind words and tells her that it will soon be over. She is told to be calm and to keep quiet and still. Assistants hold her struggling body down and the operation begins.
>
> At last it is all over. Faint because of the pain, weak from her efforts to break free and bruised from the force used to hold her still, the girl is carried from the operating theatre to her bed in the wards to recover from the shock.

Source B: A drawing from c1850. It shows James Simpson and his friends recovering after experimenting with chloroform.



Source C: From a speech given by James Simpson to a doctors' meeting in Edinburgh in 1847.

> In years to come, people will look back with sorrow at our reactions to anaesthetics. They will be amazed at the idea of surgeons saying that they prefer operating on patients who are conscious instead of anaesthetised, and that the fearful agonies of an operation should be endured quietly. In fact, all pain is destructive and fatal in its effects.

Source D: From an article by John Snow published in *The Lancet*, a medical journal, in 1847. John Snow was a leading doctor.

> The greatest danger during an operation is the pain, which gives a shock to the system from which the patient is sometimes unable to recover. The use of an anaesthetic will supply a ray of hope. During the operation it will prevent faintness, which is caused more from pain than from loss of blood.

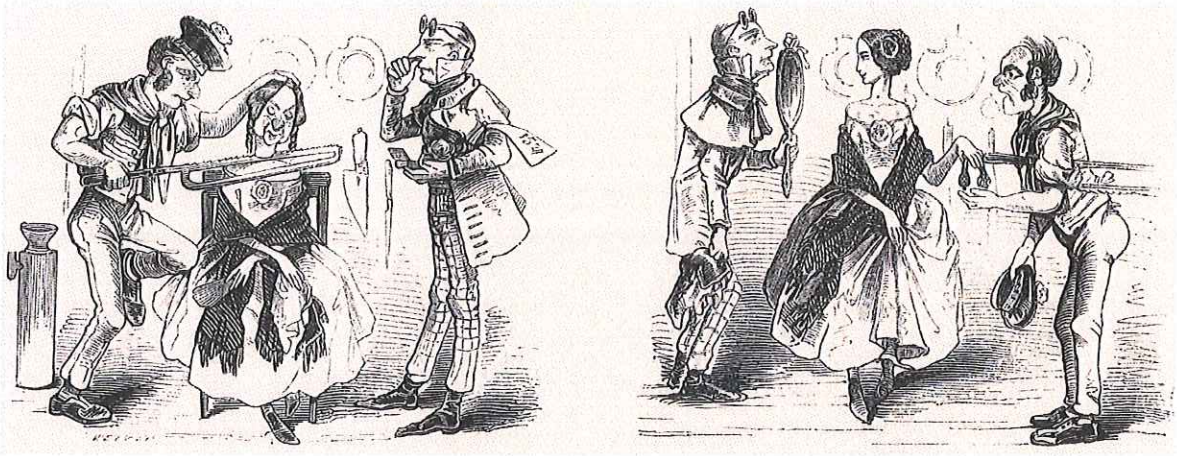
Source E: A notice produced in 1854 during the Crimean War. It was written by Dr John Hall who was the British Army's Chief of Medical Staff.

> I warn medical officers against using chloroform when treating men suffering from the severe shock of gunshot wounds. I think few will survive if it is used. The swift use of a knife has a powerful effect and it is much better to hear a man cry out strongly than to see him sink silently into a grave. But I know that many will not agree with me, because of their misguided kindness towards the patients.

Source F: From a letter written by Charles Dickens, the novelist. He is describing the benefits to his wife of the use of chloroform during the birth of their eighth child in 1849.

> The doctors were against the use of chloroform but I insisted on it and, thank God, it all ended successfully. The chloroform spared her all pain and saved the child from any harm. Chloroform also allowed the doctors to do in ten minutes what might, before its use, have taken an hour and a half. The shock to her nervous system was reduced to nothing. She was, to all intents and purposes, well by the next day. I am convinced it is safe to use. It is miraculous and merciful in its effects.

Source G: A cartoon called 'A cure-all for ugliness', published in 1847. It shows ether being used in an operation to replace a woman's head.



Before ether

After ether

Source H: From *Lord Lister, His Life and Work* by G.T. Wrench, published in 1913.

In the past, only the most urgent operations were carried out. The removal of the dreadful pain which had made an operation such a gruesome thing, seemed to open a new era for surgery. However, in hospitals the new 'blessing' of anaesthetics also led to its own defeat. More operations were undertaken for smaller problems. As a result, infection and gangrene swept through the wards with increasing force.

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Source B: © Wellcome Images
Source G: © Mary Evans Picture Library

JUNE 2012

Answer ALL questions.

Look carefully at the background information and Sources A to G in the Sources Booklet and then answer Questions 1 to 5 which follow.

1 Study Source A.

What can you learn from Source A about surgery before Lister?

(6)

2 Study Source B.

Why was this illustration included in this book on surgery? Explain your answer, using Source B.

(8)

3 Study Sources B, C and D.

How far do Sources B and C suggest that Pasteur's advice in Source D was followed? Explain your answer, using these sources.

(10)

4 Study Sources E and F.

Which of Sources E or F is more useful to the historian enquiring into the importance of Lister to the development of surgery? Explain your answer, using Sources E and F.

(10)

***5 Study Sources C, E and G and use your own knowledge.**

'Resistance to change was the main reason for opposition to Lister's ideas'.

How far do you agree with this statement? Use your own knowledge, Sources C, E and G and any other sources you find helpful to explain your answer.

(16)

Background information

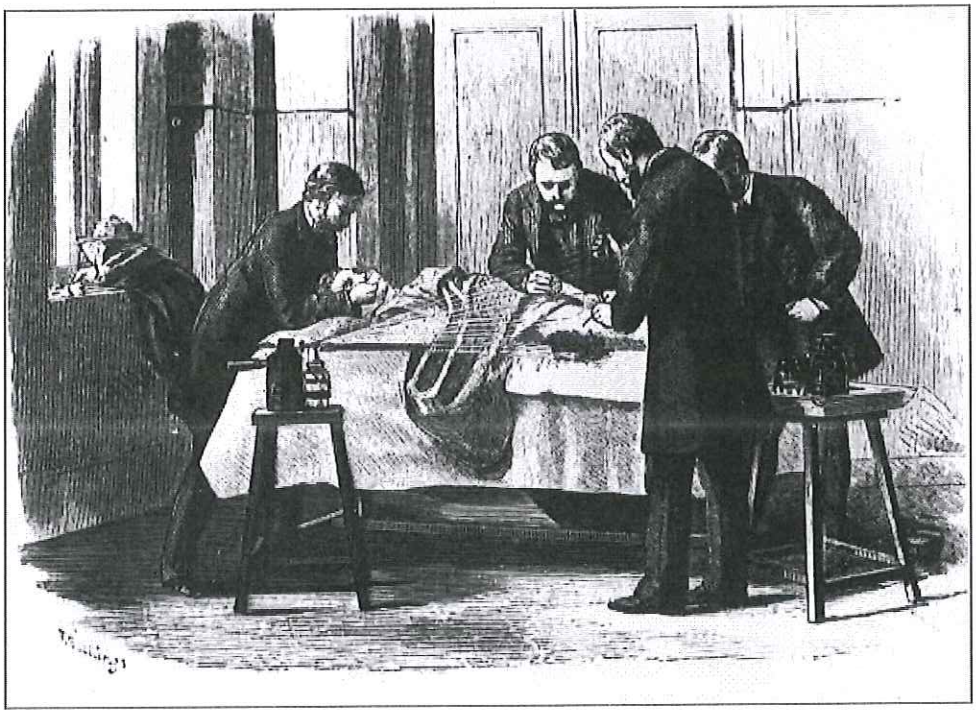
Due to the development of anaesthetics more complex operations took place. However, though more patients survived operations, many died soon after as a result of infection. The work of Lister in the development of antiseptic methods led to a major breakthrough but there were still many who opposed his methods.

This paper presents you with sources about the work of Lister and gives you the opportunity to decide for yourself why there was opposition to his work.

Source A: From *British Social and Economic History*, a textbook published in 1997. It is describing operations before Lister's work.

> Although advances were made in anaesthetics, one problem of surgery was still inescapable in the mid-nineteenth century: the patients tended to die, especially if operated on in hospitals. One in five patients died after amputations in hospitals. However of those who were operated on at home or in doctors' private surgeries, only five out of 46 died.

Source B: An illustration showing an operation from *Antiseptic Surgery*, written by one of Lister's assistants and published in 1882. It was given the caption 'The surgeon should always have his hands in the spray and the assistant should hand the instrument to the surgeon through the spray'.



Source C: From *Lister as I Knew Him* by a surgeon, J.R. Leeson, published in 1927. Here he is describing his own experiences in the 1870s.

> One of our surgeons wore an old coat when he lectured on anatomy. He also wore it performing dissections and then wore the same coat in the operating theatre. He believed there was no need to ruin a new coat when an old one was available. An operation was a dirty job and an old coat was suitable. I see it now, all faded with age, stained with blood and covered in pus.
>
> The 'ward sponge' was as bad as the coat. The sponge was used in all dressings. It was simply wrung out in warm water and used in one case after another.

Source D: From a lecture given by Louis Pasteur in 1870 about how to prevent infection from germs.

> This water, this sponge, this lint bandage which you use to wash or cover wounds all encourage germs to multiply rapidly. If I were a surgeon, I would only use perfectly clean instruments and clean my hands with hot water with the greatest care.

Source E: From an article in *The Times* newspaper, published in 1913. It was written shortly after Lister's death.

> The opponents of Pasteur and Lister were not all stupid. In 1865 no one could have seen how successful Lister's work would be. Disagreement arose because only a few people believed in the germ theory and accepted the views of Lister and Pasteur. Lister's early methods did not always work. Statistics showed conflicting results. There was a need for more knowledge. Meanwhile, improvements were made without using carbolic acid. All these things led to resistance and arguments.

Source F:

> Source removed due to copyright restrictions

Source G is on page 4.

Source G: From *Joseph Lister* by W. Watson Cheyne, published in 1927. Cheyne had been one of Lister's assistants.

> It was difficult to convince surgeons that tiny objects about 0.001 mm in size could be the cause of infection. The surgeons of that day were interested in keeping up with developments in anatomy and in working faster in operations. Tiny germs seemed to have no relevance to practical work.

Edexcel, a product of Pearson Education Limited, gratefully acknowledges the following source used in the preparation of this paper:

Source A: *GCSE British Social and Economic History*, Ben Walsh, © 1997. Reproduced by permission of Hodder Education.

JAN 2013

Answer ALL questions.

Look carefully at the background information and Sources A to G in the Sources Booklet and then answer Questions 1 to 5 which follow.

1 Study Source A.

What can you learn from Source A about operations in the mid-nineteenth century?

(6)

2 Study Source B.

What impression has the author tried to give of operations before the introduction of anaesthetics? Explain your answer, using Source B.

(8)

3 Study Sources A, C and D.

How far do Sources A, C and D suggest that new developments were successful in improving surgery? Explain your answer, using these sources.

(10)

4 Study Sources E and F.

Which of Sources E or F is more useful to the historian enquiring into the importance of x-rays in surgery? Explain your answer, using Sources E and F.

(10)

***5 Study Sources C, E and G and use your own knowledge.**

Spelling, punctuation and grammar will be assessed in this question.

'Opposition to new ideas was the main reason why surgery changed slowly in the years c1845–c1918'.

How far do you agree with this statement? Use your own knowledge, Sources C, E and G and any other sources you find helpful to explain your answer.

(16)

Background information

The years c1845-c1918 saw major breakthroughs in surgical techniques, scientific knowledge and technology. However, there was considerable opposition to the introduction of new ideas and a reluctance to abandon traditional practices.

This paper presents you with sources about new developments in surgery and gives you the opportunity to decide for yourself whether opposition to new ideas was the main reason why surgery changed slowly in the years c1845-c1918.

Source A: A drawing of surgeons using an anaesthetic in an operation in the mid-nineteenth century.

Source B: An account written in the 1850s of an operation before the use of chloroform.

> Before the days of anaesthetics, a patient preparing for an operation was like a condemned criminal preparing for execution. When I had my amputation, I counted the days till the day of the operation. I counted every hour of that day. I listened for the surgeon's carriage, the sound of the doorbell, his footsteps on the stairs. I watched the unpacking of his dreadful instruments, I listened to his few solemn words. I still recall him spreading out the operating instruments, his first cut, and afterwards my bloody limb lying on the floor.
>
> The great suffering I experienced cannot be described in words. I would have been spared all this by the use of ether or chloroform.

Source C: From an account written in 1847 by Dr H Cree, a surgeon.

> At Edinburgh Infirmary I saw some operations where ether was used. It was a new method of making patients unaware of pain. It is a great blessing, but Professor Syme* opposes the use of ether because of the delays it causes and the lack of certainty over its effectiveness. However, the method is still in its early days.

* Professor Syme was a leading surgeon in Edinburgh.

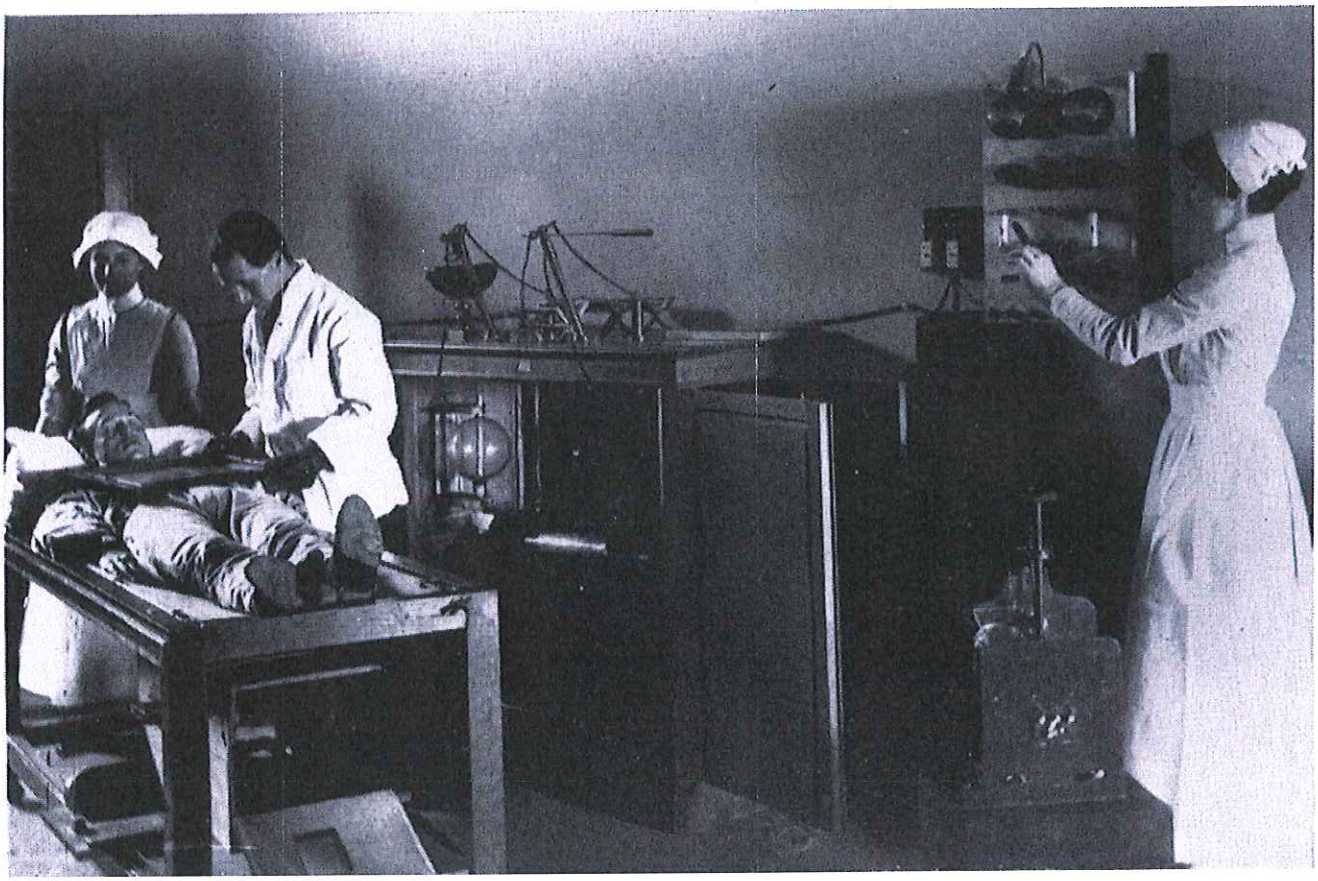
Source D: From *Medicine and Health Through Time*, a school history textbook published in 1996.

> To start with, many surgeons opposed Lister's methods and he was seen as a fanatic. His carbolic spray, which soaked the operating theatre, seemed very extreme. It cracked the surgeon's skin and made everything smell. The new precautions caused extra work and made operations more expensive and less pleasant for the surgeons. When some surgeons did try copying Lister's methods they got different results. This was usually because they were less careful, but that didn't stop them criticising Lister.

Source E: From an account written by Sir Robert Jones, a surgeon, in 1896. He was the first to make use of Röntgen's discovery of x-ray.

> Röntgen's discovery has been of great value in how we classify injuries. However, it has done little, if anything, to improve our treatment of fractures. All medical students should develop proper skills in diagnosis. They should not rely on the interpretation of an unreliable x-ray image alone.

Source F: A photograph taken during the First World War (1914–18) of an x-ray machine. It is being used to search for shrapnel in the body.



Source G: From *The Greatest Benefit to Mankind* by Roy Porter, published in 1999.

The late nineteenth century operating theatre was a mix of old and new methods. Lister was obsessed by antisepsis but he did not scrub his hands. He merely rinsed them in carbolic and he continued to operate in ordinary clothes.

Carbolic spray came under growing criticism and, in 1890, Lister abandoned it. By then it had been proved that heat was more effective than chemicals for sterilising instruments. Face masks, rubber gloves, surgical gowns and the abandonment of the huge public operating theatre – all these slashed infection in the 1890s.

JUNE 2013

Answer ALL questions.

Look carefully at the background information and Sources A to G in the Sources Booklet and then answer Questions 1 to 5 which follow.

1 Study Source A.

What can you learn from Source A about blood transfusions in the late nineteenth century?

(6)

2 Study Source B.

What impression has Dr Blundell tried to give about blood transfusions in the first half of the nineteenth century? Explain your answer, using Source B.

(8)

3 Study Sources B, C and D.

How far do Sources B, C and D suggest that surgeons' use of blood transfusions was dangerous before 1909? Explain your answer, using these sources.

(10)

4 Study Sources E and F.

Which of Sources E or F is more useful to the historian who is investigating the use of blood transfusions during the First World War? Explain your answer, using Sources E and F.

(10)

***5 Study Sources D, F and G and use your own knowledge.**

Spelling, punctuation and grammar will be assessed in this question.

'The First World War (1914–18) was the main reason why so much progress was made in the use of blood transfusions in the early twentieth century'.

How far do you agree with this statement? Use your own knowledge, Sources D, F and G and any other sources you find helpful to explain your answer.

(16)

Background information

By the end of the nineteenth century there had been little progress in dealing with the problem of blood loss in surgery. A number of problems still needed to be solved.

This paper presents you with sources about efforts to deal with blood loss and gives you the opportunity to decide for yourself whether the First World War (1914–18) was the main reason why so much progress was made in the use of blood transfusions in the early twentieth century.

Source A: A photograph of a blood transfusion taken in the late nineteenth century.

Source B: From an article on blood transfusions by Dr Blundell published in *The Lancet*, a leading medical journal, in the first half of the nineteenth century. He was the first surgeon to perform a successful person-to-person blood transfusion.

> Operations that need the transfusion of blood are probably rare. However, in some cases they are needed otherwise the patient will die. There are also many more cases where transfusion could be used to replace large blood losses even when the patient is not in danger of dying. At present there is no clear evidence that transfusion has been fatal, however this might be a possibility. Perhaps we should only use transfusions where it seems the only hope for the patient is that we throw blood into the veins.

Source C: From *A Short History of Blood Transfusion* by P. Learoyd, published in 2006.

> Disagreements existed throughout the nineteenth century regarding the use of transfusion. Different views can be found in the records of the Medical Society of London. Many surgeons believed that transfusions were dangerous and that they may have caused the death of some patients on which they were used. They also claimed that most of the patients who had benefited from transfusions would have recovered anyway. However, some surgeons argued strongly in favour of transfusions, noting that the dangers of blood loss were far greater than the possible danger from transfusion.

Source D: From a speech about the work of Dr Karl Landsteiner. It was given when he was awarded the Nobel Prize for Medicine in 1930.

> In 1901–03 Landsteiner pointed out that problems could occur when blood is transfused from one human to another. His opinions, however, received little attention until 1909. In that year Landsteiner classified the blood of human beings into the well-known A, B, AB and O groups. He showed that problems arise when one person is transfused with the blood of another person who has a different blood group.

Source E: From the diary of Oswald Robertson on 30 November 1917. He was an army surgeon working on the Western Front during the First World War.

> Men were horribly mutilated - many were dying when brought into the ward. The beds were filled and we began putting stretchers on the floor. Blood everywhere - clothes soaked in blood, pools of blood in the stretchers, streams of blood dropping from the stretchers to the floor. My rubber apron was one solid red smear. All we could do was try to stop the bleeding and get the patients as comfortable as possible.
>
> I could only transfuse an occasional patient. The majority had to take their chance and go through the operation as best they could.

Source F: From *A Brief History of Blood Transfusions*, an article published in 2005 in a scientific journal, *The Biomedical Scientist*.

> The use of blood transfusions advanced with the outbreak of the First World War. This was mainly due to the new knowledge of matching different blood groups and the use of sodium citrate to stop blood clotting. Sodium citrate allowed blood to be stored for use during transfusions. Before this, transfusion was only possible using specially treated blood, and by direct person-to-person techniques.

Source G: A drawing published in a scientific journal. This shows the method of using sodium citrate in blood transfusions, developed by Dr Richard Lewisohn in 1915.