

# The British Sector of the Western Front 1914-1918.

## Injuries, treatments and the trenches

### What do I need to know?

- Development of X-rays, blood transfusions and storage of blood.
- The trench system (Structure, key aspects, negatives)
- Key Battles - Ypres, Somme, Arras and Cambrai
  - Problems of transport and communication
  - Medical issues within the trenches (Rifle/explosives, trench foot, trench fever, shellshock)
    - RAMC/ FANY
    - CCS/ Base Hospitals
- New techniques (The Thomas splint, x-rays, blood bank, blood transfusions, plastic surgery, brain surgery)

### Types of Questions

Describe two features of ... (4 Marks)

How would you follow up Source C to find information about...? (4 Marks)

How useful are sources \_\_\_ and \_\_\_ for an enquiry into ....? (8 Marks)

**A01: Knowledge and understanding of key features and characteristics**



**A03: Analyse, evaluate and use contemporary sources to make judgements**



# Types of Sources

## Written Sources (Private, official, non-official)

National Newspapers  
Poem  
Fiction  
Letter  
Diary Entry  
Medical records  
Government documents  
Birth/ Death Certificates

## Oral Sources

- Speech
- Interview

## Non- Written sources

- Archaeology
- Landscape
- Buildings
- Artefacts
- Photographs
- Pictures

There are many different types of sources these are some examples.

NO source is ever useless.

A03: Analyse, evaluate and use contemporary sources to make judgements



## How do you test how useful a source is?

**Content** - What does it tell you? What information within the source is accurate?

**Nature** - what type of source is it?

**Origin** - When was it made? Where was it made? Who by?

**Purpose** - Why was it made? (to inform, to persuade, to encourage, to criticise)

**Context** - Does the information in the source match your own knowledge?

OS and AB stand for Ordinary Seaman and Able Seaman. He was promoted to AB on 18 October 1917.

On 22 June 1917 he received orders sending him to the 4th Reserve Division at Blandford, Dorset in the south of England.

Name Arthur William MANSLEY, R/3933.		DISCHARGED.	
Rank or Rating O.S. A.B.		Branch of Service R.N.V.R.	
Dates 18.10.17.		[104] 1151A/M 1523 5000 (2) 4017 5000 100 8 110	
Next of Kin Name Mrs. Eleanor Mansley, Address 27, Shallcross Street, Everton, Liverpool.	Date of Entry RNVR for RND : 22.6.17. Army Reserve : 4.12.16.	Where Serving 22.6.17. Mobilized. 25.6.17. 4th Res.Bn; Blandford. 18.10.17. Nelson Battn. RND., B.S.F. 5.4.18. Anson Battn; B.S.F.	
Date of Birth 15.12.1894.	Badges	In June 1917 he was assigned to the Royal Naval Volunteer Reserve (RNVR), part of the Royal Naval Division (RND).	
Religion C. of E.		In October 1917 he joined Nelson Battalion of the RND.	

His date of birth is incorrect. He was born in 1896.

He enlisted in December 1916.

In April 1918 he was transferred to Anson Battalion of the RND.

In October 1917 he joined Nelson Battalion of the RND.

28. 6.17. B'fd DO.179(4th Res) Reported & taken on strength 25.6.17 (#/63)  
 18.10.17. Drafted to Nelson Battn. B.S.F. from 4th Res. Bn. B'ford. (RB).  
 19.10.17. DO/292. 4th Res. Bn. Rated A.B. 18.10.17. (T/63)  
 30.10.17. BEP. D.O. 71. From Base Depot, Calais, 24.10.17. to join Battn.  
 24.11.17. BEP. D.O. 78. Joined Nelson Battn. from XIX Corps West Camp, 13.11.17  
 17.1.18. HA/18354. Adm 9. GH. Rouen 7.1.18. P.O. Sev. AFB/104-80a.  
 12.1.18. BEP. D.O. 6. To 150th Field Amb. 2.1.18.  
 18.3.18. HA/20535. Adm. 2 Con. Dep. Rouen ex 9 GH. 11.3.18.  
 3.4.18. HA/21023. Dis to Reinf Rouen Class A ex 2 Con Dep 25.3.18.  
 15.4.18. HA/21782. Adm. 54 GH Aubergues 10.4.18. NYD. N. MLD; AFB/104-80a.  
 12.4.18. (BYTON) M. Cross-sorted to Anson Battn. 1.1.18.  
 10.4.18. Nelson 30. Joined L. Base Depot, Calais, 29.3.18. S.  
 29.4.18. HA/22341. Adm. 1 Con. Dep. Boulogne ex H. 22.4.18.  
 2.5.18. HA/22411. Trans. to 5 West Camp. 21st ex 1 Con. Dep. Boulogne 23.4.18.  
 8.5.18. Anson 32. Joined L. Base, ex 24th C.R., 27.4.18.  
 13.4.18. HA/22411. To 1st Bn. 13.4.18.  
 4.6.18. O/1570. "Wounded" 25.5.18. RND. inf. 5.6.18. RND. List No. 1211. 10.37.  
 7.6.18. HA/24288. Adm. 16 GH Le Treport 30.5.18. Bay Wd. Scalp. MLD; RND. inf.  
 17.6.18. HA/24730. Adm 3 Con Dep Le Treport 9.6.18.  
 27.6.18. ANSON 36. Rejoined Unit Im. RD. 16.5.18.  
 15.7.18. HA/28062. Dis. to Base Dtls. ex 3 Con. Dep. Le Treport 7.7.18.  
 17.7.18. Anson 48. Jnd. LIED, 8.7.18.  
 6.8.18. Anson 50. Rejoined Battn. from Div. Wing, 26.7.18.  
 29.8.18. Tele. mess. P. 139616. 00 1 SAGH Abbeville tele: 28.8.18. 'Dang. ill.  
 GSW L. Leg amputation' NOK informed. RND List No: 1270. (2nd. 000)

7.9.18. O/1674 "Wounded" 26.8.18. - also anson 56.  
 10.9.18. HA/2281. Ser. ill (impvd) in 1 SAGH Abbeville w/s 2.9.18.  
 10.9.18. P. 137752. 00 1 SAGH Abbeville tele: 5.9.18. No long. ser. ill 'NOK infd:  
 13.9.18. HA/28604. Adm. 1 S. African GH Abbeville 26.8.18. GSW. L Leg R. arm  
 12.9.18. HB/14086 Adm: "ar Hos. Keighley, 8.9.18. SMO infd. 17.9.18.  
 17.9.18. Anson 62. Invalided, 7.9.18. S.W. both legs.  
 7.10.18. Recd. AFB/103, 19.10.17. amb. Folkes disemb. Boul; 20.10.17. jd. ED. Cal;  
 7.4.18. adm. 148th MA; 3.5.18. Jd. No. 4 Med. Base; 4.5.18. to "L" IED;  
 24.10.18. Form forw. to SCO. A'shot.  
 23.12.18. AFW. 3016 recd. Furlough 20/31.12.18. Xmas leave under W.O. Wire  
 5.2.19. AFW. 3016 recd. Furlough 4.2.19. Pending admission to Roehampton.  
 25.3.19. Rep. recd. Transferred to Alder Hey Special Mil. Surgical Hos.  
 West Derby. Liverpool. Alnwick informed 20.3.19.  
 19.5.19. Form D/145 recd. Passed to M.O.P. Surveyed at Haslar 8.5.19.  
 GSW. L. Leg; R. Little Finger; R. Foot & Hip; Head. Degree of disability  
 60%. Attributable to service. Recommended for discharge.  
 17.6.19. H.G. Form to A.G. 9(b) Paid £11.0.0.  
 21.5.19. D.O/150 (Regt. Dept) "D" Coy. Discharged Invalided ex Anson Bn.  
 Disability Ind. GSW. Addr. 27, Shallcroft St, Everton, Liverpool.  
 23.7.19. Discharged List No. 381.

N = National or L = local	Type of source	Qs this source could answer	What information does it provide?	Which questions does this source NOT help to answer? What limitations does it have?	What other source/s might you use in combination with this one?

N = National or L = local	Type of source	Qs this source could answer	What information does it provide?	Which questions does this source NOT help to answer? What limitations does it have?	What other source/s might you use in combination with this one?



Success

Germany invades France

X

Failure

Aug 1914

Oct-Nov 1914

April-May 1915

July-Nov 1916

April-May 1917

July-Nov 1917

Nov-Dec 1917

Spring 1918

Summer &  
Autumn 1918

### Ypres

1. Why did so much fighting take place here?
2. What were conditions like?
3. What was significant about the second Battle of Ypres in 1915?
4. What happened at Hill 60?

### The Somme

1. Why is the Battle of the Somme so well-known?
2. How did the Battle of the Somme put great pressure on medical resources?

### Arras

1. What did British and NZ soldiers do here in 1917?
2. What medical facilities were possible there as a consequence?

### Cambrai

1. What new weapons were used at Cambrai in 1917?
2. Was this battle a success for the Allies? Explain your answer carefully.

# Overview of injuries, treatments and the trenches in WWI

Was WWI good for the  
development of medicine?

Refer to a range of different points such as:

Injuries

Living conditions

Diseases

Treatment

Who treated the men?

How were the men treated?

What developed during this time?

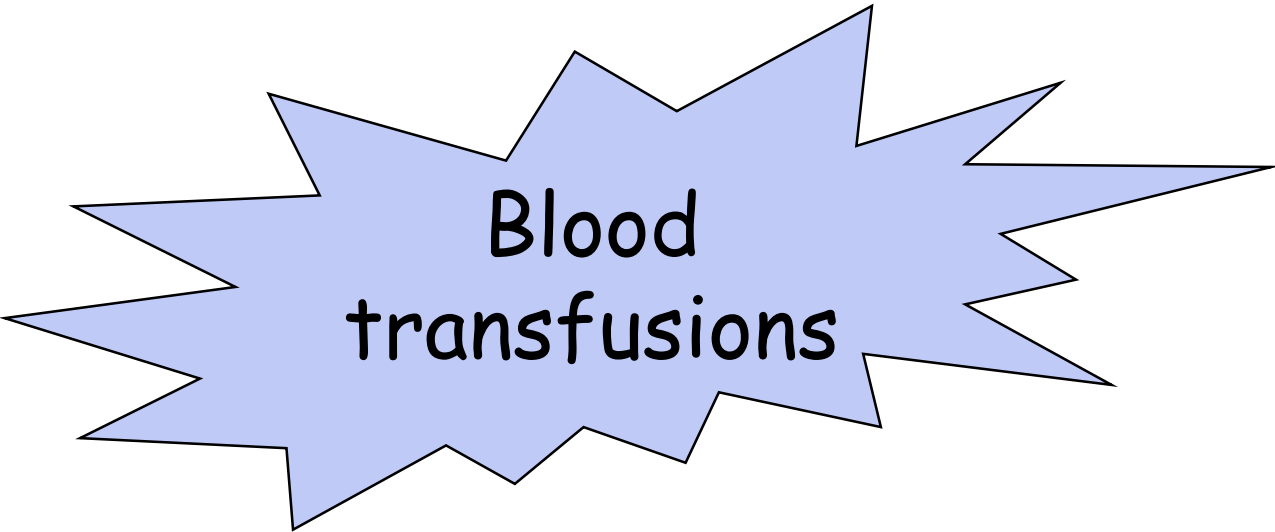


# Context of Medicine in the early 20<sup>th</sup> century (Page 142-144)

Developments in early 20 <sup>th</sup> Century	Negative Aspects of each development
<p><b><u>Aseptic Surgery</u></b></p> <ul style="list-style-type: none"> <li>• Linked to Pasteur and Lister.</li> <li>• All medical staff had to wash their hands, faces and arms before entering the theatre</li> <li>• Rubber gloves and gowns to be worn when carrying out operations.</li> <li>• Air was sterilised by being pumped over the heating system.</li> <li>• Use of an autoclave. A machine used to sterilise surgical instruments in boiling water.</li> </ul>	
<p><b><u>X -rays</u></b></p> <ul style="list-style-type: none"> <li>• Radiology departments were opening in a number of hospitals from 1896. Potential of being able to diagnose injuries from an x-ray that would help medical treatments on the Western Front.</li> </ul>	
<p><b><u>Blood Transfusions</u></b></p> <ul style="list-style-type: none"> <li>• Blood loss had been a major issue before the 20<sup>th</sup> century.</li> <li>• First experiment in blood transfusion was in 1818.</li> <li>• Nowhere to store blood so transfusions had to be carried out immediately.</li> <li>• The donor had to stand next to the patient connected by a tube to donate the blood.</li> </ul>	

Although there had been significant medical developments. How might the environment of the trenches cause other problems?

Describe two key features of ...



Blood  
transfusions

One key feature of \_\_\_\_\_ was...

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Another key feature of \_\_\_\_\_ was ...

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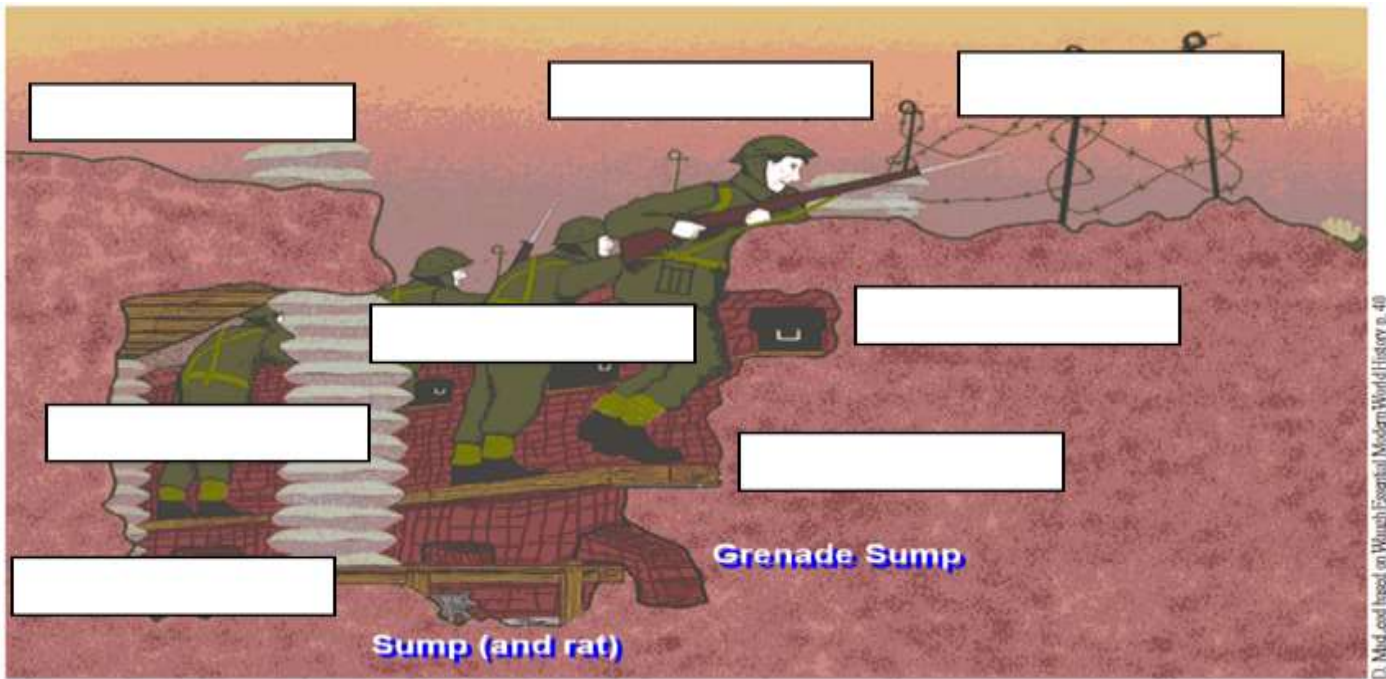
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Feedback

# Context of British Sector of the Western Front



## Trench System

Britain had declared war on Germany on 4<sup>th</sup> August 1914. By the end of this year much of Belgium and northern France had been occupied by Germans. Trenches were built as defence from the enemy. However attempts were made to advance in to trenches and seize enemy trenches. A line of trenches was built from the English channel in the north, to Switzerland in the south. Later in 1915 a more complex system begun to develop and trenches were about 2.5m deep.

Front line trenches were usually about seven feet deep and six feet wide. The front of the trench was known as the parapet. The top two or three feet of the parapet and the parados (the rear side of the trench) would consist of a thick line of sandbags to absorb any bullets or shell fragments.

Why would trench conditions cause problems for treating injured soldiers?

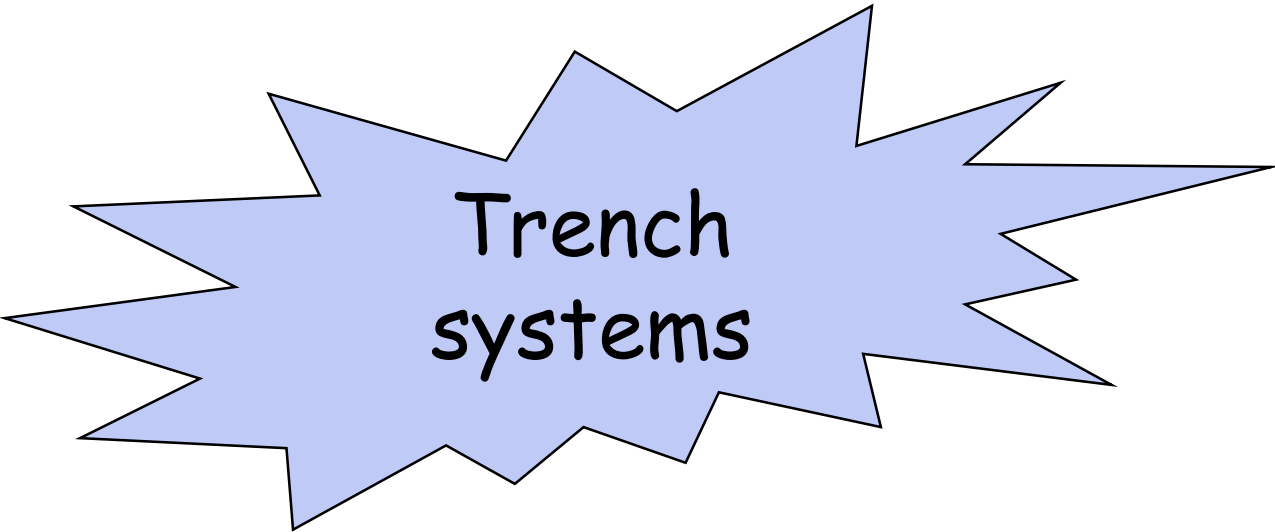
In a trench of this depth it was impossible to see over the top, so a two or three-foot ledge known as a fire-step, was added. Trenches were not dug in straight lines. Otherwise, if the enemy had a successive offensive, and got into your trenches, they could shoot straight along the line. Each trench was dug with alternate fire-bays and traverses.

Duck-boards were also placed at the bottom of the trenches to protect soldiers from problems such as trench foot. Soldiers also made dugouts and funk holes in the side of the trenches to give them some protection from the weather and enemy fire.

The front-line trenches were also protected by barbed wire entanglements and machine-gun posts. Short trenches called saps were dug from the front-trench into No-Man's Land. The sap-head, usually about 30 yards forward of the front-line, were then used as listening posts.

Behind the front-line trenches were support and reserve trenches. The three rows of trenches covered between 200 and 500 yards of ground. Communication trenches, were dug at an angle to the frontline trench and was used to transport men, equipment and food supplies.

Describe two key features of ...



Trench  
systems

One key feature of \_\_\_\_\_ was...

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Another key feature of \_\_\_\_\_ was ...

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Feedback

# Key Battle - Ypres, Somme, Arras, Cambrai

## Battle of the Somme

The week-long artillery bombardment actually warned the enemy that an attack was coming. This gave them plenty of time to prepare for it.

The German dugouts were well made and heavily defended. The German soldiers were able to hide in their underground bunkers until the infantry attack started.

The bombardment had churned up the ground badly making the British advance more difficult.

Many British artillery shells failed to explode, so some parts of the German defences had not even been touched.

When the men went over-the-top at 7:30 am on 1st July, wave after wave were simply mown down by enemy fire.

## Arras

The area near Arras already contained tunnels and the British decided to link these creating 2.5 mile soft tunnels which could hold 25000 men. They contained electric lights, railways and a fully functioning hospital.

In 1917 24,000 men hiding in the newly built tunnels near the German trenches attacked. The aim was to break through German lines. The British at first advanced 8 miles but by the time the advance ended there were 160,000 casualties (British and Canadian) and little further progress had been made.

## Ypres 1914

Early in the war the British had moved into Ypres in Belgium to prevent Germany reaching the sea. However Germany attack their positions in the autumn which lasted almost a month. The British lost 50,000 men but held on to Ypres keeping control of the ports of the English Channel.

Offensive mining was used by the British to retake Hill 60 ( a mam made Hill to the south east of Ypres). Tunnels were dug and the mines placed and exploded so the top of Hill 60 was blown off and the British gained the strategic advantage

## Ypres 1915 Second Battle

This was the first time Germany used chlorine gas on the Western Front. The British lost 59,000 men. By the end of the battle the Germans had advanced two miles closer to Ypres.

## Ypres 1917 Third Battle

The aim of this battle was to remove the German advantage of having the higher ground. They launched their main attack in July and advanced 2 miles of the first day. Soon, however, the weather changed and the ground became waterlogged, men even drowned, the campaign lasted until November advancing 7 miles in total at a cost of 245,000 casualties.

## Impact on the Injured

The third battle of Ypres left craters everywhere on the landscape which destroyed many roads. It became much more difficult to get the wounded away from the front line. Also as the land had previously used for farming the soil was full of bacteria from fertiliser. This could get inside wounds and lead to infection.

Stretcher bearers had to move injured men day and night, they were often at risk from gun fire and shelling

Use the information on the previous page to create a detailed spider diagram.

Why did the war environment cause issues for treating the injured soldiers?

You need to circle/ highlight the focus of the enquiry

How useful is this source for an enquiry into trench life on the Western Front?

Trenches of the 11th Cheshire Regiment at Ovillers-la-Boisselle, on the Somme, July 1916.



Nature

Origin

Purpose

What own knowledge do you have about life in the trenches?

Highlight using two different colours.

Useful

Not useful





# Problems of transport and communications

As there were a number of bombings and shells often the terrain near the trenches made it very difficult to cross. This caused issue in terms of transport and communication. The area around the trenches had been used as farmland so fertilizer was used which meant there was a lot of bacteria in the soil that could lead to infected wounds.

If you were injured you needed to be moved ASAP away from the trenches. Stretcher bearers would carry them away when they were stable enough. This meant they would have to avoid gunfire and shelling. It was easier to carry out more developed procedures away from the front line.

The faster the treatment the more likely the person was to stay alive.

Why was it difficult to transport injured soldiers on the front line?



Name one **negative** aspect of horse drawn ambulances.



## Horse- drawn

Originally the decision was made not to send motor ambulances to the frontline.

This was a mistake as horse drawn carriages could not cope with the amount of injuries and deaths. It was also not very secure and due to men being shaken about the injuries got worse. Many soldiers were either left to die or taken prisoner by the Germans.

Why did motor ambulances not work on the front line?



## Train, barge and ship ambulances

Might be transported to the base hospitals on the French coast. At the start of the war the RAMC actually used French good trains rather than specially designed ones. The first ambulance train came into use in November 1914. Stretchers could fit down the side of the carriage. Hundreds of soldiers were moved on these trains and they were criticised for damaging the war effort as too many were moving around France and Belgium. This led to canals being used, this meant that sometimes they missed the base hospitals and went straight to the ships home.

## Motor Ambulances

When news of the weaknesses reached Britain an appeal for donations was run by 'The Times,' After three weeks enough money was raised to buy 512 ambulances. October 1914 the first motor ambulances reached the front line. However the worse the terrain the less effective motor ambulances were. Therefore horses continued to be used, sometimes up to 6 in horrendous conditions.

How were trains and ship ambulances used?



# 4 Mark Question - Source Enquiry



HORSE-DRAWN RED CROSS AMBULANCE hit by a shell during First World War

How would you follow up the above source to find information about horse-drawn ambulances (4 Marks)

Detail in the source I would follow up

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Question I would ask

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What type of source could I use?

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How might this help answer my question?

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Feedback

# Injuries and Medical Problems

## Gas Attacks

Caused great panic and fear. It was not however a major cause of death. Only 6000 soldiers died from it during the course of WWI. The troops on the Western front were given Gas masks from 1915, which became more sophisticated over time. Gas attacks were greatly feared by the soldiers.

## Mustard Gas

1917

Odourless gas that worked within 12 hours. Caused internal and external blisters and could pass through clothing to burn skin.

## Chlorine

1915. Led to death by suffocation. Before gas masks the soldiers soak cotton pads in urine and pressed them to their faces to stop gas entering their lungs.

## Phosgene

1915 in battle of Ypres. Faster acting than chlorine, killing an exposed person within 2 days.



## Shrapnel, explosive and wound infection

Metal would penetrate the body when men were injured by shrapnel or bullets, taking the fabric of the uniform with it into the skin. As the ground in the trench region had been fertilized it contained bacteria for both tetanus and gas gangrene. Gas gangrene infection is an infection that produced gas in gangrenous wounds. The impact of tetanus was reduced by tetanus injections from end of 1914. However there was no cure for gas gangrene. The gas gangrene spread through the body quickly and could kill a person within a day. At the start of the war the head wear worn by soldiers was soft. The Brodie helmet was introduced in 1915 which was made of metal and had a strap on to prevent it falling off in an explosion. It was estimated that it prevented fatal head wounds by 80%, this helmet was then distributed to all soldiers fighting on the western front.

## Shell shock

Symptoms included tiredness, headaches, nightmares, loss of speech, uncontrollable shaking and complete mental breakdown. This condition was not understood at the time. Siegfried Sassoon and Wilfred Owen both suffered and had treatment in a hospital in England. However some soldiers who experienced shell shock were accused of cowardice. Many were punished for this and some even shot.

## Trench Fever

Flu like symptoms with high temperature, headache and aching muscles. This affected an estimated half a million men on the Western front. By 1918 the cause of this condition had been linked to contact with lice. Delousing stations were set up and after this there was a decline in the numbers experiencing the condition.



## Trench Foot

Many soldiers fighting in the First World War suffered from trench foot. This was an infection of the feet caused by cold, wet and insanitary conditions. In the trenches men stood for hours on end in waterlogged trenches without being able to remove wet socks or boots. The feet would gradually go numb and the skin would turn red or blue. If untreated, trench foot could turn gangrenous and result in amputation. Trench foot was a particular problem in the early stages of the war. For example, during the winter of 1914-15 over 20,000 men in the British Army were treated for trench foot.

How would we find more information about these conditions?

# Injuries and Medical Problems

Use the information from the previous page to complete this detail.

Start to think about problems faced in the trenches when trying to treat these conditions.

## Trench Fever

Origins

Symptoms

Treatment

Results

## Shrapnel, wound infection and head injuries

Origins

Symptoms

Treatment

Results

## Shellshock

Origins

Symptoms

Treatment

Results

## Gas Attacks

Origins

Symptoms

Treatment

Results

## Trench Foot

Origins

Symptoms

Treatment

Results

You need to circle/ highlight the focus of the enquiry

How useful is this source for an enquiry into gas attacks on the Western Front?

Content (Annotate the source. Select all the key points. What does the source tell us about?)

Wilfred Owen – Dulce et decorum est (1917)

**Source A**

Bent double, like old beggars under sacks,  
Knock-kneed, coughing like hags, we cursed through sludge,  
Till on the haunting flares we turned our backs  
And towards our distant rest began to trudge.  
Men marched asleep. Many had lost their boots  
But limped on, blood-shod. All went lame; all blind;  
Drunk with fatigue; deaf even to the hoots  
Of tired, outstripped Five-Nines that dropped behind.

Gas! Gas! Quick, boys!—An ecstasy of fumbling,  
Fitting the clumsy helmets just in time;  
But someone still was yelling out and stumbling  
And flound'ring like a man in fire or lime...  
Dim, through the misty panes and thick green light,  
As under a green sea, I saw him drowning.

In all my dreams, before my helpless sight,  
He plunges at me, guttering, choking, drowning.

If in some smothering dreams you too could pace  
Behind the wagon that we flung him in,  
And watch the white eyes writhing in his face,  
His hanging face, like a devil's sick of sin;  
If you could hear, at every jolt, the blood  
Come gargling from the froth-corrupted lungs,  
Obscene as cancer, bitter as the cud  
Of vile, incurable sores on innocent tongues,—  
My friend, you would not tell with such high zest  
To children ardent for some desperate glory,  
The old Lie: Dulce et decorum est  
Pro patria mori.

Nature

Origin

Purpose

What own knowledge do you have about gas attacks?

Highlight using two different colours.

Useful

Not useful

You need to circle/ highlight the focus of the enquiry

How useful is this source for an enquiry into gas attacks on the Western Front?

Content (Annotate the source. Select all the key points. What does the source tell us about?)

### Source B

H S Clapham, a British soldier on the Western Front, wrote about his experiences of a gas attack.

“At 6.0 p.m. the worst moment of the day came. The Huns started to bombard us with a shell, which was new to us. It sounded like a gigantic firecracker, with two distinct explosions. These shells came over just above the parapet, in a flood, much more quickly than we could count them. After a quarter of an hour of this sort of thing, there was a sudden crash in the trench and ten feet of the parapet, just beyond me, was blown away and everyone around blinded by dust. With my first glance I saw what looked like half a dozen bodies, mingled with sandbags, and then I smelt gas and realised that these were gas shells. I had my respirator on in a hurry and most of our men were as quick. The others were slower and suffered for it. One man was sick all over the sandbags and another was coughing his heart up. We pulled four men out of the debris unharmed. One man was unconscious, and died of gas later. Another was hopelessly smashed up and must have got it full in the chest.”

Nature

Origin

Purpose

What own knowledge do you have about gas attacks?

Highlight using two different colours.

Useful

Not useful





# RAMC and FANY

The **RAMC** was the branch of the army responsible for medical care founded in 1898. As a result of the large number of casualties the number of medical professionals had to increase dramatically.

Complete the table below using the chart on page 158.

	1914	1918
Medical officers		
Other ranks		

One of the most important priorities was to have an efficient system of communication to a safe area where they could be treated. This was known as a chain of evacuation. There were four main stages. The order of these stages was not necessarily the same for each casualty.

## 1. Regimental Aid Posts (RAP)

Aim- to give immediate first aid and return soldiers to fight as soon as possible. They were usually within 200m of the front line in a communications trench. They were staffed by a medical officer and a few stretcher bearers. They could not deal with more serious cases who had to be taken further up the chain.

## 2. Dressing stations (ADS and MDS)

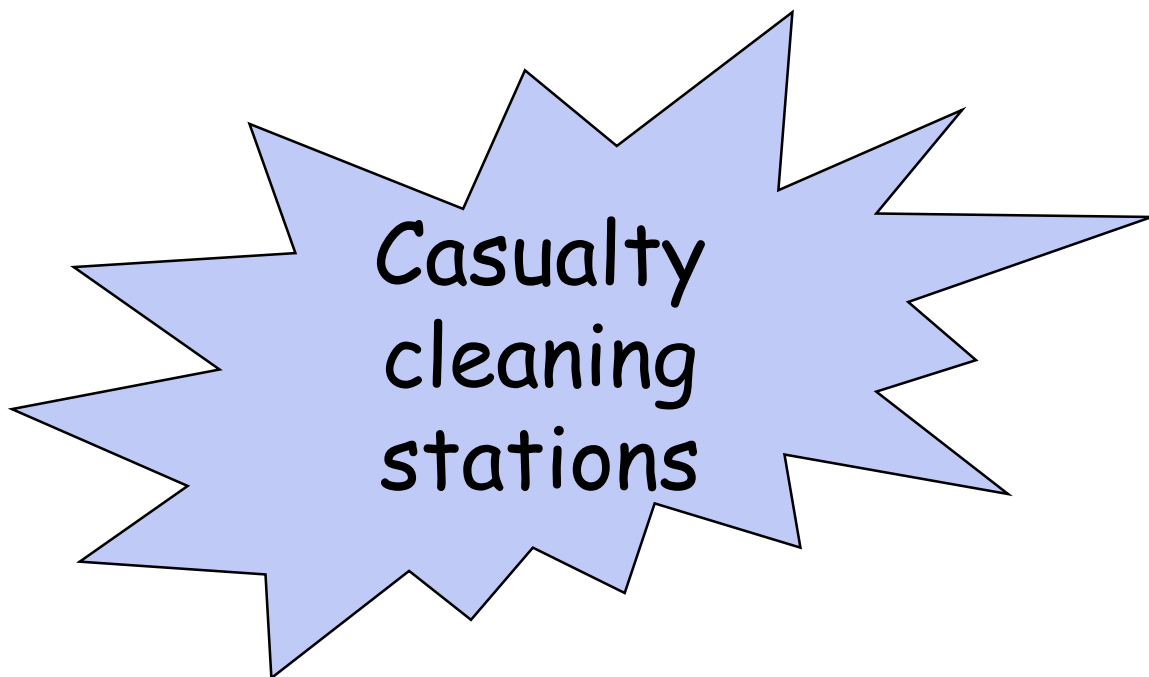
There should be an advanced station(ADS)within 400m of the RAP and a MAIN dressing station about half a mile away. They were often in abandoned buildings, dug outs or bunkers as this gave protection form enemy shelling. When not available tents were used. They were staffed by 10 medical officers and stretcher bearers of the RAMC. From 1915 there were nurses there too. Men could either walk there or be carried. The Field Ambulance unit could deal with 150 men but often in battles this was much higher. They did not have the facilities to deal with men for longer than a week.

## 3. Casualty Clearing stations ( CCS)

Located far enough away from the front line to provide safety but close enough for the ambulance waggons. The CCS closest to the front line specialised in the most critical injuries. They were often close to railway lines to enable the next stage of evacuation to take place. They developed a triage system for assessing the wounded

- I. The walking wounded-Patch them up and return them
- II. Those in need of hospital treatment-move to a Base Hospital
- III.No chance of recovery- make them comfortable

# Describe two key features of ...



One key feature of \_\_\_\_\_ was...

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Another key feature of \_\_\_\_\_ was ...

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Feedback

## 4. Base Hospitals- Page 162

These were located on the \_\_\_\_\_ and \_\_\_\_\_ coast so men could easily be transported home. There were two types \_\_\_\_\_ and \_\_\_\_\_ but they worked in similar ways. After treatment men would be \_\_\_\_\_ or returned to the Front if they were thought to be fit.

As the war progressed \_\_\_\_\_ became more important than Base Hospitals because if wounds were not dealt with quickly they could develop \_\_\_\_\_.

By May 1916 ,at No 26 Base Hospital, Etapes, most patients had already been operated on before arrival .They were responsible for continuing the treatment already begun at the \_\_\_\_\_. Base hospitals increased when there was a major \_\_\_\_\_.

As Base Hospitals were not doing their intended role they began to find other roles. These included experimenting with new \_\_\_\_\_ which were later used in the CCS. Also patients were divided into wards according to their \_\_\_\_\_. Doctors were then allocated to wards and able to become \_\_\_\_\_ in the treatment of particular wounds.

Casualty Clearing stations remained the most important place for operations until the spring of \_\_\_\_\_ when the Germans launched their \_\_\_\_\_. As a result the CCS had to move further back so Base Hospitals became what they had been intended for - places for \_\_\_\_\_

Describe the Underground Hospital at Arras (162)

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# Describe two key features of ...



One key feature of \_\_\_\_\_ was...

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Another key feature of \_\_\_\_\_ was ...

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Feedback

# The role of FANY (Page 158)

FANY stands for \_\_\_\_\_

1. When did they arrive in France? \_\_\_\_\_

2. What happened at first?

\_\_\_\_\_

\_\_\_\_\_

3. What changed in 1916? \_\_\_\_\_

Describe their role

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

4. Despite the fact there were never more than 450 FANYs in France they opened the way for other organisations such as \_\_\_\_\_ to work on the front line.

Do you think FANY was successful? Why?



# 4 Mark Question - Source Enquiry



How would you follow up the above source to find information about the work of FANY (4 Marks)

Detail in the source I would follow up

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Question I would ask

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What type of source could I use?

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How might this help answer my question?

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Feedback



# New Techniques

## Amputation

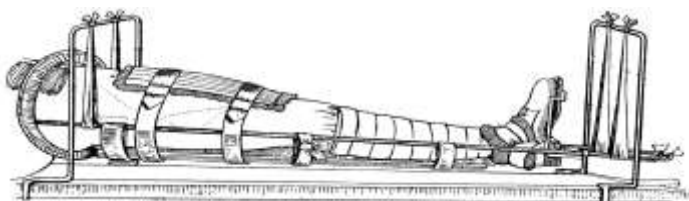
The only way to deal with the spread of infection was through amputation of limbs. By 1918 over 240,000 men had lost limbs. This was because it was the only way to fully prevent disease spreading.

## Wound excision or debridement

This was cutting away dead, damaged and infected tissue from around the wound. This again needed to be done as quickly as possible to prevent infection spreading. After the excision the wound needed to be closed with stitches. If any infected tissue has not been removed before the wound was stitched, the infection would spread again.

## The Thomas Splint

In 1914/1915 men with a gunshot or shrapnel wound in the leg would have a very small chance of survival (20%). It was worse when the bone had pierced the skin. If the thigh bone was fractured, it would usually cause major bleeding into the thigh. The splint that was used to secure the leg did not work. By the time the injured soldiers reached the Casualty Clearing Station, he would have lost a massive amount of blood. He would have been in shock and also possibly developed gangrene. Many who survived had to have their legs amputated. Hugh Thomas invented the Thomas Splint, which was tested on in a hospital in London. In December Hugh Thomas nephew, Robert Jones went to the frontline to instruct medical practitioners on how to use the Thomas Splint. This increased survival rates from this type of wound from 20-80%.



## The Carrel-Dakin method

Antiseptics such as carbolic lotion were inefficient when treating gas gangrene. By 1917 the Carrel-Dakin method was the most effective solution. This involved putting sterilised salt solution in a wound through a tube. The solution was only effective for 6 hours so had to be done as soon as possible. This was made difficult due to the amount of soldiers which needed treatment,

## Questions

How many men had limbs amputated during the war?

What was the survival rate for men with shrapnel wounds in 1914/15?

Why did the environment mean the original splints used on soldiers did not work?

Why did wound excision need to be done as quickly as possible?

What is the Carrel-Dakin method?

Which method do you think was the most successful? Why?

# X-rays

## Use of mobile X-ray units

X-rays were used from the start of the war. They were mainly used to show shrapnel and bullets, if they were removed this would help stop infection. Two x-rays would be taken from different angles and this would help the surgeon identify the location and shape of the shrapnel.

## Problems with the use of x-rays (Use page

X-rays could not detect all objects in the body

Length of time it took to perform an x-ray

Tubes in the x-ray overheated quickly

# Blood Transfusions

The use of blood transfusions was introduced from 1915 by Lawrence Bruce Robertson in the base at Boulogne. He used an indirect method where a syringe and tube was used to transfer the blood to the patient. The purpose of this was to ensure that the patient did not go into shock through blood loss before surgery. Those who did not experience a negative reaction to the transfusion usually recovered. By 1917 blood transfusions were being carried out in the Casualty Clearing Stations because they had been so successful at the base hospitals.

Geoffrey Keynes, doctor and lieutenant in the RAMC designed a portable blood transfusion kit that was used to provide blood transfusions closer to the frontline. This kit did not use stored blood because it was difficult to keep the blood fresh with no refrigeration. Keynes added a device to the blood bottle to regulate the flow of blood which helped prevent clotting. In 1915 Keynes used this method in a CCS on the western front.

Who was Lawrence Bruce?

Who was Geoffrey Keynes?

Why did the portable blood transfusion help save lives?

# Blood Transfusions

## Blood Bank at Cambrai

Due to the identification of different blood groups and the use of type O as a universal donor there was less risk of using the wrong blood type during transfusions. However there was still a problem with clotting and availability of blood. Through the war there were some advances were made in storing blood.

1915

1916

1917



Oswald Hope Robertson

What is a blood depot?

Was this method successful?

# Plastic and Brain Surgery

## Increase in head injuries

Approximately 20% of all injuries in the Western front were head, neck and face. This was because these were the parts of the body which were least protected. Their injuries were usually the result of bullets or shrapnel.

Why were injuries to the head so common?

## Brain Surgery

Injuries to the brain were almost always fatal at the start of the war.

- Very few doctors who had experience of neurosurgery before the war.
- Infection in the head was just as common as any other part of the body
- Difficulties in moving men through the chain of evacuation as they were often unconscious.

Despite not many doctors having experience in these kind of injuries, observations of different patients quickly led to improvements in treatments.

Harvey Cushing was a key person who helped new techniques in Brain surgery develop. He experimented with use of magnets to remove metal fragments from the brain. He also used local anaesthetic rather than general anaesthetic. General anaesthetic often caused the brain to swell. He operated on 45 patients in 1917 and 71% survived, compared to the usual survival rate of 50%.

He concluded:

- It was too dangerous to move men too quickly after an operation.
- Men who were operated on quickly were more likely to survive.
- Injuries that looked minor may be hiding more severe injuries.

## Plastic Surgery

A new Zealand Doctor carried out most of the research regarding plastic surgery, he was called Harold Giles. He was an ear, nose and throat surgeon. He was sent to the front in 1914 and began working with Charles Valadier in October 1914.

They became interested in facial disfigurement. He was interested in trying to discover ways of replacing and restoring parts of the face that had been destroyed. He devised different operations when new injuries appeared. These detailed operations could not be carried out in France due to the horrific conditions of life on the frontline. Queen Hospital in Kent, Britain was the main hospital for this type of treatment after 1917. Gillies helped create the design for the hospital so it matched his needs.



Why was observation important in the development of both plastic and brain surgery?

# 4 Mark Question - Source Enquiry



Four views of facial reconstruction after a war wound, July 1916

How would you follow up the above source to find information about plastic surgery during WWI?  
(4 Marks)

Detail in the source I would follow up

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Question I would ask

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What type of source could I use?

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How might this help answer my question?

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**Feedback**

Recap - Write down 2 factors for each of the key topics we have studied

Revision

The Trench System

Ambulances

Trench Foot

Gas Attacks

RAMC

FANY

Dressing Stations

Causality Clearing Stations

Base Hospitals

Underground hospital at Arras

The Thomas Splint

Blood transfusions

Blood bank at Cambrai

Plastic Surgery

# Revision - Select 2 of the following activities to complete.

- 10 word glossary
- 10 questions and answers
- 3 detailed flashcards
- 1 A4 revision poster
- 1 concept wheel (Counts as 2)
- Create an A3 overview sheet
- Timeline of changes during the war
- Revision resource for HOW to answer the exam questions

## Revision

### Exam Questions

Describe two features of ... (4 Marks)

How would you follow up Source C to find information about...? (4 Marks)

How useful are sources \_\_\_ and \_\_\_ for an enquiry into ....? (8 Marks)

**Challenge:** Design a series of exam questions you could be asked. Start with 4 Mark questions.

Revision is for your benefit. Pick the activities which will suit YOU.