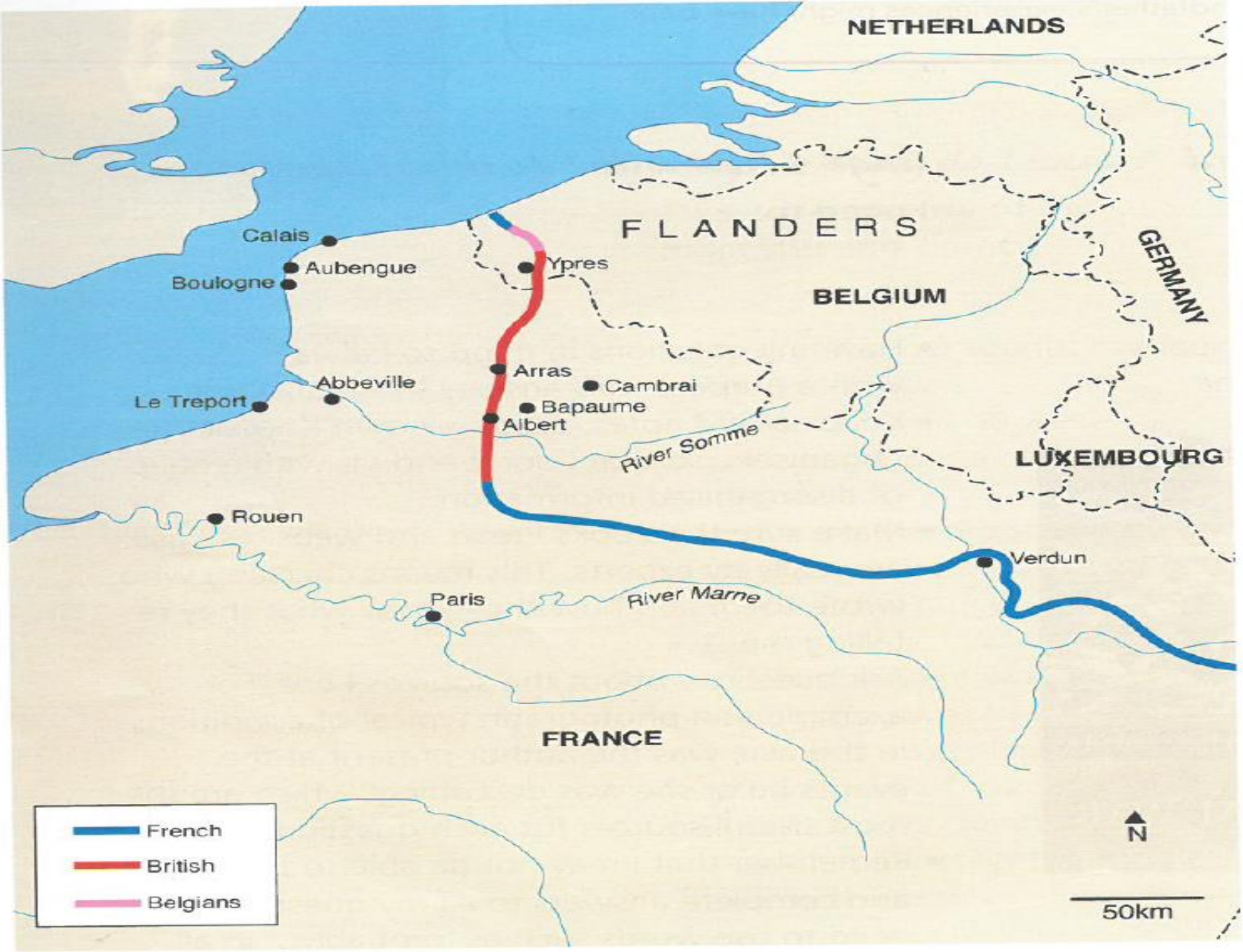
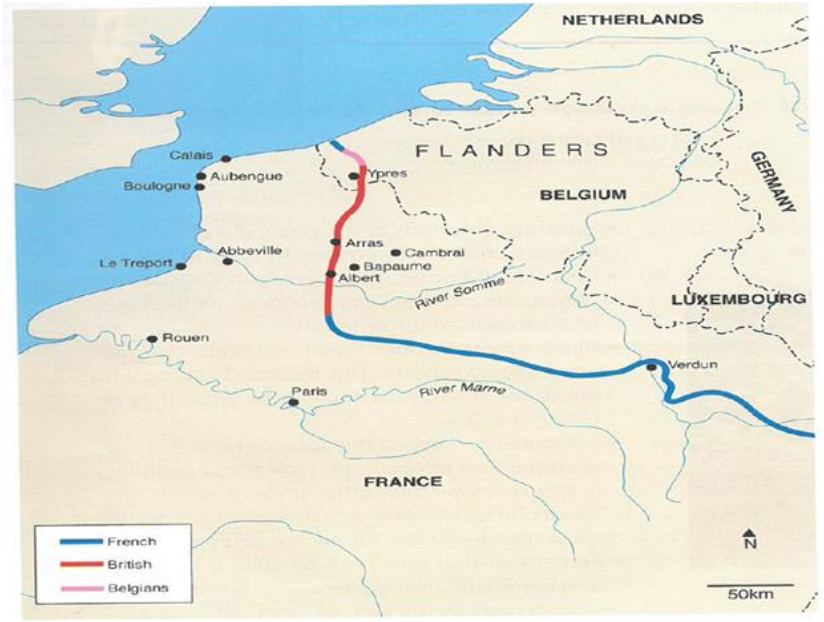
Revision – The Western Front: Treatment of the Wounded, Injured and ill.

Where was the British sector of the Western Front?

The British sector


NETHERLANDS
FLANDERS
GERMANY
BELGIUM
LUXEMBOURG
FRANCE
Calais
Aubengue
Boulogne
Ypres
Arras
Cambrai
Abbeville
Le Treport
Bapaume
Albert
River Somme
Rouen
Verdun
Paris
River Marne
French
British
Belgians
N
50km

Ypres – there were 3 key battles here



1. Why did so much fighting take place here?

It was strategically important to hold this town as if it fell to the Germans they would have been able to reach the coast and the ports of Calais and Boulogne. Ypres was on the most direct route to these ports

2. What were conditions like?

The Germans held the higher ground with better vantage points, better drainage (and therefore hygiene) and easier transport

The British trenches were in low-lying ground with heavy clay soil which got water logged and flooded easily. (harder to transport injured, supplies etc, trench foot)

3. What was significant about the second Battle of Ypres in 1915?

First time poison gas was used by Germans, taking British soldiers by surprise.

4. What happened at Hill 60?

A man made hill 60 metres above sea level gave Germans a large advantage when firing on British troops – British blew the top of the hill off and took control of it in 1915.

The Somme July – Nov 1916

1. Why is the Battle of the Somme so well-known? (Infamous)

Huge casualty rates – on first day over 60,000 British casualties (20,000 dead)
The British army's strategy had failed. (attempt to bombard with artillery first then send troops calmly across to capture the enemy trenches – they expected the Germans to be dead/dying. They weren't..)

This had huge consequences for medical facilities during the war – meant new techniques had to be found and treatment moved forward (– more done in Casualty Clearing Stations rather than waiting to get injured soldiers to Base Hospitals from 1916 onwards, for example.)

By the time the battle was called off, the British army had suffered nearly 600,000 casualties

Arras 1917

1. What did British and New Zealand soldiers do here in 1917?

Prior to a major a major battle in 1917, soldiers dug a network of tunnels in the ground and joined up with some that had been dug centuries before.

Rooms were created off the tunnels with electricity and water supplies, these became an underground hospital with wards for 700 people and operating theatres and shelters against artillery fire.

Cambrai 1917

1. What new weapons were used at Cambrai in 1917?

First large scale British attack using tanks – over 450 used – surprise assault – no initial bombardment by artillery.

Initially effective - Germans lost ground as they retreated but not enough follow up from British foot soldiers (infantry) meant the Germans regained the ground they had initially lost.

Also first battle a blood bank was prepared in advance of the battle

What problems did the landscape and the terrain cause?

- Wet, waterlogged ground = trench foot
- Muddy, shell cratered land with shell holes full of water made moving injured men dangerous (jolts with broken bones esp femur could cause bleeding to death and agony)
- Trenches could get clogged up with men, equipment, injured soldiers, manoeuvring stretchers with injured soldiers along trenches v difficult
- Number of wounded at any one time could be immense
- Fighting often on well manured farmland – driving bacteria deep into the body when a dirty uniform etc entered a gun shot wound etc
- As it took time to recover the injured, infections were already setting in before any treatment could take place

What medical progress had been made prior to World War One?

Knowledge of germs and bacteria

X rays (Wilhelm Rontgen) 1895

Medical Progress up to 1914?

Aseptic surgery (sterile equipment, masks, gloves etc)

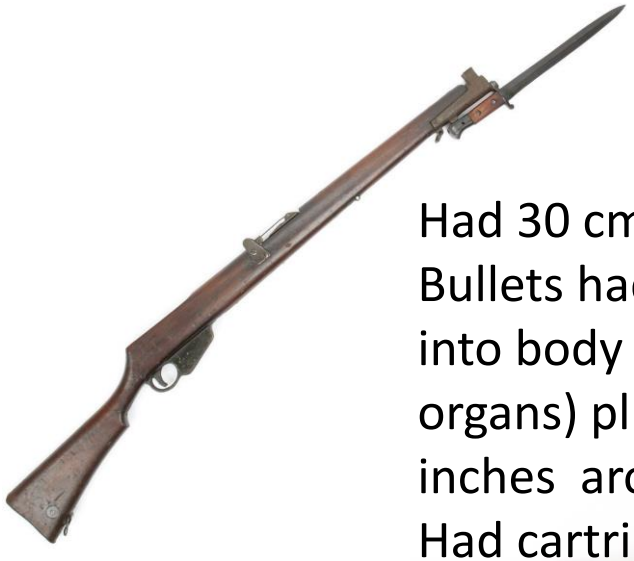
Blood groups Karl Landsteiner 1901

What injuries could these weapons cause?

Artillery Guns

Could send shells over long distances (12 miles)
Bombardments by these guns usually signalled an attack
Caused 50 % of all casualties (could blow off limbs, cause massive blood loss, major internal damage)

Some shells could weigh 900kg (=900 bags of sugar)
Shrapnel shells designed to explode in mid air above soldiers head for maximum carnage (no steel helmets until 1916!)



Rifle

Had 30 cm bayonet attachment also
Bullets had a more pointed shape by WW1 - drove them deeper into body (could break major bones in body and piece vital organs) plus blast effect of bullet – destroyed/damaged tissue for inches around entry point
Had cartridge cases by WW1 allowing more rapid fire

What injuries could these weapons cause?

Machine Guns

Could fire 500 rounds per minute (= to fire power of 100 rifles)

Had a devastating impact on approaching enemy foot soldiers crossing no man's land (could break major bones in body and piece vital organs) plus blast effect of bullet – destroyed/damaged tissue for inches around entry point)

Injuries from all these weapons caused infection, a bigger killer than the original injury itself – gas gangrene was new and caused by bacteria in the soil – wound gave off a sweet smell, then the wound become hugely swollen with gas, turn white, then green and bubble!

Major killer in early stages of war.

What injuries could these weapons cause?

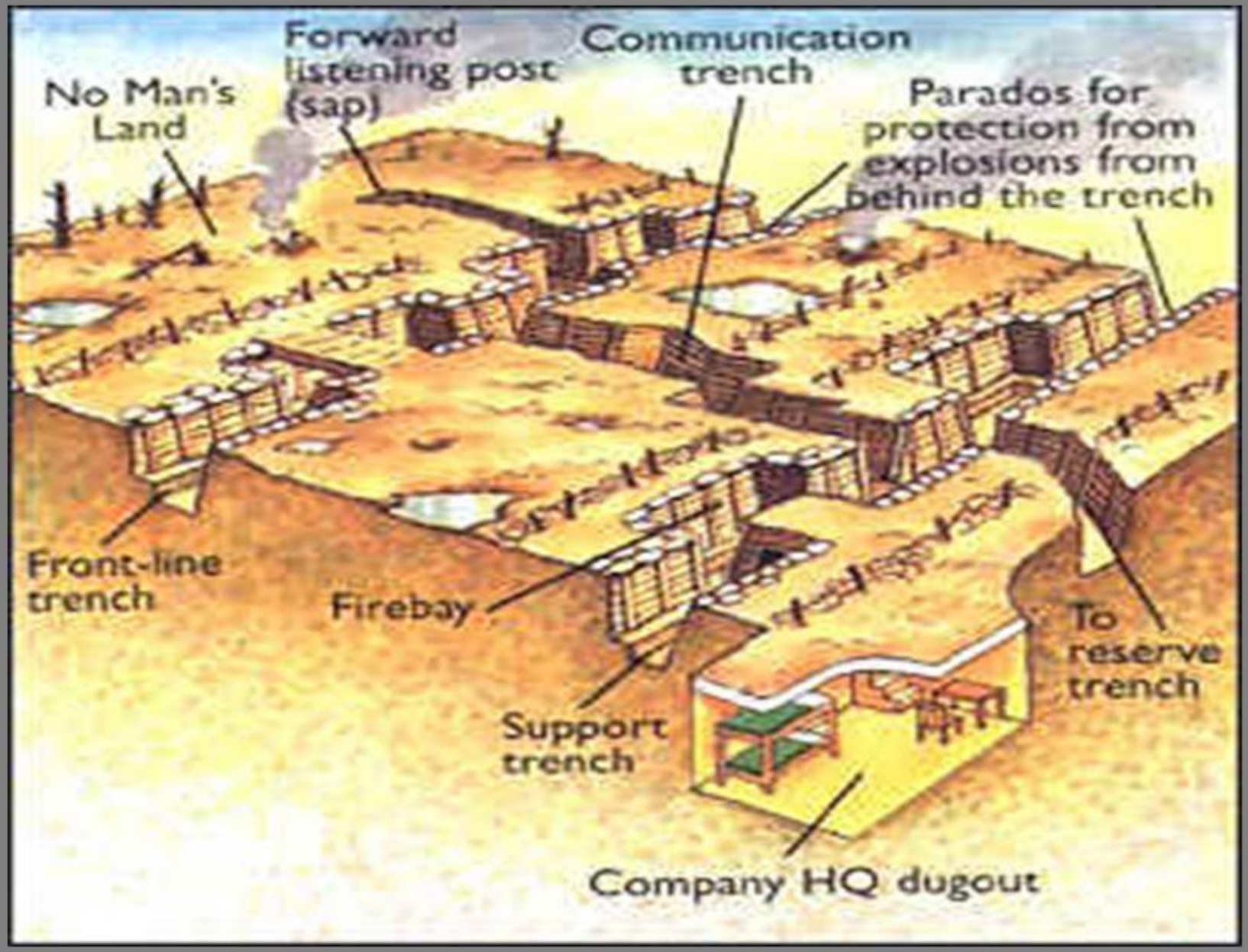
Gas

Chlorine gas first one used (Ypres 1915)
Suffocated unsuspecting soldiers
Later phosgene and mustard gas developed

Not used much (only responsible for 5% of deaths) - hard to target a specific place, problems of blowing back towards own men, easy to defend against once known (masks)

Feared though by the soldiers – symptoms were horrible although often temporary – blindness, blistered skin, coughing

Clogged up treatment centres though. Oxygen given to aid breathing and skin washed to remove traces.


No Man's Land
Forward listening post (sap)
Communication trench
Parados for protection from explosions from behind the trench
Front-line trench
Firebay
Support trench
To reserve trench
Company HQ dugout

Illnesses caused by Trench Conditions

Trench Fever

PUO Pyrexia of Unknown Origin (as they didn't know what caused it initially)

Caused by body lice = intense flu like symptoms and relapses

Army efforts = Once suspected lice were the problem then efforts made to disinfect and fumigate uniforms

Bath houses built

Lice repellent gel

Individual soldiers efforts = pick off the eggs, run a lighter over uniform seams

In one year an average of 15% of men unfit for duty due to trench fever

Illnesses caused by Trench Conditions

- **Trench Foot**
- Cold wet winter of 1914-1915 caused lots of cases of this- caused feet to go numb, swollen, blistered. Worse cases saw blood flow reduced and gangrene set in = amputation

- Extra pairs of socks, whale oil, mechanical pumps, duck boards. Men paired up to apply whale oil to each other's feet

Illnesses caused by Trench Conditions

- **Shellshock**

- **NYD.N (army code for it)**
- Psychological response to the noise, terror and exhaustion of the trenches
- In 1916 there were 16,000 cases in 6 months
- 80,000 cases recorded in total
- Responses and treatment from the army authorities varied considerably
- Treatment could involve rest, counselling, hypnosis, electric shock treatment
- Sometimes regarded as cowardice or desertion – if found guilty could be shot (nearly 300 were)

The Evacuation Route

1st = stretcher bearer

16 per 1000 men

4 per stretcher

Not all men needed a stretcher = walking wounded

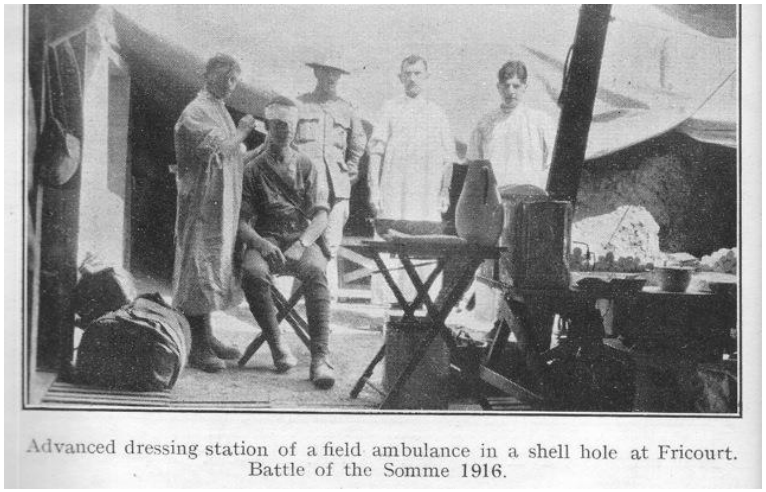
Bandages and morphine = basic medical supplies

2nd = Regimental Aid Post (RAP)

Close to front line, sometimes in a support trench, in a dug out or behind a wall

Medical officer would attend to lightly wounded and send more serious cases on to other stages

The Evacuation Route



Advanced dressing station of a field ambulance in a shell hole at Fricourt. Battle of the Somme 1916.

3rd Field Ambulance/Dressing Stations

NOT an ambulance but a large, mobile medical unit – used tents or derelict buildings, sorted wounded into serious and less serious cases (triage)

Supposed to deal with about 150 men for a max of one week's treatment before moving them on

4th = Casualty Clearing Station

First well equipped medical facility on the evacuation route. Approx. 10 miles behind fighting, housed in tents or huts. Their role increased as war went on – more operations performed there - had operating theatres, mobile X ray machines, wards, nurses, kitchens. 2000+ casualties in one go

The Evacuation Route


ST. JOHN AMBULANCE BRIGADE HOSPITAL, FRANCE. SURGICAL WARD.

5th Base hospital

Often already a hospital before the war or a large converted building

Near railways so patients could be moved quickly

Also arrived by horse, motor ambulance, even barges along canals

Near coast often so patients could then be sent back to Britain

As war went on base hospitals did less surgery, more of continuing treatment following on from surgery completed at CCS – started to specialise and have specialist wards and doctors for particular wounds

Moving the Wounded

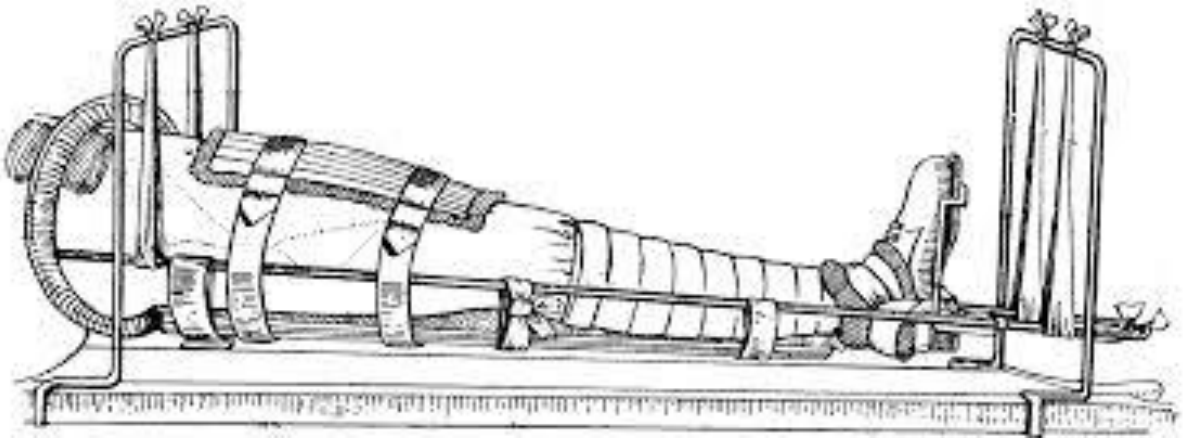
Stretcher Bearers

Horse Ambulance

Motor Ambulance

Ambulance trains

Changes to Medical Treatment/ Innovations brought about by World War One



Thomas Splint - a splint to help deal with the pain, trauma and blood loss of a broken femur (thigh bone) caused by gun shot wound. 80% died before, 20% after. Stopped broken bits of bones grinding against each other and greatly reduced blood loss

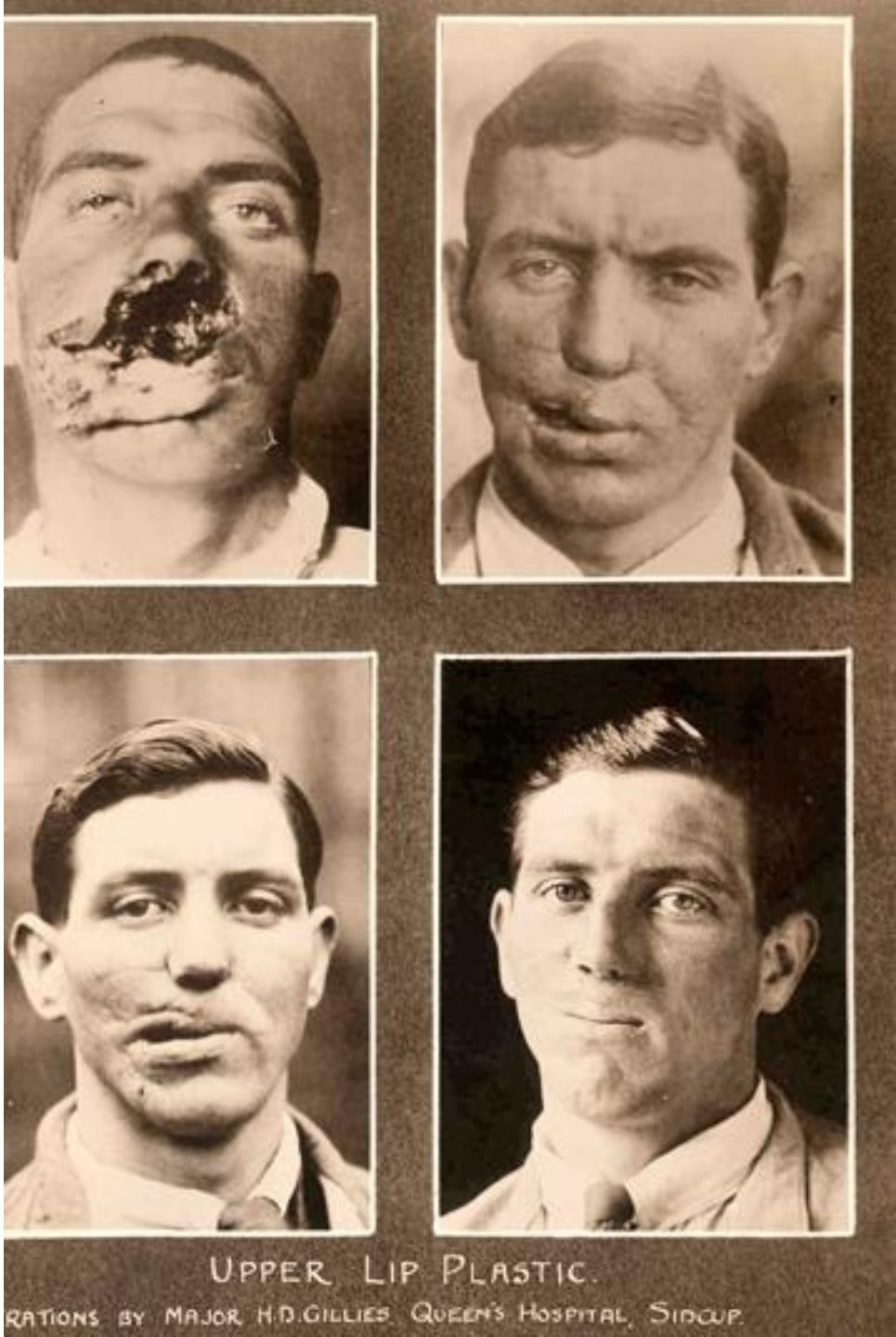
https://www.youtube.com/watch?v=Bf4HjHS3uZI

Changes to Medical Treatment/ Innovations brought about by World War One

Mobile X Rays -Many soldiers had been injured by bits of shrapnel, bullets which needed to be located before an operation could take place. Only 2 mobile X ray machines in 1915 but by early 1916 most CCS had one. Marie Curie (pictured) was responsible for equipping and supplying 20 mobile X ray machines to the Western Front

Changes to Medical Treatment/ Innovations brought about by World War One

- **Plastic Surgery** Harold Gillies dedicated his life to facial reconstruction for injured men with horrific facial injuries (in the trenches your face/head was often the most vulnerable part of you) He found ways of grafting living skin tissue from one part of the body to another. Had a specialist hospital in Sidcup, Kent.



Changes to Medical Treatment/ Innovations brought about by World War One

- **Blood transfusions**
- Blood groups had been known about from 1901 so live person to person transfusions were possible but could not store blood for future use (clotted)
- Breakthroughs – sodium citrate added to blood stopped it clotting for a couple of days (1915)
- Then discovered citrate glucose when added meant it could be stored for up to 4 weeks
- First blood bank set up in advance of the battle of Cambrai to treat injured men

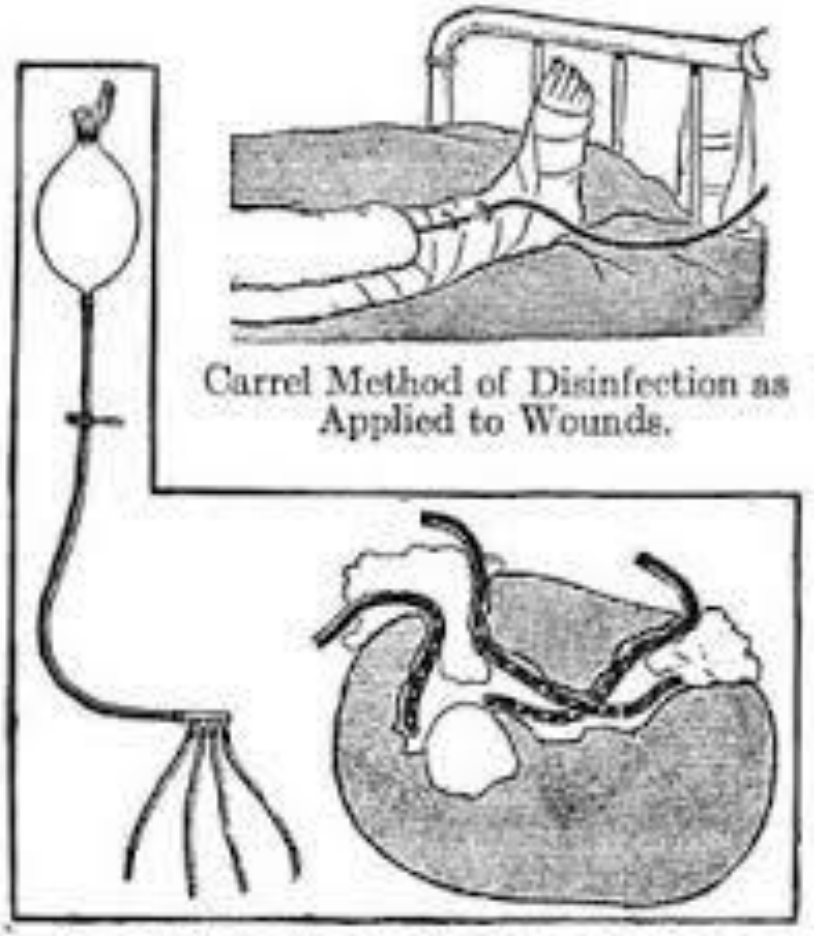
FIGURE 12.—Blood transfusion kits being packed at the British Army Blood Supply Depot.

Changes to Medical Treatment/ Innovations brought about by World War One

- **Brain Surgery**
- Injuries to brain usually fatal at start of war.
- A US neuro surgeon tried new techniques (Harvey Cushing)
- Use of magnet to remove metal fragments
- Using a local not general anaesthetic for brain surgery as general anaesthetics cause brain to swell and increased risks
- Operated on 45 patients in 1917, 71% survived

Changes to Medical Treatment/ Innovations brought about by World War One

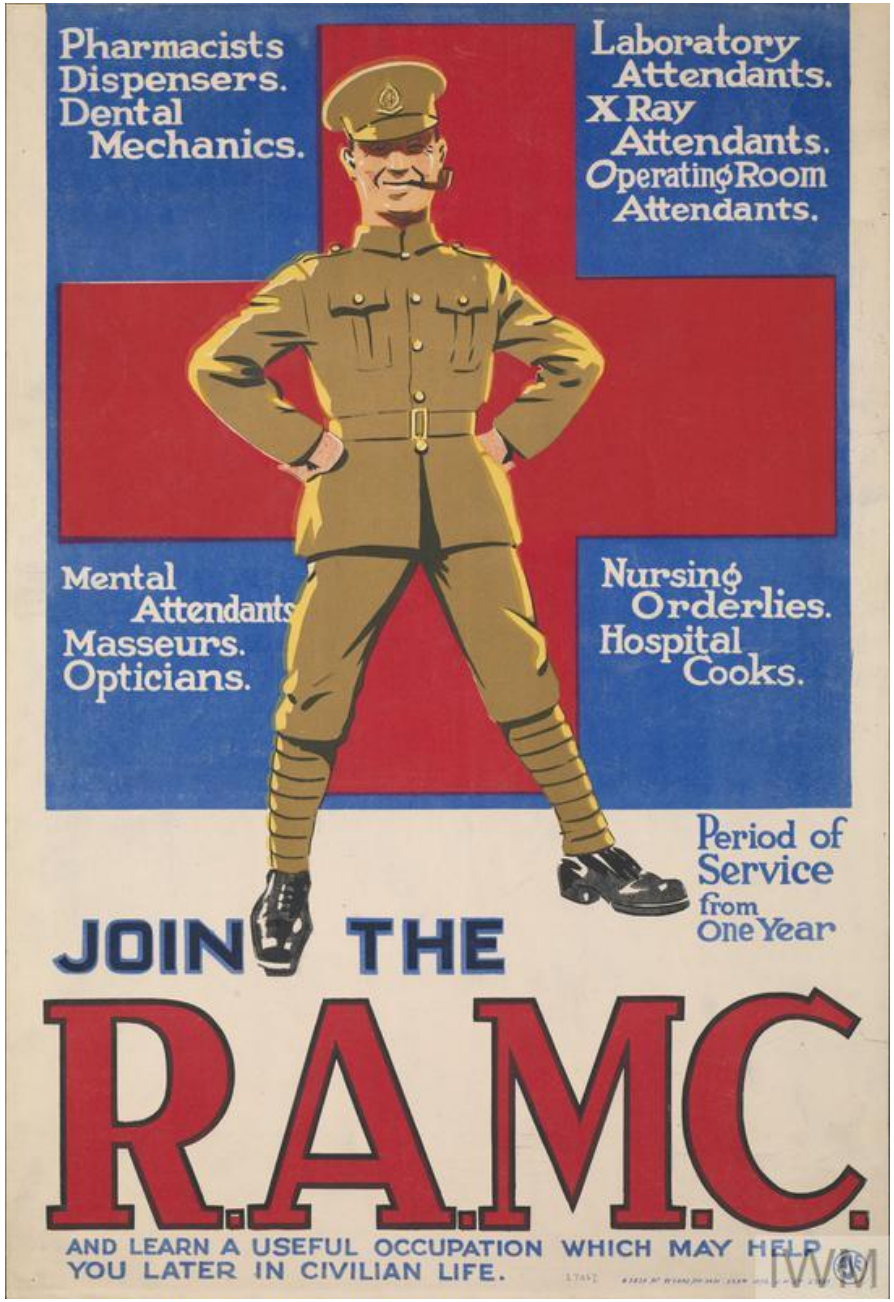
- **Dealing with infections in wounds**
- Changed techniques due to the problems of gas gangrene.
- Aseptic surgery no longer enough as wounds often already infected
- Instead of stitching up the wound and potentially trapping in bacteria and infection, the wound was left open initially, the damaged tissue was cut away and then a salt saline chemical solution was flowed through the wound. This was known as the Carrel – Dakin method. Wound sewn up later.



Carrel Method of Disinfection as Applied to Wounds.

Carrel Irrigator for Sterilizing Infected Wounds.

Who Treated the Injured?



All medical officers and men belonged to the RAMC (Royal Army Medical Corps) and they were responsible for medical care and contained all ranks – surgeons, doctors, stretcher bearers, and more (see poster, left)

9,000 of them in 1914
113,000 by 1918 (x12 increase)

Who Treated the Injured and Sick?

Main body of military nurses were **Queen Alexandra's Nurses**
300 in 1914
10,000 in 1918

Also lots of **volunteer nurses**
VADs – Volunteer Aid Detachment
And **FANY (First Aid Nursing Yeomanry)**
Formed in 1907 – often ambulance drivers, carried supplies to front, drove motorised kitchens and baths