The Army Medical Services in the First World War

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Contents

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The origins of the Royal Army Medical Corps

Between 1660 and 1854 medical personnel were recruited into the British Army in two ways: regimental surgeons cared for their own sick in small regimental hospitals in peacetime; during wartime only, military hospitals (both mobile and static) were formed during campaigns and disbanded thereafter. During the Crimean War (1854 – 1856) a first attempt was made to form a body of medical orderlies for service in field medical units – the initial Medical Staff Corps.

The debacle of the Crimean War was a catalyst for reform of the Army Medical Services. A new body of specially trained medical orderlies, the Army Hospital Corps, replaced the Medical Staff Corps on 1 August 1857. Large military hospitals came into existence (such as the Royal Victoria Hospital at Netley in 1863 and the Cambridge Military Hospital at Aldershot in 1879).

Further medical lessons were learned from the American Civil War (1861 – 1865) and the Franco-Prussian War (1870 – 1871). Following the Cardwell reforms of March 1873, regimental hospitals were closed, and medical officers were transferred from regiments to the Army Medical Department. Field hospitals and bearer companies were established, to be manned on mobilisation.

On 20 September 1884 the officers of the Army Medical Department and of the Army Hospital Corps were designated the Army Medical Staff. The warrant officers, non-commissioned officers and men of the Army Hospital Corps became the Medical Staff Corps.

On the 23rd June 1898, Queen Victoria established The Royal Army Medical Corps by Royal Warrant, merging the officers of the Army Medical Staff with the soldiers of the Medical Staff Corps. The newly formed (and still undermanned) Corps had its baptism of fire in South Africa, during the Second Boer War (1899 – 1902), though not all the lessons learnt there would be relevant to the greater conflict just over a decade later.

Commemorative Bronze at Museum of Military Medicine

From Second Boer War to Great War, 1899 – 1914

Second Boer War (1899 – 1902) At the outset of this war, fought over greatly extended lines of evacuation, the overstretched RAMC could not cope with the demands placed on it (having to be supplemented by civilian consulting surgeons in 1900), and its ambulance wagons were commandeered by the combatant corps to transport ammunition, leaving wounded and ill soldiers stranded on the battlefields. General staff officers had no concept of the medical needs of a deployed force, least of all the need for vigorous preventive public health measures enforced by military authority, and they wantonly ignored medical advice. 58,000 soldiers therefore fell ill with typhoid, with 8,000 dying (more than died of wounds).

Public outcry & reforms The criticism raised in the press, particularly by the influential Burdett Coutts MP, about the medical failings in South Africa and the scale of the typhoid epidemic resulted in a public outcry and the formation of two **Royal Commissions**. Their Reports in 1904 concluded that there had been a failure in military leadership, and emphasised the importance of training of combatant officers and NCOs in sanitation and hygiene. A whole raft of reforms was instituted and the AMS reorganised under the able leadership of Surgeon General Sir Alfred Keogh, appointed Director General of the Army Medical Service in January 1905 after a meteoric rise through the senior ranks.

1903 – The Journal of the RAMC came into being, with the prestigious Colonel (later Major General Sir) David Bruce FRS soon becoming editor (1904 – 1908). This Journal became a catalyst for change and the mouthpiece through which advances in military medicine were promulgated to the world. It still fulfils that role today (http://jramc.bmj.com/)

1905 – Casualty evacuation The Bearer Companies and Field Hospitals were reformed as Field Ambulances and Casualty Clearing Hospitals, to improve the care and evacuation of casualties from the battlefield.

1906 – The Army School of Sanitation opened in Aldershot, with combatant officers having to attend courses in preventive medicine and hygiene for their promotion exams.

1907 – The Royal Army Medical College opened at Millbank as a centre of military medical excellence, and became accepted as a school of London University's Faculty of Medicine**.** It was the equivalent of today's Royal Centre for Defence Medicine in Birmingham.

1908 – The RAMC Territorial Force came into being through the Reserve Forces Act, introduced by the Secretary of State for War, Richard B Haldane. The RAMC Territorial Force would have its own locally recruited field ambulances, hospitals and sanitary companies and would supplement the regular army on mobilisation for war.

1911 – Publication of updated 'RAMC Training' manual by the War Office, with a strong emphasis on prevention of disease, as well as on deployments in the field and clinical care.

Military Nurses at War

Army Nursing Service After the debacle of the Crimean War and the sterling efforts of Florence Nightingale to improve the care of wounded and ill soldiers, a formal system of recruiting nurses for war was instituted. In 1861 Jane Shaw Steward was appointed Superintendent-General of Army Nurses and the original complement was formed up in Woolwich, moving to Netley in 1863 when the great hospital opened. The first deployments of Army Nurses were in 1879/81 to the Zulu and First Boer Wards. However, nurses were then still not formally recognised as being part of the Army.

Queen Alexandra's Imperial Military Nursing Service (QAIMNS) While most of this booklet inevitably covers the history of the RAMC in the Great War, It is only right to pay tribute here to the nurses of the **QAIMNS**, who replaced the Army Nursing Service in 1902, and their reserve branch **(QAIMNSR)**. Incidentally, **Queen Alexandra's Royal Naval Nursing Service (QARNNS)** was also formed in 1902, with its own reserve branch. Tribute should also be paid to the **Territorial Force Nursing Service (TFNS)**, who came into being in 1908 as part of the Territorial Force.

At the outbreak of war in 1914 there were exactly 297 nurses in the **QAIMNS**, practically all of whom deployed to France in August 1914 with the British Expeditionary Force. By the end of war in 1918 their number had risen to 10,404 (including reservists), and they served in hospitals and casualty clearing stations alongside the RAMC in Flanders, the Mediterranean, the Balkans, the Middle East and on board hospital ships. Their help was invaluable.

They were brave too. When the Military Medal (the equivalent of the Military Cross) was instituted in 1916 as an award for bravery, some of the first medals went to military nurses such as Beatrice Allsop (who rescued and cared for wounded soldiers and staff when her hospital, 33 Casualty Clearing Station at Bethune, was bombed). They have worthy successors in the **Queen Alexandra's Royal Army Nursing Corps**, formed after the Second World War, in 1949. Many military nurses were also recognised with the Royal Red Cross (Member) & (Associate Member) awards.

First World War nurses and patients aboard a hospital barge (Museum of Military Medicine)

Military Dentistry

Dental care had been sadly neglected by the Army. Not one dentist accompanied the 90,000-strong British Expeditionary Force sent hurriedly to France in 1914. More priority was given to vets and blacksmiths. It was only when General Haig, commanding the First Army, was incapacitated with toothache during the Battle of the Aisne in autumn 1914 and a dental surgeon had to be summoned from Paris to treat him, that it was recognised that the military needed dentists. The first dentist to serve with the British Forces in the First World War was an American citizen, the son of French parents, working in Paris, namely Charles Valadier. He was commissioned into the RAMC on 29 October 1914, and was reputedly the dentist who had treated Haig.

By the end of 1914, there were 20 dentists assigned to the BEF, attached to the RAMC with the rank and pay of lieutenants. By December 1918 there would be 501 dental surgeons attached to the Army at home and overseas. It would be 1921 before the Army Dental Corps came into being. The 'Royal' prefix was only awarded in 1946, in recognition of services rendered in the Second World War. *(Information from **'Ex Dentibus Ensis – A History of the Army Dental Service'** by V H Ward, 1997)*

Military Psychiatry

Introduction of forward psychiatry – In December 1916 Lt Colonel C.S. Myers, consulting psychologist to the BEF, was given permission by Sir Arthur Sloggett to set up four forward psychiatric units to treat shell shock close to the front line. The idea was borrowed from the French whose neuro-psychiatrists had sought to stem the flow of psychiatric casualties to base hospitals. They were called 'Not Yet Diagnosed Nervous Centres' (NYDN Centres) to avoid medical terminology and to promote an attitude of recovery.

The First and Second Armies were served by a single NYDN Centre opened in January 1917 within 4 Stationary Hospital at Arques about twenty-eight miles from the Ypres salient. The principle was to provide a short period of rest and reassurance in a place of safety but within the sound of the guns. (In the post-1945 period the intervention was given the acronym PIE (Proximity to the front line, Immediacy of treatment and Expectation of recovery). Although one of the four forward units (that at Arques) was closed in November 1917, the other three continued to function until the end of the war. Doctors who worked in these units claimed that between 70% and 90% of admissions were returned to active duty, though a re-examination of their records suggests that these were inflated figures encouraged by a punitive monitoring system.

Nevertheless, forward psychiatry became an established intervention for the military psychiatrist and was extensively employed in the Second World War, Korea and Vietnam. *(Information from: Edgar Jones, Adam Thomas and Stephen Ironside, **Shell Shock: an outcome study of a First World War 'PIE' unit**, Psychological Medicine 2007; 37: 215-23).* Forward psychiatry is now part of medical doctrine, and is provided by Field Mental Health Teams.

Timeline of the First World War – 1914

28 June: Archduke Franz Ferdinand is assassinated in Sarajevo.

July – 6 August: The European Powers align: Germany with Austria-Hungary (the Central Powers) against Great Britain, France and Russia (the Allies).

28 July: Austria-Hungary declares war on Serbia, and invades the next day.

29 July – 8 December: Serbia repels the Austrian invasion.

August: Germany declares war on Russia and France and invades Belgium on 3 August, triggering Britain to declare war on Germany on 4 August. Germany implements the Schlieffen plan, a vast operation designed to shatter the French Army between two pincers. By 6 September the German Army comes within 30 miles of Paris after having fought the battles of the Frontiers, Lorraine, Ardennes, Sambre, Mons, and Guise.

23 August: The British Expeditionary Force (BEF), mainly II Corps, holds the entire German First Army at bay at Mons, losing 1,850 men and inflicting over 5,000 casualties on their opponents.

26 August: The BEF II Corps fights one of the most successful holding actions in British military history at the Battle of Le Cateau. German forces suffer severe losses and the timetable for the Schlieffen Plan is delayed even further.

August: Lord Horatio Herbert Kitchener, newly appointed British Secretary-of-State for War predicts a long and brutal war and calls for thousands of volunteers to form Britain's New Armies.

August: Russia invades East Prussia. Austria-Hungary invades Russian Poland.

26 – 31 August: Russia suffers a major defeat by the Germans at Tannenberg.

28 August 1914: British naval victory over German forces at the First Battle of Heligoland Bight in the North Sea.

6 – 10 September: The Germans are halted and pushed back by French and British forces in the First Battle of the Marne. The German advance towards Paris has been stopped. The Schlieffen Plan has failed.

15 September – 25 November: As the Germans retreat from the Marne, they take a defensive position on the Aisne which the Allies fail to take. The 'race to the sea' commences as the opposing armies try to outflank each other in a push toward the English Channel, fighting the battles of St-Mihiel, the First Battle of Ypres, and the First Battle of Champagne.

The Western Front hardens into a static line of trenches from Switzerland to the English Channel.

17 – 28 September: The Austro-Hungarians and the Germans go on the offensive in Poland.

29 October: Turkey enters the war on the side of the Central Powers.

8 December: British naval victory over the Germans at the Battle of the Falkland Islands in the South Atlantic

24 – 25 December: Unofficial Christmas Truce by the soldiers on the Western front.

The RAMC at War – 1914 (1) – The VCs

The Royal Army Medical Corps regimental medical officers, non-commissioned officers and men were involved in every British military action in the war. Their dedication in the face of adversity and the risks they undertook to rescue the wounded on the battlefield were rewarded by official recognition on numerous occasions. By their devotion many lives were saved that would otherwise have been lost.

Many gallantry awards were made to all ranks. These included 499 Distinguished Service Orders with 25 Bars, 1,484 Military Crosses with 184 Bars, three Albert Medals (the equivalent of the George Cross), 395 Distinguished Conduct Medals with 19 Bars, and 1,111 Meritorious Service Medals with one Bar, as well as innumerable Mentions in Despatches. Above all these, nine Victoria Crosses, the highest award for gallantry in the face of the enemy, including two Bars, were awarded to medical personnel of the RAMC in the Great War. The first man in the Army to receive a second VC was Lieutenant Arthur Martin-Leake, who had received his first VC in the Second Boer War. The highest accolade was paid to Captain Noel Chavasse, the only man to receive a VC twice in the First World War. It should be remembered that as members of the RAMC they were non-combatants. Only one other person (Captain Charles Upham, New Zealand Infantry, in WW2) has won a Bar to the VC.

The first RAMC Victoria Cross of the War Captain Harry Ranken was the regimental medical officer to the 1st Battalion, King's Royal Rifle Corps (now The Rifles) with the British Expeditionary Force in 1914. In the first few weeks of the war he was awarded the Croix de Chevalier of the French Legion of Honour for gallant conduct under fire between 21 and 30 August 1914. Barely a month later, he lost his life saving his comrades and was awarded a posthumous Victoria Cross. The Times History of the War recorded *'Captain Ranken was severely wounded in the leg whilst attending to his duties on the battlefield. He arrested the bleeding from this, and bound it up, and then continued to dress the wounds of his men, sacrificing his own chances of survival to their needs. When he finally permitted himself to be carried to the rear, his case had become almost desperate. He died within a short period.*' He died at Braisne, France on 25 September 1914.

First double VC During the First Battle of Ypres **Lieutenant Arthur Martin-Leake VC**, who was a medical officer with 5 Field Ambulance, became the first person ever to be awarded a Bar to the Victoria Cross.

He had been awarded his first Victoria Cross in 1902 for rescuing a wounded man under heavy fire while serving as a Surgeon Captain in the South African Constabulary under General Baden-Powell.

His citation for the Bar to his VC read: *'For most conspicuous bravery and devotion to duty throughout the campaign, especially during the period 29th October to 8th November 1914, near Zonnebeke, in rescuing, whilst exposed to constant fire, a large number of the wounded who were lying close to the enemy's trenches.*'

The RAMC at War – 1914 (2)

War Wounds The First World War led to major changes in the management of war wounds. The appalling conditions in the trenches in the heavily manured fields of Flanders, coupled with the devastating effects of high explosive artillery fire, led to grossly contaminated massive wounds, completely unlike the bullet wounds sustained in the dry and sterile veldt in the Boer War (which had largely been amenable to topical antiseptic therapy). They were much more akin to those from Improvised Explosive Devices in 21st century Afghanistan. As a result, serious and life-threatening wound infections with multiple organisms and pathogenic fungi were rife in the first few months of the War, with gas gangrene and tetanus being major killers.

'Early thorough surgery' This three word slogan epitomised the main lessons from the First World War. The surgeons in the Casualty Clearing Hospitals (renamed Casualty Clearing Stations in January 1915) and General Hospitals learned the hard way the importance of **early** and thorough **wound excision** and careful debridement, removing all foreign material and dead and contaminated tissue, before infection could set in. Just as importantly, they learned to leave these wounds open, under bulky dressings, for **delayed primary suture** after five days, when the bacterial count would be lowest. These fundamental lessons of war surgery have sadly had to be relearned by fresh generations of surgeons in each new conflict since, for antibiotics (which first became available in the Second World War) are no substitute for surgery**. By 1915, the practice of wound excision and delayed primary suture had been adopted widely, greatly reducing gas gangrene and amputation rates.**

Tetanus The Royal Army Medical College at Millbank, London, under the leadership of Major General Sir David Bruce FRS, was at the forefront of research into the prevention and treatment of tetanus. Preventive inoculation was universally instituted for wounded soldiers in October 1914. As a result, the incidence of tetanus dropped drastically in November. To quote David Bruce: *'During the War there were 2500 cases of tetanus in the British Army. If there had been no prophylactic injection ... there would probably have been 25,000 cases with 20,000 deaths.'*

'**The effectiveness of passive prophylaxis in reducing the incidence of tetanus from 8 per 1000 to 1 per 1000 by the end of November 1914 would appear to be the outstanding fact of the history of tetanus in the 1914-18 War**.' Foreword to Report by the Army Pathology Advisory Committee, 1955

(Stretcher bearer, by Gilbert Rogers, RAMC)

Timeline of the First World War – 1915

1 January – 30 March: Allies go on the offensive at Artois and Champagne in France, suffering heavy losses for minimal gains.

20 January: German Zeppelins bomb English cities.

24 January: British naval victory over German forces at the Battle of Dogger Bank in the North Sea.

4 February: Germany initiates U-boat attacks on Allied shipping.

7 – 21 February: Russia suffers another major defeat at the Second Battle of the Masurian Lakes.

February – August: An Allied assault on the Dardanelles and Gallipoli ends in disaster.

11 March: Britain begins blockade of German ports.

10 – 13 March: First formally planned British offensive of the war results in limited breakthrough at Neuve Chapelle.

April: The Austro-Hungarian offensive in Russian Poland fails. The Russians counter-attack.

25 April: The ANZACs land at Gallipoli.

April – June: The Germans attack on the Eastern Front, breaking through the Russian lines and forcing them out of much of Poland.

22 April – 25 May: The Germans use gas at the Second Battle of Ypres.

7 May: German U-boat sinks the passenger liner *Lusitania*, with many US passengers on board, causing outrage in the US.

23 May: Italy declares war on Austria-Hungary.

23 June – 2 December: Italians launch costly offensives against Austria-Hungary at the First through Fourth Battles of the Isonzo.

4 August: Germany captures Warsaw.

25 September – 6 November: Allies launch offensives at Artois and Champagne, suffering huge losses for minimal gain.

25 September – 14 October: Battle of Loos. British New Army divisions are used in battle for the first time.

October – November: Austro-Hungarian, German and Bulgarian forces invade Serbia and defeat the Serbian army.

From October onwards: The disproportionate number of head wounds suffered by soldiers in the trenches leads armies to begin replacing soft headgear with steel helmets.

18 December: General Sir Douglas Haig replaces Field Marshal Sir John French as Commander-in-Chief of the BEF.

The RAMC at War – 1915

X-Rays – In January 1915 there were still only two mobile x-ray cars in the whole of the British Army.

Malaria – Malaria was a major problem for troops in Mesopotamia, Macedonia, Palestine and West Africa, indeed anywhere where mosquitoes thrived – there were 162,517 cases of malaria in the Salonika campaign. This had considerable impact on operational effectiveness, and severely hampered major military operations in these theatres (20% of the Salonika force were hospitalised with malaria in October 1917 alone). Preventive measures promulgated by the RAMC were only partially successful unless supported by combat officers – those combat units with Commanders who enforced all Force Health Protection measures had significantly lower attack rates, and thereby retained their operational capability. These lessons were identified by 1915 – and remain just as pertinent to Commanders nowadays, for it is recognised that the risk can never be completely eliminated on military missions to such areas, but it can be significantly reduced**.**

Typhoid – Infectious diseases have consistently caused many more deaths in war than battle injuries**.** Amongst these, typhoid (previously known as enteric fever) has been one of the most feared. In the Second Boer War there were 58,000 cases, with 8,000 deaths. Despite this, and the successful anti-typhoid vaccination developed by Professor Almroth Wright at the British Army Medical School at Netley, and improved upon by his successor Professor Leishman, vaccination against typhoid was still only voluntary for British troops in August 1914. Following a campaign by Wright and Leishman advocating compulsory inoculation, Lord Kitchener ruled that no troops were to be drafted overseas unless they had been inoculated, thereby rendering it virtually compulsory.

A triple vaccine, against typhoid and the similar paratyphoid A and B, was introduced in 1915. By the end of 1915 almost 100 per cent of the British Expeditionary Force had been inoculated. It has been estimated that without anti-typhoid inoculation there would have been 967,500 cases of typhoid and 125,000 deaths in the War. Instead, there were only 7500 cases and 266 deaths from typhoid – a great triumph for preventive medicine.

Gas protection – After the first use of gas against the Allies in April 1915 the RAMC was tasked to produce gas protection for the army. It tested gas helmets and produced the small box respirator at the Royal Army Medical College in Millbank, under the guidance of Colonel W G Horrocks.

Victoria Cross – Lieutenant George Maling was commissioned as a lieutenant into the RAMC on 18 January 1915, and joined the Rifle Brigade as a Medical Officer. He was awarded the Victoria Cross at the Battle of Loos in September 1915: *'For most conspicuous bravery and devotion to duty during the heavy fighting near Fauquissart on 25 September 1915. Lieutenant Maling worked incessantly with untiring energy from 6.25am on the 25th till 8am on the 26th collecting and treating in the open, under heavy shell fire, more than 300 men.*

At about 11am on the 25th he was flung down and temporarily stunned by the bursting of a large high explosive shell which wounded his only assistant and killed several of his patients. A second shell soon after covered him and his assistants with debris, but his high courage and zeal never failed him, and he continued his gallant work single-handed.'

Timeline of the First World War – 1916

February – December: The French repel German offensives against Verdun, with enormous losses to both sides.

March – November: The Italians continue their costly offensives at the Fifth through Ninth Battles of Isonzo.

2 March: The Military Service Act 1916 comes into force in Britain, introducing conscription for the first time in British military history.

23 April: Easter uprising against British in Ireland.

31 May – 1 June: The Battle of Jutland, the largest naval battle in history, results in a strategic victory for the Royal Navy. Despite inflicting heavier losses on the grand Fleet than it suffers itself, the German High Seas Fleet flees back to its ports and remains there for most of the war.

June – September: The Russian Brusilov Offensive nearly knocks Austria-Hungary out of the war.

24 June – 13 November: British and French forces attack at the Somme, gaining little ground at enormous cost but relieving the pressure on the French at Verdun.

1 July: On the first day of the Battle of the Somme the British suffer some 60,000 casualties, including 20,000 dead. It is the bloodiest day in the British Army's history.

August – December: Romania enters the war on the Allied side and is quickly defeated and over-run by German forces.

15 September: Tanks, a British invention, are employed for the first time when 25 Mk 1 tanks support the attack on Flers-Courcelette during the Battle of the Somme.

December: One of the coldest winters for many years.

13 December: General Joseph Joffre replaces General Robert Nivelle as Commander-in-Chief of the French Army.

The RAMC at Messines, Gilbert Rogers (Imperial War Museum)

THE RAMC AT WAR – 1916

Victoria Cross – Captain John Green was a 28 year old medical officer serving with the Sherwood Foresters in France when he was awarded a posthumous Victoria Cross for his actions on the first day of the Somme offensive, 1 July 1916:

' Although himself wounded, he went to the assistance of an officer who had been wounded and was hung up in the enemy's wire entanglements, and succeeded in dragging him to a shell-hole, where he dressed his wounds, notwithstanding that bombs and rifle grenades were thrown at him the whole time. Captain Green then endeavoured to bring the wounded officer into safe cover, and had nearly succeeded in doing so when he was himself killed.'

Victoria Cross – In August 1916 **Captain William Allen** was awarded the Military Cross, and a month later, 3 September 1916, his actions at Mesnil on the Somme gained him the Victoria Cross:

'*When gun detachments were unloading high-explosive ammunition from wagons which had just come up, the enemy suddenly began to shell the battery position. The first shell fell on one of the limbers, exploded the ammunition and caused several casualties. Captain Allen saw the occurrence and at once, under heavy shell fire, commenced dressing the wounded, and undoubtedly by his promptness saved many of them from bleeding to death. He was himself hit four times during the first hour by pieces of shells, one of which fractured two of his ribs, but he never even mentioned this at the time, and coolly went on with his work till the last man was dressed and safely removed. He then went over to another battery and tended a wounded officer. It was only when this was done that he returned to his dug-out and reported his own injury.'*

In 1917 he was awarded a Bar to the MC and in 1918 he was decorated with the Distinguished Service Order.

The birth of military Plastic Surgery

Harold Gillies, a New Zealander who had volunteered to join the Red Cross and been sent to France in 1914, learnt the essentials of plastic surgery at the Val de Grace Hospital, Paris, where the most famous plastic surgeon in Western Europe, Hippolyte Morestin, was pioneering the treatment of face and jaw wounds. On his return he set about convincing the Army Medical authorities of the need for such a unit in England. In January 1916, he was gazetted into the RAMC as a captain and tasked to set up a Plastic Surgery Department for face and jaw injuries at the Cambridge Military Hospital, Aldershot. He arranged for all such wounded soldiers to be sent directly to this unit from the battlefields, and soon he and his team were dealing with increasing numbers of such patients. Following the outbreak of the battle of the Somme on 1 July 1916, the Cambridge Military Hospital received over 2,000 patients with maxillofacial injuries within a fortnight. In August 1917, the plastic surgery department moved to The Queen's Hospital at Sidcup, where then-Major Gillies would continue his outstanding work. By 11 November 1918, he had performed 11,572 major facial operations. *(Information from: **The Cambridge Military Hospital Aldershot – An Illustrated History**, by Anne Pitcher, 1996 – available from The Museum of Military Medicine)*

Timeline of the First World War – 1917

1 January: General Douglas Haig promoted to Field Marshal.

31 January: Germany declares unrestricted submarine warfare.

3 February: The United States severs diplomatic relations with Germany.

23 February – 5 April: German troops begin withdrawing to the heavily fortified Hindenburg line.

1 March: The Zimmerman Telegram, a proposed alliance between Germany and Mexico against the United States, is published.

12 March: The Bolshevik Revolution in Russia overthrows Czar Nicholas II.

5 April: The United States declares war on Germany.

16 April – 9 May: The Nivelle Offensive ends in failure after huge French losses.

29 April – 20 May: Mutiny breaks out in the French army.

12 May – 24 October: The Tenth, Eleventh and Twelfth battles of Isonzo are fought and the Italian army is nearly destroyed.

26 June: First American troops arrive in France.

27 June: Greece enters the war on the side of the Allies.

June – July: The British launch an offensive in Flanders (Third Ypres), which ends with the costly battle of Passchendaele in November.

1 – 6 November: British forces defeat Turkish Army at the Third Battle of Gaza in Palestine.

17 November: Inconclusive naval engagement fought by British and German naval forces at the Second Battle of the Heligoland Bight in the North Sea.

20 November – 7 December: The British Third Army launches a massive combined-arms attack at the Battle of Cambrai using over 430 tanks with closely co-ordinated infantry, artillery and air support.

11 December: General Allenby enters Jerusalem after its capture by British Empire forces.

15 December: The Bolsheviks conclude a 'separate peace' with Germany as Russia withdraws from the war.

Stretcher bearers (Gilbert Rogers, RAMC)

The RAMC at War – 1917 (1)

Victoria Cross – **Captain Harold Ackroyd** was a medical officer with the 6th Battalion, Royal Berkshire Regiment. He had already been awarded the Military Cross in 1916. On 31 July and 1 August 1917 he performed further acts of valour which cost him his life and also resulted in his being awarded a posthumous Victoria Cross:

'Utterly regardless of danger, he worked continuously for many hours up and down and in front of the line tending the wounded and saving the lives of officers and men. In so doing he had to move across the open under heavy machine-gun, rifle and shell fire. He carried a wounded officer to a place of safety under very heavy fire. On another occasion he went some way in front of our advanced line and brought in a wounded man under continuous sniping and machine-gun fire. His heroism was the means of saving many lives, and provided a magnificent example of courage, cheerfulness and determination to the fighting men in whose midst he was carrying out his splendid work. This gallant officer has since been killed in action.' He died on 11 August 1917 at Glencorse Wood.

The second Double VC – **Captain Noel Chavasse**, Medical Officer to the King's (Liverpool) Regiment, had been awarded the Military Cross in 1916, followed on 26 October 1916 by the Victoria Cross for gallantry in the action at Guillemont, rescuing some twenty wounded men under fire. Two of his stretcher bearers won the DCM and two others the Military Medal in this action.

In 1917 he was awarded a Bar to the Victoria Cross for outstanding service in the action at Wieltje, Belgium in the third Battle of Ypres. See citation and eyewitness account overleaf.

'

Captain Noel Godfrey Chavasse, VC and Bar, MC, RAMC

Victoria Cross – **Captain John Fox-Russell** was a medical officer in the Royal Welch Fusiliers, serving in the Egyptian Expeditionary Force. He was awarded a Military Cross at the first Battle of Gaza in 1917.

A little later, still serving in Palestine, he died in action, on 6 November 1917, and was posthumously awarded the Victoria Cross:

'For most conspicuous bravery displayed in action until he was killed. Captain Russell repeatedly went out to attend to the wounded under murderous fire from snipers and machine guns, and in many cases where no other means were at hand carried them in himself although almost exhausted. He showed the highest possible degree of valour.'

The RAMC at War – 1917 (2)

A tribute to Captain Noel Godfrey Chavasse, VC and Bar, MC, RAMC

The second Double VC – **Captain Noel Chavasse**, Medical Officer to the King's (Liverpool) Regiment, had been awarded the Military Cross in 1916, followed on 26 October 1916 by the Victoria Cross for gallantry in the action at Guillemont, rescuing some twenty wounded men under fire. A year later he was awarded a Bar to the Victoria Cross for outstanding service in the action at Wieltje, Belgium on 1 August 1917 during the Third Battle of Ypres (the Battle of Passchendaele). His **citation** reads:

'Though severely wounded early in the action whilst carrying a wounded soldier to the dressing station he refused to leave his post, and for two days not only continued to perform his duties but in addition went out repeatedly under heavy fire to search for and attend to the wounded who were lying out. During these searches, although practically without food during this period, worn with fatigue and faint with his wound, he assisted to carry in a number of badly wounded men over heavy and difficult ground. By his extraordinary energy and inspiring example he was instrumental in rescuing many wounded who would have otherwise succumbed under the bad weather conditions. This devoted and gallant officer subsequently died of his wounds.'

He died in No. 32 Casualty Clearing Station (designated as an Abdomen and Chests Hospital) at Brandhoek, near Ypres, on 4 August 1917, and is buried in the New Brandhoek Military Cemetery, next to the Cross of Sacrifice. His headstone is the only one in the world with two Victoria Crosses engraved on it. There is a memorial window dedicated to him in Liverpool Cathedral. His medals are on display in the Ashcroft gallery at the Imperial War Museum, London.

Eyewitness - Captain Chavasse's last moments were described by Sister K E Luard, QAIMNS, an experienced sister at 32 Casualty Clearing Station, in her diary:

Thursday 2 August, 11.45pm. Yesterday morning Capt C [Captain Noel Godfrey Chavasse], VC, and Bar, DSO [sic]*, MC, RAMC, was brought in – badly hit in the tummy and arm and had been going about for two days with a scalp wound till he got this. Half the Regiment have been to see him – he is loved by everybody. He was quickly X-rayed, operated on, shrapnel found, holes sewn up, saline and put to bed. He is just on the borderland still; better this afternoon and perhaps going to do, but not so well tonight. He tries hard to live; he was going to be married.*

Sunday 5 August, 11.30pm. Captain C died yesterday; four of us went to his funeral today; and a lot of the MOs; two of them wheeled the stretcher and lowered him. His horse was led in front and then the pipers and masses of kilted officers followed. Our Padre with his one arm, Father E.H. [Eustace Hill], looked like a Prophet towering over everybody and saying it all without book. After the Blessing one piper came to the graveside (which was a large pit full of dead soldiers sewn up in canvas) and played a lament. Then his Colonel [Lieutenant Colonel J.R. Davidson], who particularly loved him, stood and saluted him in his grave. It was fine, but horribly choky.'

(quoted in **Women in the War Zone – Hospital Service in the First World War** (Anne Powell, The History Press, 2009, p. 326). Originally published in: **Unknown Warriors - Extracts from the Letters of K.E. Luard RRC - Nursing Sister in France 1914-1918** (Chatto & Windus, 1930) (republished 2014)

The RAMC at War – 1917 (3)

Early resuscitative surgery In preparation for the Third Battle of Ypres three casualty clearing stations (Nos. 32 & 44, and No. 3 Australian CCS) were deliberately relocated to Brandhoek, just behind the line at Ypres, despite the risks from artillery fire, to receive the most severely wounded. Sister K E Luard QAIMNS at 32 CCS recorded why in her diary:

Friday 27 July 1917. This venture so close to the Line is of the nature of an experiment in life-saving, to reduce the mortality rate from abdominal and chest wounds. Their chance of life depends ... mainly on the length of time between the injury and the operation. As modern Field Surgery can now be carried out under conditions of perfect asepsis, the sooner the infection always carried into every wound with the missile is dealt with, and the internal repairs carried out, the more chance the soldier has of life.

Hence this Advanced Abdominal Centre, to which all abdominal and chest wounds are taken from a large stacking area, instead of going on with the rest to the CCSs 6 miles back.

Our 30 Medical Officers include the largest collection of FRCSs [Fellows of the Royal College of Surgeons] ever collected at any Hospital in France before, at Base or Front, twelve operating Surgeons with theatre teams working on eight tables continuously for the 24 hours, with 16 hours on and 8 off...

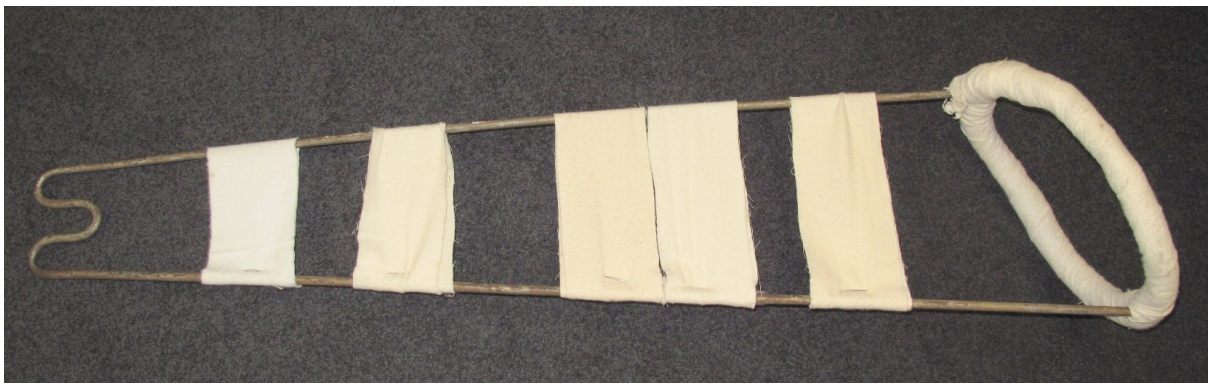
Tuesday 31 July, 11pm. We have been working in the roar of battle every minute since I last wrote ... We have a lot of Germans in – all abdominals. Everything has been going at full pitch ... Of course a good many die, but a great many seem to be going to do. ***We get them one hour after injury, which is our raison d'être for being here.***

This was the earliest recognition of what today is known as the **Golden Hour** after injury, where early surgery for catastrophic non-compressible internal haemorrhage saves lives, and it underpins the casualty evacuation timelines in use by the British Forces today.

Hypovolaemic Shock In 1917 an important shock research centre was set up at 33 Casualty Clearing Station in Bethune, France, which had been designated to receive severely wounded casualties. It was here that Drs Bayliss and Starling undertook field research into the patho-physiology of shock. The research done here materially improved the management of shock. Professor Bayliss's lecture on the team's findings was published in the Journal of the RAMC in 1920: it was acclaimed as '*one of the most profound pieces of research to come out of a war up to that date'*.

Thomas Splint The mortality from compound fractures of the femur had been 80% in 1914, most soldiers dying from blood loss from un-splinted wounds en route to the Casualty Clearing Stations. The Thomas Splint was a metal frame which supported and protected fractured femurs, which had been devised by Dr Hugh Owen Thomas, son of a bone setter in

Liverpool, before the war. By the end of 1917, this Splint was introduced universally on the Western Front for the management of compound femoral fractures. This measure alone reduced the mortality from these wounds to some 18%. It would be modified in the Second World War with the addition of plaster of Paris to create the Tobruk Splint, enabling such patients to be transported safely over hundreds of miles to base hospitals in Egypt.



Blood transfusion The invention of the vacuum bottle, enabling a closed sterile method of blood collection, together with the discovery of citrate anti-coagulation during the war years, revolutionised the collection of blood. The use of citrated blood was introduced into the British Army Medical Service by an American surgeon, Captain Oswald Robertson, in 1917. He also established the first blood bank that same year, using two ammunition boxes, one inside the other, packed with straw and ice**.** No longer did the donor have to be beside the wounded patient for direct vein-to-vein transfusion (the practice in 1914, and impractical in a major battle). Now blood could be donated in one place and then transported to a distant hospital for transfusion to a wounded soldier. By the end of 1917 blood transfusion was firmly established in the casualty clearing stations.

See http://www.vlib.us/medical/transfusion/Index.htm for a fuller history of blood transfusion in the First World War.

Wound irrigation Early thorough surgery, with wide excision of dead tissue and foreign bodies, was now the mainstay of wound management. In addition, wound irrigation was widely used after surgical excision, but only one solution proved truly effective, especially for already septic wounds, namely Carrel-Dakin solution. From May 1917 wound irrigation with Carrel-Dakin solution became standard practice in hospitals following surgery. This solution contained sodium hypochlorite – which broke down on contact with tissues into sodium chloride – essentially the equivalent of today's saline irrigation.

The principles of war surgery learned the hard way in the Great War, of early and thorough wound excision, removal of dead tissue and foreign matter, and wound irrigation with saline remain just as valid and relevant to military surgeons today.

Timeline of the First World War, 1918 – 1919

January 1918 – December 1920: Spanish Flu pandemic spreads across the world killing between 50 and 100 million people worldwide.

21 March – 3 June: The Germans launch their Spring Offensive (known as the 'Kaiserschlacht' – the Kaiser's Battle, named after the German Emperor Wilhelm II) against the Allies in the hope of achieving a decisive victory before the arrival of large numbers of American troops can tip the balance in favour of the Allies. The German army inflicts huge losses on the Allies but also suffers many casualties. The Offensive eventually fails.

24 April: First tank versus tank battle in history as three British Mark IV tanks repel an attack by three German A7V tanks, destroying one of them, at the Second Battle of Villers-Bretonneux.

28 May: American troops are successful in their first major action at the Battle of Cantigny.

30 May – 26 June: American troops are victorious at the Battles of Chateau-Thierry and Bellau Woods.

15 – 17 July: French forces take the offensive at the Second Battle of the Marne.

18 July – 3 August: French and American forces push back the Germans during the Aisne-Marne offensive.

8 August – 11 November: The Allies launch the 'Hundred Days Offensive'.

8 August – 4 September: British forces launch the Amiens Offensive, marking the end of trench warfare and successfully pushing the Germans back to the Hindenburg line. The success of this offensive is the turning point in the war.

8 August: The first day of the Battle of Amiens, described by German General Erich Ludendorff as 'the black day of the German Army'. Efficient British staff work enables troop deployments to be carried out in total secrecy and the initial attack to be a complete surprise to the Germans. 600 tanks are used in the offensive, making Amiens the largest battle involving armoured vehicles during the war.

26 September – 11 November: The French and American armies launch their last offensive of the war, the Meuse-Argonne offensive.

27 September – 17 October: British forces break through the Hindenburg line, causing the German government to ask for an armistice.

29 October – 10 November: The German High Seas fleet mutinies, the Kaiser abdicates and flees to Holland.

11 November: Armistice Day: the fighting stops at 11am.

23 November: German General Paul Von Lettow-Vorbeck surrenders his undefeated army in East Africa.

2 July 1919: Treaty of Versailles signed, officially ending the war.

In Memoriam

Royal Army Medical Corps

In the north aisle of the nave of Westminster Abbey are two memorial tablets and a stained glass window for those who died serving in the Royal Army Medical Corps in the two World Wars.

RAMC Memorial Window at Westminster Abbey

The inscription on the larger tablet reads:

"MCMXIV MCMXIX

ROYAL ARMY MEDICAL CORPS

In memory of 743 Officers and 6130 Warrant Officers, Non-Commissioned Officers and Men who fell in the Great War, and whose names are enrolled in a Golden Book placed in the Chapter House.
"They loved not their lives unto the death""

The smaller tablet, unveiled in 1987, is dedicated to the 437 officers and 2026 other ranks who gave their lives in the Second World War.

Three RAMC Books of Remembrance are also on display under the RAMC window. These are now available to view online (www.theonlinebookcompany.com/OnlineBooks/RAMC/Content/Home).

In Memoriam

Queen Alexandra's Imperial Military Nursing Service

Some 200 army nurses lost their lives on active service in the First World War.

To mention one on behalf of them all: **Staff Nurse Nellie Spindler** QAIMNS, 26 years of age, who died on 22 August 1917 when her hospital came under artillery fire. Her hospital was No. 32 CCS, at Brandhoek, specially sited just behind the front lines at Ypres in order to receive the most seriously injured abdominal casualties (such as Captain Chavasse), and give them a chance to live. She is one of only two military nurses buried in Belgium; her grave is at Lijssenthoek Military Cemetery.

Staff Nurse Nellie Spindler QAIMNS, Lijssenthoek Military Cemetery

Centre wreath laid by Royal Centre of Defence Medicine military nurses, 10 September 2014

Really Useful Websites

1. **The Western Front Association** http://www.westernfrontassociation.com/
2. **The Long, Long Trail http://www.1914-1918.net/ramc.htm**
3. **WW1 – The Medical Front** http://www.vlib.us/medical/
4. **RAMC in the Great War http://www.ramc-ww1.com/index.html**
5. **British Military Nurses www.scarletfinders.co.uk**

And Books to enjoy...

1. **The Roses of No Man's Land** (Lynn MacDonald, Penguin: 1993, reprinted 2013)
2. **Medical Services in the First World War** (Susan Cohen, Shire Publications: 2014)
3. **Wounded** (Emily Mayhew, Vintage Books: 2014)
4. **Lifeline – A British Casualty Clearing Station on the Western Front, 1918** (Iain Gordon, History Press: 2013)
5. **Women in the War Zone – Hospital Service in the First World War (**Anne Powell, History Press: 2009; diary extracts from Sister K E Luard QAIMNS are quoted from this book)
6. **Unknown Warriors: The Letters of Kate Luard, RRC and Bar, Nursing Sister in France 1914-1918** (John & Caroline Stevens, eds: 2014) (originally published by Chatto & Windus, 1930)
7. **Veiled Warriors – Allied Nurses of the First World War** (Christine Hallett, Oxford University Press: 2014)
8. **In the Company of Nurses: The History of the British Army Nursing Service in the Great War** (Yvonne McEwen, Edinburgh University Press: 2014)
9. **100 Years of Military Medicine** Journal of the Royal Army Medical Corps, June 2014, Volume 160 (Supplement 1) http://jramc.bmj.com/content/160/Suppl_1.toc
10. **Other books: The Medical Victoria Crosses** (Col W E I Forsythe-Jauch, Impressions Litho Printers: 1988); **The Medical War, British Military Medicine in the First World War** (Mark Harrison. OUP: 2010); **Doctors in the Great War** (Ian R Whitehead. Leo Cooper: 1988); **War Surgery 1914 – 1918** (Thomas Scotland & Steven Heys. Helion: 2014)

Acknowledgements

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