

THE TUNNELLERS WAR

On the evening before the opening of The Battle of Messines in 1917, General Plumer told his staff "*Gentlemen, we may not make history tomorrow, but we shall certainly change the geography.*" Plumer knew that at dawn the next morning 600 tons of high explosive was going to be detonated under the German trenches of Messines Ridge. Those 600 tons of explosives had been placed by the Tunnellers of the British Expeditionary Force; after months of work in cramped, dark, damp, and extremely dangerous conditions.

The detonation of the mines under Messines Ridge in 1917 was the zenith of mine warfare during the First World War. By then there were thirty Tunnelling Companies in the British Expeditionary Force - over 25,000 men - working under ground in France and Belgium.

The Tunnelling Companies were only formed in 1914. There had been no need for them before the war but by late 1914 the opposing trenches of Germans and Allies stretched from the Belgian coast to the Swiss frontier. The open warfare and flanking manoeuvres of the autumn had ceased as both sides dug in, and specialist weapons and units were needed to break the deadlock.

Digging underneath defences to undermine them was not a new tactic. Undermining was a feature of sieges going back to Ancient times and the Germans were the first to exploit this tactic in WW1. They detonated a mine under Indian Army trenches in France in December 1914 which immediately preceded a successful attack across no-man's-land by their infantry. The British and French armies responded by looking to dig their own mines and counter-mines. There were engineers and sappers in the British Army but no mining specialists. Luckily, a family friend of the Secretary of State for War was building new sewers under Manchester, and Sir John Norton-Griffiths had the very solution the British Army needed.



The requirements for tunnelling long, small sewers in the clay soil under the streets of Manchester had meant that the "clay-kicking" techniques of Norton-Griffiths' "moles" were perfect for tunnelling long, narrow shafts under the German trenches in the clay soil of Northern France and Flanders.

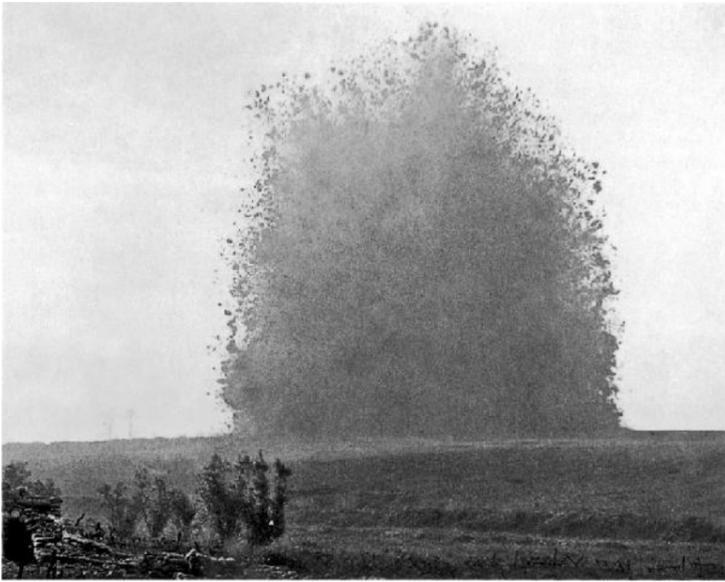
On 18th February 1915 eighteen clay-kickers were made redundant in Manchester. The next day they were enlisted as Royal Engineers in Chatham, and within 48 hours they were digging the first British tunnels under trenches in France - hunting for German mines.

Norton-Griffiths combed the army for miners, mining engineers and geologists for his new Tunnelling Companies. He also recruited from the mining communities back in Britain to ensure he had men with the right temperament and skills for the dangerous work underground. Many of his Tunnellers came from the mining communities of Central Scotland and many Scots who had emigrated before the War also volunteered for the new Tunnelling Companies being formed by the Canadian, Australian and New Zealand armies.



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The first mines laid by British Tunnellers were detonated as early as April 1915 – just a few weeks after the formation of the Tunnelling Companies - at Hill 60, near Ypres. The seventy feet deep crater destroyed German trenches and pillboxes and was the first of many successful mining operations over the next few years.



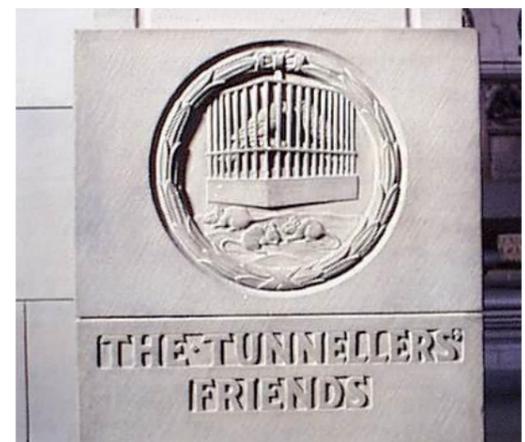
The British detonated nineteen mines of varying sizes on 1st July 1916 - the first day of the Battle of the Somme. One of the largest mines - the Lochnagar Mine near La Boisselle - contained 24 tons of explosives. The crater it formed has been preserved and is now a popular destination for battlefield tourists.

On 7th June 1917 – after over a year of digging under the Messines Ridge– twenty two mines were detonated by the British to launch the Battle of Messines. The largest mine, 125 feet (38 metres) deep and 2,160 feet (660 m) long was made up of 42 tons of explosives. The combined explosions that morning were so loud that they were heard by the Prime Minister David Lloyd George in Downing Street. An estimated 10,000 German soldiers were killed by the mines and thousands more were captured in a state of shell-shock.

Four mines were deliberately not detonated at Messines. They were not removed at the time as the Tunnellers were directed to another front and their location was lost during fighting later in the year. One exploded during a storm in 1955 and killed a cow. The others remain lost and unexploded under the Flanders soil.

Messines was the last major tunnelling project of the First World War. There were further smaller mining and counter-mining operations in 1917, but the German Spring Offensive in early 1918 and the Allied counter-offensives up until the Armistice meant the front lines moved faster than the Tunnellers and they were redeployed to dig deep, safe dugouts and other sapper duties.

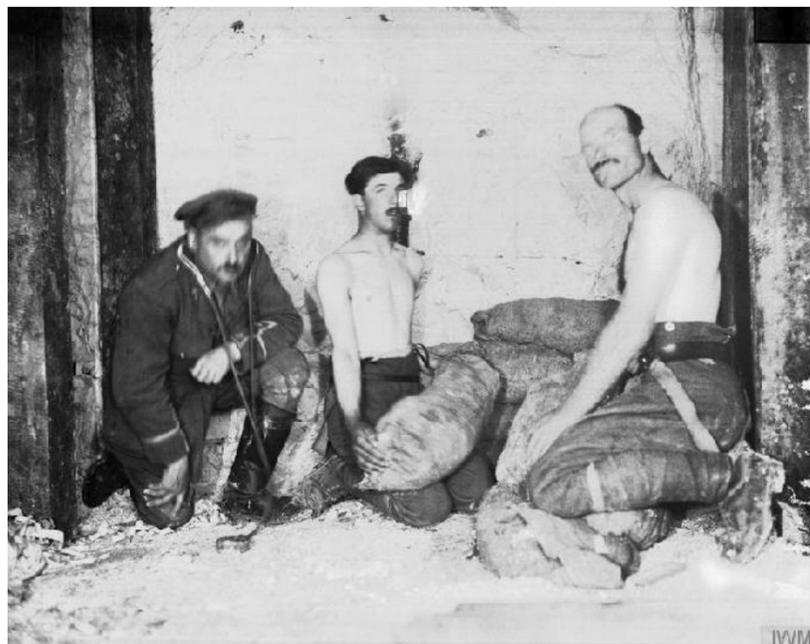
After the War the activities of the Scottish Tunnellers were recognised at the Scottish National War Memorial at Edinburgh Castle. The men who served and died are recorded in the Royal Engineers' Roll of Honour and the "Tunnellers Friends"- the canaries and mice used to detect gas – also have their own sculpture in the Western Transept.



TUNNELLING TECHNIQUES

A key factor in the success of British Tunnelling on the Western Front during the First World War was the technique they used. Traditional mining methods used picks and shovels, but to be successful at mining and counter-mining the Tunnellers had to be as quiet as possible. The technique used by the clay-kickers working on Manchester's sewers was the perfect solution for secret mining under the trenches.

By lying on their back against a large, angled, wooden cross, a "kicker" could push a shovel (a *grafting tool*) with their feet – not kick it – into clay and take out a lump of soil called a "spit". The spit was picked off the shovel and placed in a sand-bag by a "bagger", who handed it back to the "trammers", who would take it away to the surface by on a rubber-wheeled tram-cart. In the chalk soil Northern France, around Arras and The Somme, "kicking" was replaced by more traditional mining methods, but miners used a long bayonet to cut out the soil, rather than a pick, to ensure the work was done as quietly as possible.



All of this hard, silent work was done by candle-light in a cold, dark, damp, confined space. Men had to work long hours under these poor, unhealthy conditions and many suffered from trench foot from the freezing water they worked in.

Many of the *trammers* were labourers and "Bantams" – men who were below the normal minimum height restriction of 5' 3" (160 cm) for military service.

The clay-kicking technique was quick, could be done in small, narrow tunnels, and by gently pushing the grafting tool, could be almost silent. It was also dangerous. The tunnels the men were digging could collapse, they could flood and they could run out of oxygen. Those were perils common to all miners – civilian or military. On top of that they could also find themselves facing a vicious hand-to-hand fight if German tunnellers broke through, or more likely be killed or trapped in a collapsed tunnel by an explosion set off from an enemy counter-mine.

The Tunnelling Companies were involved in both offensive and defensive actions during the War. The offensive actions were the mines dug deep under the German trenches which were then packed with high explosive – TNT or ammonal - and detonated to destroy trenches, kill the enemy and create a crater for shelter, for the troops attacking the trenches above ground.



The defensive operations were the counter-mining tunnels to protect the British trenches. German tunnellers would dig towards the British trenches. By using listening devices the British could detect the German tunnels and intercept them before they reached the British front lines. Some listening devices – called Geophones - were so sensitive they could detect tunnelling activity up to 300 feet (90 meters) away through chalk soil. A counter-mine would be dug as close to the German tunnel as possible. A *camouflet* – an explosive charge designed to destroy the enemy's tunnel or fill it with gas – would be placed and detonated to cause maximum damage to the enemy.

TUNNELLING TECHNIQUES

There was no chivalry in the Tunnelling war. The aim was to do as much damage and to kill as many of the enemy as possible. If a German tunnel was found and blown up by counter-mining, it could be followed up by another camouflet to kill the men trying to rescue their comrades trapped by the first explosion.

As the war progressed the shafts and tunnels got deeper to avoid the enemy camouflets. That brought its own dangers with an increased risk of carbon-monoxide poisoning, drowning or suffocation in a collapsed tunnel.

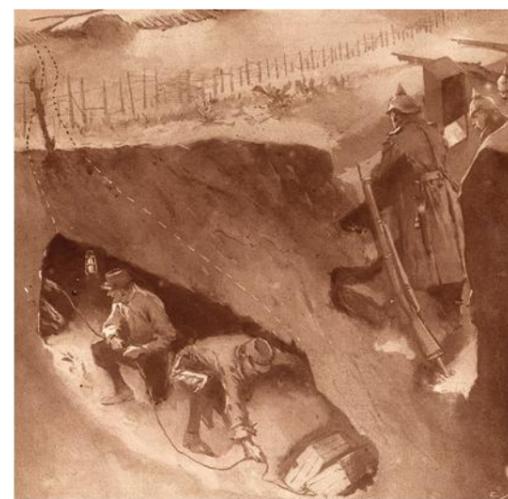
To avoid carbon monoxide poisoning the men would take "Tunnellers friends" with them. Canaries and mice in little cages beside the tunnel face would faint when there was a lack of oxygen and that would be a sign to abandon the digging until it was safe to return.

To reduce the risk of flooding, deep vertical shafts would be sunk at a concealed entrance. At the bottom of the shaft, horizontal tunnels could then be excavated at a slight uphill gradient as they approached the German front lines to try and keep them dry.

To reduce the risk of tunnels collapsing, the tunnel sides were shored up with timber supports, carefully measured, placed, and secured without the use of saws, hammers, screws or nails to avoid making any sound.

Not all the work of the Tunnelling Companies was deep below ground. Occasionally they were called on to provide "Russian Saps" just before a large attack on enemy trenches. *Russian saps* were tunnels dug just under the surface of no-man's-land which stopped short of the enemy front line. This allowed the attacking troops to break out above ground close to the German trenches and reduce the distance they had to cross open ground swept by machine-gun fire.

Later in the War as mining operations decreased, the Tunnellers' skills were redeployed to construct large systems of accommodation, headquarters and dressing stations deep below ground to protect the troops from German artillery.



Mining was also used on the Italian Front. Italian and Austrian miners would dig mines and counter-mines between the high-altitude front lines stretched along The Alps and The Dolomites. To help with the mining in mountainous terrain the Austro-Hungarian army even created a special unit of war geologists – the *Kriegsgeologen*.

Undermining was used on the Italian Front but there was also another unique characteristic of the mountain campaign where underground explosions were used to create rock falls. In June 1917 Austrian miners detonated a 30 ton charge under the summit of Mount Lagazuoi. 200,000 m² of debris from the explosion cascaded down the mountain side on top of Italian trenches and the valley below.



SCOTS IN CANADIAN TUNNELLING COMPANIES

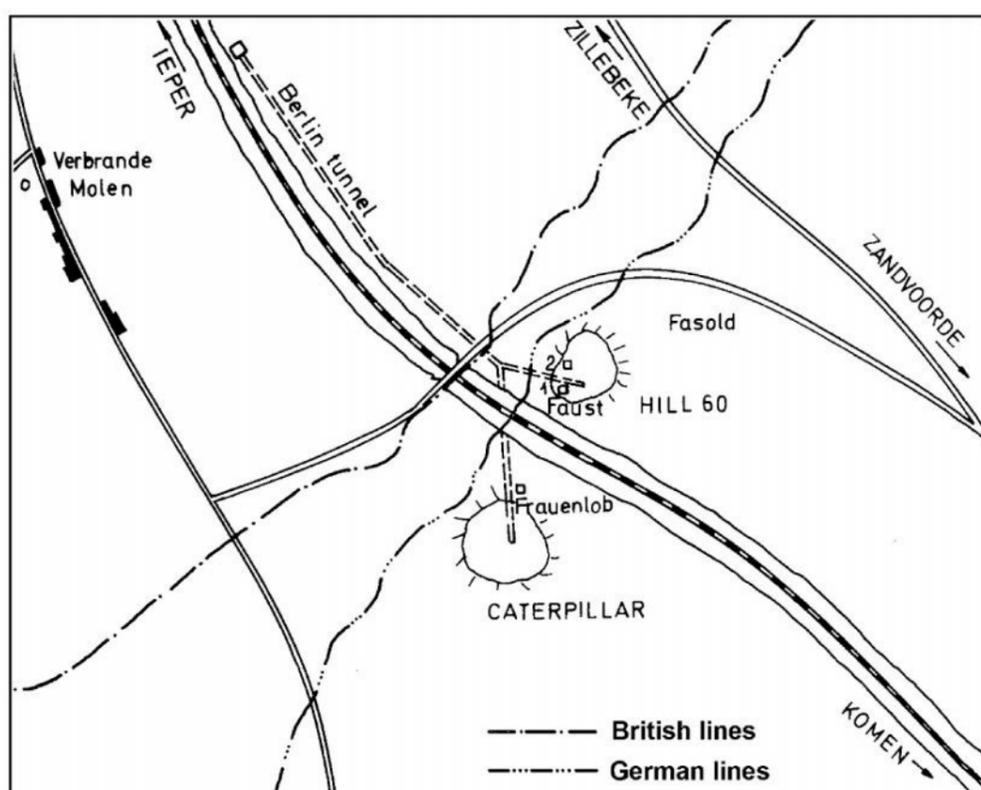
In September 1915 the armies of the Dominions were asked to raise their own tunnelling companies to supplement the ones raised by the British Army. The Canadian Engineers formed their first two companies in Canada in September and October 1915, but the 3rd Canadian Tunnelling Company was established behind the lines in Northern France in December 1915.

The 3rd Company was formed by bringing together the men serving in six Brigade Mining Sections which were already at the front in the Canadian Expeditionary Force. Within a month they were ready to take over tunnelling duties from the British 182nd Tunnelling Company at Ploegsteert in Belgium.

The clay soil around Ypres was to be their home for the next few months as they worked on the deep, long mines running under the German lines around the Ypres Salient. Amongst their number were several Scots who had emigrated to Canada before the War, enlisted in the Canadian Army and had returned to Europe as soldiers. The volunteers from Scotland included labourer James Burns of Glasgow who had originally volunteered for the 24th Infantry Battalion in Montreal in October 1914; labourer John Kilpatrick of Whiteinch who had enlisted in the 19th battalion in Toronto in December 1914; and miner Walter Roger of Paisley who had enlisted in Halifax in December 1914.

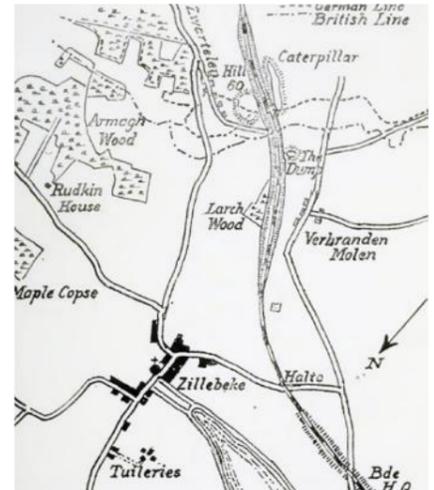
Deep mining under the German lines outside Ypres had been started by the British tunnelling companies in late

August 1915 and in early 1916 the 3rd Canadian Tunnelling Company had taken over the mining at Spanbroekmolen. By the middle of the year the 3rd Company had moved a short distance away to near Zillebeke and was digging under Hill 60. Before the war the 60 feet high hillock in the West Flanders landscape was known as La Côte des Amants (The Lover's Slope). It had only been in existence for about sixty years as it had been formed from the spoil of a railway cutting through the area. Another long, thin hillock nearby was nicknamed the Caterpillar. By 1916 in the flat, shell pock-marked landscape around Ypres these hillocks afforded the Germans good views across the British lines and into Ypres, and Hill 60's possession had been bitterly fought over in several costly British attacks.



SCOTS IN CANADIAN TUNNELLING COMPANIES

Throughout the spring of 1916 the 3rd Company dug under No-Man's-land towards German lines and during the summer of 1916 they loaded explosives at the end of the tunnels. By October the Canadian unit had placed 25 tons of high explosive under Hill 60 and a further 32 tons under The Caterpillar. They then handed over to an Australian tunnelling company in November to look after the mines over the next few months as they were not to be blown up until the following June during the Battle of Messines. The two mines the Scots had worked on were part of the gigantic Messines Ridge explosion. Unfortunately they did not live to see the fruits of their labour.



Nineteen year old Sapper James Burns of Glasgow was the first to die. Neither the records in the Canadian National Archives, nor his unit's War Diary give any indication as to what happened. He was reported "missing" on 5th June 1916. He was presumed killed but it was over a year later that his death was officially confirmed. He has no known grave and is listed on the Menin Gate Memorial. He was 20 years of age and had emigrated to Canada in 1912.

Lance Corporal John Kilpatrick was the next to die, just a month after James Burns on 14th July 1916. He was listed as killed in action aged 34. Unfortunately posterity doesn't tell us more than that; we don't even know whether his death was above or below ground. The unit's war diary doesn't even mention his death. His body now lies in the Railway Dugouts Burial Ground (Transport Farm) just outside Zillebeke so presumably he died in, or near, the tunnel. Before emigrating to Canada he had been employed at a firm called Drummond's in Govan.



Within a few days on 20th July 1916 Sapper Walter Roger died. His service records have not been digitised by the Canadian archivists but we do know the 42 year old died of wounds and that he was buried miles away from Ypres in a hospital cemetery at Le Havre. Without his service records it is impossible to know when or how he had been wounded.

WAR DIARY OF INTELLIGENCE SUMMARY (Even heading not required.)				Army Form C. 2118.
Place	Date	How	Summary of Events and Information	Remarks and references to Appendices
Hill 60	28		Continued loading A gallery Berlin Sap	R.A.
	29		A gallery loading completed → detonators in place, circuits tested & registered, charges ready to fire	R.A.
	30+31		Casualties for month of July. 1 officers LT. SPEARS gassed.	
			<u>3rd Tunnelling Co. Men.</u>	
			Sick - wounded - killed - gassed 9 - 5 - 3 - 2	
			<u>attached Infantry</u>	
			Sick - wounded - killed - gassed 17 - 12 - 2 - 2	
			4 officers Lts. LIVERY, CURLOW, CURTIN, GALT arrived from Canadian Base at 11/16	
			20 July 1916 - authority Controller of mines 2 nd Army dt. 17/16.	
			21 officers attached from P.P.E.L.I. arrived 18/17/16 authority Canadian Corps dt. 13/17/10.	
			Lts. WEBSTER & TURNBULL.	
			AWD 1916 O.C. 3 rd Tunnelling Co. C. 21	



DONALD MCKAY MATHESON



Donald Matheson was born in Glasgow in 1884, the son of Margaret Matheson, latterly of 6 Victoria Place, Port Bannatyne, Bute.

He had been employed as an apprentice with R & J Gray, Glasgow before finding employment as a Master Mariner in Australia.

He enlisted at Casula, New South Wales, Australia, on 20th December 1915. He gave his age as 31 years, 5 months, and his religion as Presbyterian.

He disembarked at Marseilles on the 5th May 1916 and then detained at Hazebrouck on the 8th May of the same year.

On the 24th June 1916 he was found guilty of being drunk on duty while in the field and was sentenced to 28 days Field Punishment No.1 – this consisted of the convicted man being placed in fetters and handcuffs or

similar restraints and attached to a fixed object, such as a gun wheel or a fence post, for up to two hours per day.

He was killed in action on the 10th November, 1916, while serving in the 1st Company Australian Tunnelling Corps, Australian Expeditionary Force.

He is buried at Railway Dugouts Burial Ground (Transport Farm), and is commemorated on the war memorial in Port Bannatyne, Bute.



EDWARD BRANCH POLLARD

Edward Pollard was born in Clapham on the 1st March 1883, the youngest son of George and Grace Pollard, of Burns Cottage, Moffat.

He was educated at the Royal School of Mines at Imperial College, London. In 1905 he gained the Remanet Scholarship, and in 1907 he won the Edward Matthey Prize. That same year he became an Associate of the Royal School of Mines and a Member of the Institute of Mining and Metallurgy.

On finishing his studies he went to the Mundydroog mines, Mysore, India in October 1907. While there he was in the Mounted Rifles Company of the Kola Gold Fields Volunteers.

When war was declared in 1914 he was in Northern Nigeria, but he left his mining employment and returned to England as soon as it was practical to do so, and he enlisted in November 1914. He was commissioned into the King's Own Scottish Borderers in December 1914, and was promoted to full Lieutenant in January 1915. He was for some time Transport Officer at Borden Camp, but on 17th April 1915 he was seconded to the 176th Tunnelling Company of the Royal Engineers and was sent to do mining operations in the North of France.



On 7th July 1915 six of his men were entombed in a tunnel by the explosion of a German shell. He immediately organised a rescue party under heavy fire, and his men were subsequently saved by a brother officer. On order to get at some timber which needed to be moved, he got up on the top of the debris, exposing himself to snipers, and he was subsequently shot in the forehead.

Reports state he died of his wounds at Abbeville, France but he is now buried in Moffat Cemetery.

His adjutant wrote:

"His conduct in this necessary but dangerous work was beyond all praise. I reported the whole incident, and trust his conduct will receive due award."



FRANK REMINGTON PRETYMAN



Frank Remington Pretzman was born in Edgewater, Illinois, USA on the 17th February 1891, the son of William and Jean Pretzman, of Richmond Lodge, Bournemouth.

He was educated at Stubbington and Marlborough, and was an Associate Member of the Royal School of Mines, Fellow of the Geological Society, and was employed professionally in Mexico, the USA, and Canada.

When war was declared he was attached to the Geological Survey of Wisconsin, but he returned home and enlisted as a Corporal Despatch Rider in the Royal Engineers. He received a commission in April 1915, and served with the Expeditionary Force in France and Flanders from 23rd April 1915.

He served in various tunnelling operations, first with the 175th Tunnelling Company, and was gassed in September 1915. He was then gassed a second time at La Boisselle in July 1916, while attempting to save the life of a Corporal underground when serving with the 197th Tunnelling Company.

He was transferred to the Scots Guards on 29th July 1916 to command the 2nd Battalion Sapping Platoon, and he was killed in action at Boesinghe on 4th July 1917, during the concentration for the attack and capture of Pilkem Heights. He is buried in Canada Farm Cemetery, Belgium.

His Commanding Officer wrote:

"I have never met a better, keener soldier, nor one who took a greater interest in the welfare of his men...All ranks will mourn him. By his cheeriness, however hard the times were, and by his devotion to duty he made everyone proud of him, and by his death the regiment loses a fine officer and leader of men."

A brother officer wrote:

"He was an especial friend of all of us individually, all the more because he had during the nine months he was with us lived up to a reputation he quickly made for himself, of never having said an unkind thing about anybody, and of being the straightest man out here"

Another wrote:

"I feel I have lost a very real friend. He had always the same cheerfulness, wherever he was, and there was no one with whom most of us would sooner have gone into action. We all loved him, and as for the men, he was with them, one of, if not the, most popular officer."



DO YOU HAVE A TUNNELLER IN THE FAMILY?

During our research for today we came across several Tunnellers from Glasgow and the surrounding area. We haven't researched them but are you related to them?

If you have any information on any of these men please get in touch with us at scottishmilitaryresearch@live.co.uk

Surname	Forename	Rank	Tunneling Coy.	Death	Notes	Age	Award	Number	Cemetery/Memorial	Next of Kin
Aitken	David	Spr	254th Coy.	05/02/1917	Killed in action	23		'79643'	Bethune Town Cemetery	Son of Robert Aitken, of 31, Clyde St., Caduke, Lanarkshire.
Brannan	J	Spr	173rd Coy.	27/11/1916	Killed			'155783'	Noeux-Les-Mines Communal Cemetery	Husband of Mrs. M. J. Brannan, of 24, Waterloo St., Mile End, Glasgow.
Bulloch	James	Cpl	257th Coy.	23/08/1917	Died as a result of bomb explosion	26	Military Medal	'139055'	Adinkerke Military Cemetery	Husband of Jeanie Smart Bulloch, of Wellbrae, White Quarries, Hamilton, Lanarkshire.
Campbell	J	Cpl	252nd Coy.	18/04/1917	Died of wounds		Military Medal	'139413'	Mory Abbey Military Cemetery, Mory	Son of Mr. J. Campbell, of 9, Hill St., Gallowgate, Glasgow.
Cranston	William Weir	Lt	173rd Coy.	18/12/1917	Killed by shrapnel	34			Canada Farm Cemetery	Son of David and Marion Cranston, of 16, Belmont Drive, Giffnock, Glasgow.
Creer	William	Spr	255th Coy.	31/05/1918	Killed by shellfire	21		'147945'	Lijssenthoek Military Cemetery	Son of George Creer and Annie Creer, of 8, Priory Row, Blantyre, Glasgow.
Gallacher	John	Spr	252nd Coy.	17/05/1916	Killed in action	20		'139241'	Sucrerie Military Cemetery, Colincamps	Son of Mr. and Mrs. P. Gallacher, of 12, Duncan St., Pollokshaws, Glasgow.
Gavin	Robert	Spr	179th Coy.	21/11/1915	Killed	19		'137582'	Albert Communal Cemetery Extension	Son of Mrs. Sarah L. Gavin, of 41, Highcartcraigs, Pollokshaws, Glasgow.
Gilchrist	John	Spr	160th Coy.	12/03/1916	Killed	21		'151270'	Loos Memorial	Son of Mr. and Mrs. John Gilchrist, of 30, Carnwath Rd., Carluke, Lanarkshire.
Halliday	John	Spr	172nd Coy.	19/12/1915	Killed	22		'136200'	Ypres (Menin Gate) Memorial	Son of Mr. and Mrs. Thomas Halliday, of 11, Elmbank St., Bellshill, Lanarkshire.
Mack	Phillip	L/Cpl	251st Coy.	29/05/1916	Killed in action	37		'155978'	Cambrin Military Cemetery	Son of John and Sarah Mack, of Glasgow; husband of Mary Laurie McCabe (formerly Mack), of 42, Kinning St., South Side, Glasgow.
McAnulty	Joseph	Spr	181st Coy.	04/04/1917	Killed in action	27		'79365'	Etaples Military Cemetery	Son of Andrew and Mary McAnulty, of School Lane, High Blantyre, Lanarkshire.
Paterson	Wallace Campbell	2nd Lt	173rd Coy.	17/02/1916	Killed	22			Noeux-Les-Mines Communal Cemetery	Son of May Paterson, of Glenkiln, Giffnock, Glasgow, and the late James S. Paterson.
Summers	William	Cpl	180th Coy.	04/03/1917	Killed in action	32	Military Medal	'79524'	Fouquescourt British Cemetery	Husband of Mary Summers, of 11, Bothwell Park, Bellshill, Lanarkshire.
Weldon	James	Cpl	170th Coy.	27/08/1917	Died of wounds			'212057'	Bethune Town Cemetery	Son of Thomas Weldon, of Kirkintilloch, Dumbartonshire.

