

# Geologists at war, 1914-1918

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## Introduction

This article look at some of the contributions made by the Geological Survey of Great Britain to the United Kingdom's war effort during the period 1914-1918.

## Before the war



Aubrey Strahan  
c.1912. © BGS/NERC  
(Image: P810109)

In 1913 the 12th International Geological Congress was held in Toronto. The attendees included representatives from Germany, the Austro-Hungarian Empire, France, Belgium, the United States, Canada and the United Kingdom. One of the British Geologists was [Aubrey Strahan](#) who was soon to become the Director of the Geological Survey of Great Britain. Neither Strahan nor the other attendees could have know that in a year's time the First World War would break out and that the

Geological Survey would play its part in the war effort.

## Joining up

By the end of 1914 15 staff from the Geological Survey and Museum had joined the armed forces. By the end of the war the number totalled 29. They consisted of 14 geologists, 3 fossil collectors, 2 general assistants, 3 attendants, 4 draughtsmen, 2 labourers and 1 assistant clerk. Although several were wounded all but one ([C H Cunnington](#)) survived the war. The Survey's [Summary of Progress for 1918](#) published a list of those who had joined up.

### Geologists

<a href="#">Dixon, E. E. L.</a>	Lieutenant	Royal Garrison Artillery (T.)	Mentioned in despatches. Military Cross. Chevalier Legion of Honour. Croix-de-Guerre with Palm. Twice wounded.
<a href="#">Bailey, E. B.</a>	Lieutenant	Royal Garrison Artillery	Wounded.
<a href="#">Anderson, E. M.</a>	Sapper	Royal Engineers	—
<a href="#">Carruthers, R. G.</a>	Lance-corporal	Tank Corps	—
<a href="#">Bromehead, C. E. N.</a>	Private	Duke of Cornwall's Light Infantry	Wounded.
<a href="#">Cunnington, C. H.</a>	Lieutenant	Machine Gun Corps	Invalided out of Army, Oct. 1917. Died 26 April, 1918.
<a href="#">Richey, J. E.</a>	Captain	Royal Engineers	Military Cross. Wounded.
<a href="#">Eastwood, T.</a>	Lance-corporal	Royal Army Medical Corps (Sanitary Section)	—
<a href="#">Pocock, R. W.</a>	Lieutenant	Royal Garrison Artillery	—
<a href="#">King, W. B. R.</a>	Captain	Royal Welsh Fusiliers (attached to Engineer-in-Chief, G.H.Q.)	Mentioned in despatches. O.B.E.
<a href="#">Wray, D. A.</a>	Lance-corporal	Royal Army Medical Corps (Sanitary Section)	—
<a href="#">Read, H. H.</a>	Corporal	Royal Fusiliers	—
<a href="#">Whitehead, T. H.</a>	Captain	Suffolk Regiment (transferred to General List and attached to Intelligence Corps)	Wounded.
<a href="#">Evans, R. du B.</a>	Captain	Shropshire Light Infantry	Wounded. Prisoner of War

### Assistant Clerk

Frisby, P. A.	Captain	Suffolk Yeomanry	—
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### Fossil Collectors

Eckford, R. J. A.	Corporal	Royal Scots and Royal Engineers (Special Brigade)	Wounded.
Manson, W.	Deck Hand	Royal Naval Reserve (T.)	—
Haldane, D.	Lieutenant	Royal Scots	—

### General Assistants

<a href="#">Rhodes, J.</a>	Corporal	Royal Air Force	—
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Stewart, A. P.	Private	Royal Scots	—
<b>Attendants</b>			
<a href="#">Morgan, S.W.</a>	Reg. Qrtr.- Mstr. Sgt.	London Regiment (London Irish Rifles)	—
Cooper, G. L.	Corporal	Royal Engineers (Carrier Pigeon Service)	—
Hepple, D. W.	Private	18th Hussars	Wounded. Prisoner of War.
<b>Draughtsmen</b>			
Torkington, G. G.	Private	Cameron Highlanders	Wounded.
Bruce, W. G.	Lance-Corporal	Royal Engineers (Field Survey Battn.)	-
Trowbridge, H. G. S.	Bombardier	Royal Field Artillery	—
Kidd, J.	Corporal	Royal Engineers	—
<b>Labourers</b>			
Wheaton, E.	Sergeant	3rd Hussars	—
Brooker, J. F.	Corporal	King's Own Scottish Borderers	—

## Water supply

Almost as soon as war broke out the Survey was being asked to give advice on obtaining supplies of drinking water for military personnel. By 1915 there were water supply problems on the Western Front and [W B R King](#) was sent to help deal with this, becoming what has been described as "the first British military hydrogeologist"<sup>[1]</sup>. At around the same time as King was helping the allied troops, [Walther Klüpfel](#) was supplying water to the German troops.

During the Gallipoli campaign of 1915 three former Survey staff, C H Cunnington, [R W Pocock](#) and [T H Whitehead](#), were sent there on special military duty to try to find an adequate water supply for the troops. They produced an unpublished, and now untraceable, report on the geology of the Gallipoli peninsula for the War Office.<sup>[2]</sup>

## Design of aircraft compasses



H H Thomas c.1912.

© BGS/NERC (Image: P810111)

In September 1916 the Geological Survey was contacted by the Admiralty Compass Department

asking for assistance with the design of aircraft compasses. The problem was with the compass point and cup which were part of the bearing that allowed the compass needle to move. [Herbert H Thomas](#), a petrographer at the Survey, was given the task of finding a solution. The point and cup were both made out of sapphire, which caused the point to develop flaws and cracks. It was decided to still have the cup made out of sapphire but to use agate for the point. This combination turned out to be successful and solved the problem.

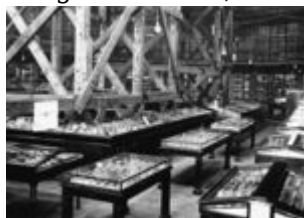
## Analysis of concrete

In September 1917 it was noticed that German concrete pill-boxes on Vimy Ridge, which had been captured by Canadian troops, were made with gravel which could not have come from Belgium. It was suspected that the Germans had transported the gravel through the neutral Netherlands. If this was the case then it was in contravention of the Netherlands' neutrality declaration as the Dutch were supposed to prevent the belligerent powers from transporting military materials across neutral territory. By October samples of the suspect concrete had been received by the Geological Survey and analysed. One of these samples was F2397. In a report H H Thomas wrote that "It has all the characters of the Niedermendig tephrite, so extensively quarried on the eastern slopes of the Eifel, bordering on the Rhine." This meant that the gravel must have come from Germany. The evidence resulted in a Dutch threat to stop the transport of German sand and gravel across the Netherlands. This could have brought the Netherlands into the war but none of those involved wished this so an agreement was reached.

## Museum damaged by bomb



J Allen Howe c.1912.  
© BGS/NERC  
(Enlargement from  
image: P008712)



Main floor of museum.  
Scaffolding in place to  
support the roof  
whilst repairs to the  
cracked beams are  
investigated. ©  
BGS/NERC (Image:  
P640471)

[J Allen Howe](#) was the Curator and Librarian of the Museum of Practical Geology. In a memo book he

wrote a few war-related entries, for example "Aug 1914 - War". Slightly more detailed was "20 Oct 1917. Museum damaged by concussion from bomb dropped from a Zeppelin outside Swan & Edgars in [Piccadilly] Circus"<sup>[3]</sup>. This explosion may have caused several roof beams in the museum to fracture but this was not discovered until later.

## Choice of stone for war graves

It was decided that the over 700,000 British soldiers that were killed during the war should be buried close to where they died rather than being returned home. The Imperial War Graves Commission contacted the Geological Survey in early 1918 enquiring about the suitability of "Lunel Clair" stone for making headstones. J Allen Howe carried out some investigations and concluded that the stone would be suitable and there would be enough of it if "Lunel rosé" stone was used as well. In the end it was decided to use Portland Stone for the majority of the headstones but advice on other types of stone was still requested from the Survey for several years after the end of the war.

## Other wartime activities

In the Survey's [Summary of Progress for 1918](#) Aubrey Strahan listed many of the activities that the Survey had carried out during the war. In many cases no other details of these activities have survived. A few of these were:

- Report on use of hexahedric crystals of iron pyrites by the Germans
- Consultations on the construction of seismographs for locating camouflets [an underground explosion that does not break the surface, but leaves an enclosed cavity of gas and smoke.]
- Reports on selection of quartz crystals for Anti-Submarine Division of the Admiralty
- Consultations on sites for aerodromes
- Report on the cause of sores on the hands of tunnellers at the Western Front
- Report on suitable valleys for airship sheds

## Further reading

For more details about activities on the Western Front see [Some aspects of the British Geological Survey's contribution to the war effort at the Western Front, 1914-1918](#).

To read how C B Wedd was mistaken for a German spy see [C B Wedd — the spy who never was](#)

## References

1. <sup>↑</sup> Rose, E. P. F. 2012. Groundwater as a military resource: pioneering British military well boring and hydrogeology in World War I. In: Military aspects of hydrogeology, edited by E. P. F. Rose & J. D. Mather. Geological Society Special Publication 362, 49-72.
2. <sup>↑</sup> Doyle, P & Bennett, M R 1999. "Military Geography: the influence of terrain in the outcome of the Gallipoli Campaign, 1915". Geographical Journal, 165, p12-35
3. <sup>↑</sup> Notebook of memoranda kept by J Howe (BGS Archives: GSM/MG/P/6)

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