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# Some aspects of the British Geological Survey's contribution to the war effort at the Western Front, 1914–1918

David G. Bate\*, Andrew L. Morrison

British Geological Survey, Environmental Science Centre, Nicker Hill, Keyworth, Nottingham NG12 5GG, United Kingdom

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### ABSTRACT

The application of geology to warfare in regard to questions of water supply, ground conditions and access to strategic minerals has long been appreciated, and much has already been written on these aspects of the science. During the Great War of 1914–1918 the services of the British Geological Survey, under the directorship of Aubrey Strahan, were called upon to advise on such matters both at home and abroad. Surviving archived files at the Geological Survey allow us to examine some rather more unexpected applications of the science, particularly in regard to the European theatre of war. These files provide only a partial record of the full range of war-related activities undertaken by the Survey, but they do reveal more especially the application of petrography to aircraft compass design, forensic geology, and the choice of stone for war graves.

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## 1. Introduction

The present paper derives from a request made to the British Geological Survey by Jean-Claude Porchier of the Association des Géologues du Bassin de Paris for information from the Survey's archives concerning its role in the Great War of 1914–1918 in relation to the Western Front. An account written by the present authors will appear in French translation in a forthcoming book edited by Bergerat et al. (in press), which is due for publication in December 2017 as part of the French official centennial commemoration programme. The following account is an expanded version of that paper for the benefit of English language readers.

A partial record of the Survey's role in the Great War survives amongst files of correspondence maintained by Aubrey Strahan (Fig. 1), who was then the Survey's Director. Judging from the list of war-related activities that he drew up at the end of the war (Strahan, 1919), it is apparent that the record preserved in these files is frustratingly silent on many of those activities. The authors have therefore selected for discussion only those topics for which adequate information exists in the Survey's files.

The year 2017 marks the hundredth anniversary of the foundation by Royal Charter of the Commonwealth War Graves Commission, and it seemed therefore appropriate to include a

discussion of the Geological Survey's role in the selection of suitable stones for war graves and memorials erected in Belgium and northern France. For this purpose we were able to make use of files established by the Geological Survey Museum Curator, J. Allen Howe, which contain correspondence with the then Imperial War Graves Commission on suitable stones for war graves and memorials throughout the Commonwealth, covering the period 1918–1930.

## 2. The Geological Survey on a war footing

Sir Aubrey Strahan (1852–1928; created K.B.E. 1919) was Director of the British Geological Survey (Geological Survey of Great Britain as then styled) from January 1914 until his retirement in July 1920 (Flett, 1928). Strahan's directorship corresponded with one of the most testing periods in the Survey's history, for the Great War of 1914–1918 placed demands on the organisation for which it was largely unprepared. The Survey did not have war plans laid in advance and had to discover by experience what was required of it (Bailey, 1952, 172–173).

Following Britain's entry into the war on 4 August 1914, the Geological Survey was soon called upon to provide expert geological advice in respect of the British Expeditionary Force's theatre of activity in Belgium and northern France. Thus on 8 August Aubrey Strahan responded to a request from the War Office for the loan of geological maps of France and Belgium. In addition, advice was sought on obtaining temporary supplies of

\* Corresponding author.

E-mail addresses: [dgba@bgs.ac.uk](mailto:dgba@bgs.ac.uk) (D.G. Bate), [anrr@bgs.ac.uk](mailto:anrr@bgs.ac.uk) (A.L. Morrison).

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**Fig. 1.** Photograph taken on the roof of the Geological Survey and Museum, Jermyn Street, London, by Geological Survey Photographer, J. Rhodes, 1912 or 1913, showing a select group of London-based Survey geologists. Those mentioned in this account are as follows: H. H. Thomas (back row, middle); J. A. Howe (back row, fourth from right); A. Strahan (middle row, second from left); J. J. H. Teall (middle row, third from left). In passing we may note that R. W. Pocock (back row, fourth from left), E. E. L. Dixon (front row, right) and C. E. N. Bromehead (front row, left) all served in the forces. At the outbreak of war, C. B. Wedd (back row, last on right) was surveying in the Welsh borders in September 1914 when he was arrested at Oswestry after being mistaken for a German spy (British Geological Survey archives).

drinking water at short notice from superficial deposits and from the Upper Cretaceous chalks and Palaeogene sands and clays which crop out in the region. Strahan supplied some general guidance by analogy with geologically similar terrain in southern England (contained in a two-page typescript report: BGS Archives

GSM/DR/St/A/3; see list of files at the end of this paper). This was followed a few months later by the publication of more detailed notes for the use of sanitary and water supply officers (Strahan, 1914). In Strahan's response of 8 August the suggestion was made that 'It might be worth your while to consider the



**Fig. 2.** Extract from Geological map of Belgium, scale 1:160 000; geological lines prepared and modified by Aubrey Strahan, Director of the Geological Survey of Great Britain, from the 1:40 000 scale Carte Géologique de la Belgique, sheet 5, 1915 (Library, British Geological Survey).

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