

AERIAL PHOTOGRAPHS AND FIRST WORLD WAR LANDSCAPES IN FLANDERS

Inventory, digitisation, survey and mapping

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Background and objectives

The Belgian elements of the project have been organised by the Department of Archaeology and Ancient History of Europe at the University of Ghent, which has 25 years of experience in the field of aerial photography and 3 years of involvement in the study of recent military remains. The University's contribution to the project is focused on the study and use of air-photo and related ground-evidence for the remains of WWI in Flanders. The specific aims are as follows.

- To look for and use previously un-exploited archives containing military aerial photographs in the recording and mapping of WWI features and their subsequent examination on the ground.
- To undertake new exploratory flights so as to compare the traces recoverable through new photography with those visible on the historical images.
- To organise a workshop on *Military Aerial Photography and Archaeology* towards the end of the project, with 'conservation' as one of its linking themes.

Progress to the end of 2005

Good progress has been made with all three objectives, despite poor weather for new aerial photography during 2005. The date and venue of the planned workshop has now been set at 19-21 October 2006 at the In Flanders Fields Museum at Ypres.

Work on WWI military air photographs

Within the Culture 2000 project numerous visits have been made to the archives of the Royal Army Museum in Brussels. The collection there contains approximately 25,000 WW1 aerial photographs, mostly taken by the *Aviation Militaire Belge*. For the most part they relate to the Belgian-German frontline between Nieuwport and the north side of Ypres. A carefully-made selection of 950 air photographs have been scanned at 400dpi and incorporated into a database. So far, some 90% have been located on the map and geo-rectified. Ninety years after the events it has proved possible to gain additional information on the topography of military features and the surrounding terrain and to discover emplacements that would otherwise have remained hidden. Nine digital stereoscopic views (anaglyphs) have been created from overlapping archive photographs, using specialist software. The geo-referenced pictures have been used to create a detailed inventory of all visible military and other archaeological traces in the study area. Approximately 3000 separate features have been identified and documented in an area of 49 km². The majority relate to the trench systems of the German second line, which has been traced over a distance of more than 10 km. In addition, 93 certain and 41 possible Medieval moated sites have been recorded, along with 5 as yet unclassified sites seen on the photographs as a result of temporary flooding.

The work undertaken so far has created a sound basis for further study, both of the aerial evidence and of surviving traces on the ground. Work during the rest of the project will aim to establish both a better understanding of the remains and a strategy for selective conservation of the features which still survive above-ground today or which might be expected to retain valuable below-ground evidence.

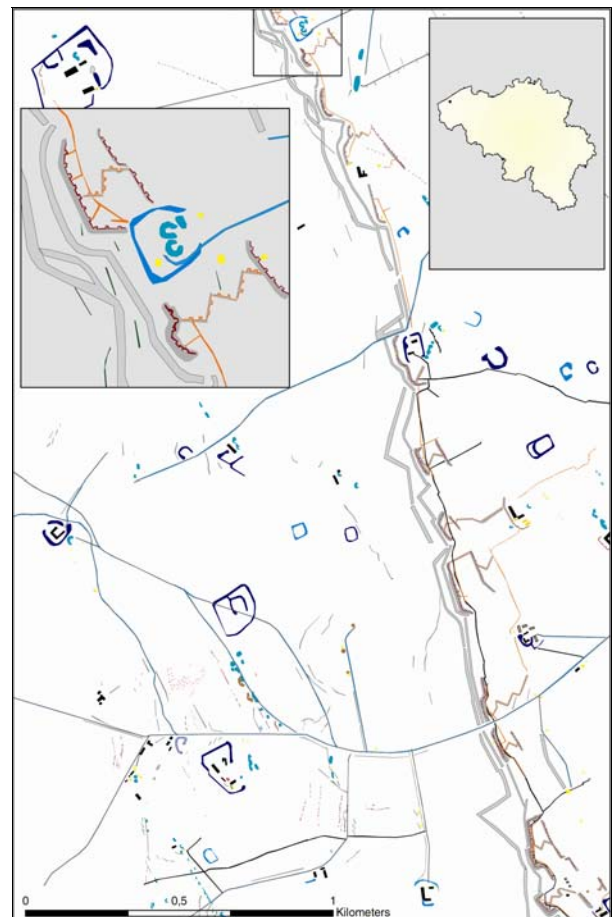
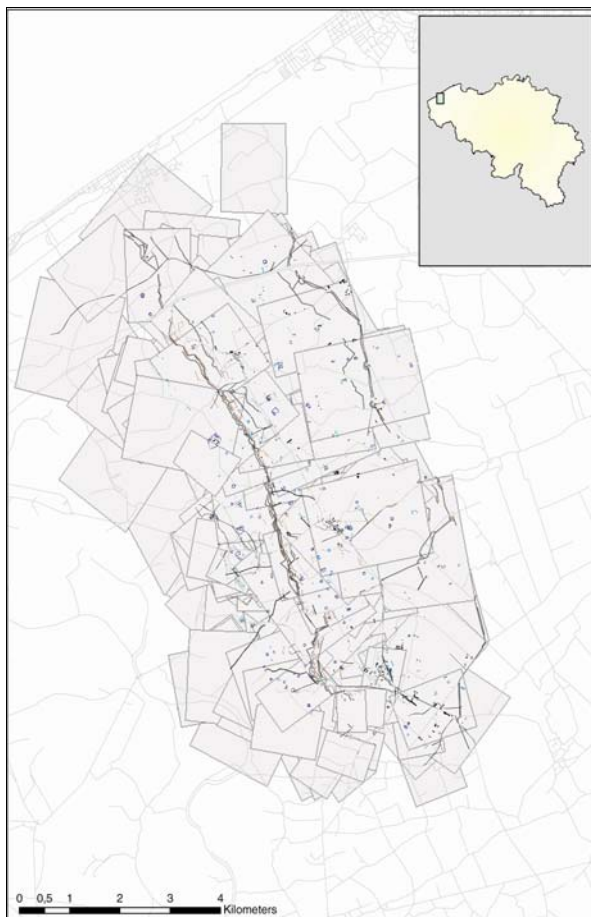
New aerial photography

The second part of the project involves new flights to take oblique aerial pictures of the front area. Flights have been undertaken from the airfields of Wevelgem and Ursel. The basic goal

is to look for traces of WWI and other features that can be seen both today and on the historical air photographs. Unfortunately bad weather in the spring and summer of 2005 proved unhelpful in the recording of both military and other archaeological features. Further flights, however, will be undertaken in the second and third years of the project.

Workshop on *Military Aerial Photography and Archaeology*

The planned workshop, to be organised in collaboration with the In Flanders Fields Museum, will be held at Ypres from 19-21 October 2006. The workshop will have two main themes. The first (*Archives, inventories and the history of military aerial photographs*) will focus on presentation of the main collections of World War I and World War II aerial photographs across Europe, with contributions from a variety of institutions involved with military air photography during both wars. The main questions will be 'where are the archives', 'what do they contain', 'which areas are involved' and 'what are the potentialities for historical and archaeological research, and for selective conservation in the future?' The second theme (*Processing military aerial photographs*) will concentrate on present-day processing of historical aerial archives and their applications for archaeology, whether relating to battlefields or not. Aspects considered in this part of the meeting will include the results of detailed surveys, the processing of the images, the use of stereoscopy and digital analysis, and (most importantly for the Culture 2000 project) the application of the resulting inventories and GIS systems in management and conservation of the archaeological heritage.



Left: *Overview of the selected aerial photographs and of the mapped WWI remains.*
Right: *Detail of the mapped remains of the German 2nd position.*