

Revisiting the Past

With the start of September, the summer holidays are behind us and we gradually readjust ourselves, hopefully restored, to our professional activities: back to normal. Many of us will have spent the summertime at resorts, on beaches, in other cities and countries - or even in the jungle. To be once in a while in a world other than the one in which one spends one's daily life is apparently a fundamental human need and desire. Travelling is associated with facing other cultures and meeting with adventures in unknown environments. Travelling is as old as mankind himself. In medieval times pilgrims went, for example, to Santiago de Compostela, not only to assuage their religious needs but also to get away from home for a while, to meet others and to face adventure; others, for the same reasons, became crusaders. Later on, printed books enabled people to become part of other worlds without leaving home; at least, those who had sufficient imagination to transfer words into pictorial scenes.

Virtual Reality

Today, computer hardware and software enable the creation of realistic three-dimensional pictorial scenes. These scenes are presented in such a way that the user experiences what it is like to be present in another world. This technology bears the tag Virtual Reality (VR). As far as looking at the final result goes, differences between 3D visualisations generated by Computer Aided Design and GIS are becoming more and blurred. This is because, although their starting points may differ, the disciplines meet each other at a crossroads in technology that is similar for them all. Meanwhile, liberated from the media-fostered mystification through which phase some technologies inevitably seem to have to pass, VR is rapidly developing into a practical and powerful 3D-visualisation tool for a wide variety of applications. Historians and archaeologists are also increasingly interested in using VR for creating artificial environments of past realities: it enables researchers, students and tourists to obtain a much better understanding of the past than they might get from text and pictures alone.

Historical Spectacle

VR also enables historians to create realisations of what Hart (see his feature in this issue) calls 'fictive spaces'. By this he means scenes which never existed in the reality of the historical past but which were however depicted long ago in paintings, plans and sketches or described in documents. For example, computer visualisation of Hans Holbein's *The Ambassadors* (1533) reveals that the painting was possibly originally hung on a staircase and encoded a cross formed by the figure of one of the ambassadors: crucial information for art historians. VR also enables a glimpse of spectacles such as Napoleon's triumphal route through Paris and his coronation at Notre Dame. One can 'take part' in the procession moving through the streets of Paris to the Cathedral at the exhibition 'Nelson and Napoléon' at the National Maritime Museum, Greenwich, UK from 7th July to 13th November 2005.

Laser Scanning

When creating a fantasy world such as is used in games and films it may suffice to use fantasy data. However, when creating 3D virtual scenes of a past reality true data has to be acquired. How to arrive at this? Broadly speaking, true data can be collected along two lines. The first is by using old maps, documents and other historical sources. The second uses the present as reference through retrospectively interpreting current geo-information such as maps and aerial images. When a historical site still partially exists in the form of ruins or as a group of conserved buildings, [laser scanning](#) is of great help in creating models of the present situation. On top of these models the past may then be reconstructed using old maps, pictures, other documents and (why not?) the fantasy and sophisticated guesswork of the historian. Indeed, for modelling the past along the second line, historians and researchers involved in archaeology are increasingly valuing the potentials of laser-scan technology. This is because the costs of fieldwork have become relatively modest as a result of scanner developments that enable carrying out full vertical and horizontal coverage in one set-up. Office processing is not as expensive as it was a few years ago either, thanks to advancements in software allowing the time-efficient extraction of 2D drawings and 3D models from point clouds. Apart from declining costs contributing to the popularity of laser scanning for capturing buildings, the dense point cloud generated by the technology is very well suited to modelling complex geometry - especially at detail level - of heritage buildings and ruins.

Think Big, Act Small

Computer technology, GIS and Virtual Reality, together with advanced geo-data acquisition techniques like laser scanning, enable historians to create a vivid reconstruction of the past. That's the nice thing about new technology: when it is in its inception and initial stages nobody can foresee which applications may benefit from it in the long run. This is because professionals far beyond the field of view of the developer will become potential clients once they are aware of the technology and the costs become affordable. So when a new (geomatics) technology crosses your path: think big, act small!