Berry / Lagerlund Digital Humanities
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A different kind of visuals are those that are created as a result of research projects – for example, maps. Geographic information systems (GIS) are a combination of visualization software and databases. A GIS could be thought of as a digital map: the basic principle is that points in space may be represented on a map so the relation between the points is preserved. In most maps, the relation is a Cartesian relation between an x-axis and a y-axis, where x may be east–west and y north–south. The distance and direction between a point A and a point B may then be measured on the map. One basic difficulty is that, while the Earth is round (or spherical), most maps are on a flat surface (paper or a screen), so a kind of projection will be needed. Onto this Cartesian grid, lots of information may then be added in the form of different layers: buildings, land or sea, vegetation, roads, borders, elevation, sea depth, etc.

A GIS treats the map-drawing function separate from the database, however. Geographical information is stored in the database in the form of latitude, longitude and elevation, and vectors from these coordinates. In this form, a GIS stores information on elevation, vegetation, buildings, etc. Digital humanities projects typically connect another database with a GIS. A catalogue of objects may include a latitude and longitude, enabling them to be placed on the map. If the internal coordinate system is spherical, the computer may calculate the projection in real-time, so the user can change the projection while staying with the data. Examples may include where an object was found or where a language or folk music example was recorded.

Archaeologists were early adopters of Geographic Information Systems. Field archaeologists record as much data as possible about excavations. When a dig is excavated, it can't be done again: the layers that are removed cannot be put back for the next archaeologist. The only way to save the information that could be read from the site is to record as much of it as possible. In the 1970s, some began to store the field records in databases, and such databases were later coupled with GISs. Few (if any) humanist projects make their own geographic information systems; they rely instead on existing systems, which are coupled with their own databases, using the location as an index key. Large systems with public interfaces (APIs), such as Google Maps and Open Street Map, have increasingly been used in recent years, and as these are so easily available, more scholars have begun to incorporate GIS.

Geographical systems allow for many new visualizations of material on maps, when large amounts of data are laid over a map of an area, and these may in turn be used for new kinds of analysis. These exciting possibilities are only as good as what is in the systems, however, in terms of both width (what is included) and how detailed the information is. As Eiteljorg (2004) puts it: 'available data – whether maps or data tables – may determine the questions asked, or, more worrisome, the ones not asked'.