3.986 - Introduction to Archaeology **Fall, 2006**

Lab #4 - Mapping (Week 4)

A. Topographic Maps

Most maps we are familiar with, such as highway maps, provide a 2-dimensional or **planimetric** representation of a particular area. For many purposes, however it is useful to also have the third dimension, ground elevation or **topography** which is what a topographic map provides. Topography is generally illustrated by a series of lines known as **contours**, each of which connects all contiguous points of a particular elevation. The spacing of these lines, representing a difference in elevation, is the contour **interval**.

Some generalizations about contour lines can be made as follows:

1) when contour lines cross streams they bend or "V" upstream;
2) contours never intersect or cross (although they may merge at an overhang or cliff);
3) closed contours represent hills;
4) closed contours with **hatchures** represent depressions, the hatchures pointing in the downslope direction. Closed contours within the hatchured contour are descending in elevation unless otherwise marked;
5) steep slopes are shown by closely spaced contours, gentle slopes by widely spaced contours;
6) contour lines always close on themselves or extend between edges of the map.

The difference in elevation between the highest and lowest points in a given area is known as **relief**.

B. Topographic Profiles

A topographic profile is a line that shows the rise and fall of the land surface along a selected line crossing a map. That is, it is a cross sectional view illustrating the relief of the topography. Profiles are usually drawn with some degree of vertical exaggeration in order to bring out the nature of the topography. A **natural scale** profile (vertical and horizontal scales are 1:1) usually gives the profile so little vertical variation that the profile is difficult to read. However highly exaggerated vertical profiles frequently give the profile a "roller coaster" appearance, and are to be avoided as well.

In producing the profile in Exercise 2, be sure to label the X and Y axes, with elevations or distances, and indicate North and South on the profile. Also include in a legend, both the vertical and horizontal scales - both fractional and graphic.

On line resources: Two excellent sources for a summary review of topographic maps can be found at the U.S.G.S. (U.S. Geological Survey) web site.

http://topomaps.usgs.gov/

http://erg.usgs.gov/isb/pubs/booklets/usgsmaps/usgsmaps.html