SECTION 6: Contours

Contours (or, more correctly, 'isolines') are lines that join points of equal value on a map. The values may be for heights above sea-level, ocean depths, atmospheric pressure and so on. These lines have special names when they measure certain features, for example:

- contours measure height
- isotherms measure temperature
- isobars measure air pressure
- isobaths measure ocean depth
- isohyets measure rainfall
- isochrones measure time

Unlike many other map symbols which represent real objects, isolines are an abstraction used to interpret and depict data. Isoline maps can be divided into two separate types: 'isometric' maps and 'isopleth' maps. Isometric maps, such as contour maps, consist of lines drawn through points of equal value. Isopleth maps, like population density maps, consist of lines connecting areas with equal values. These values are obtained for defined areas such as towns or census districts.

Contours are probably the most common type of isoline. Contour maps show the pattern of relief of an area of land by lines which join points that are the same height above or below sea-level. The height of each contour is usually written on the contour line. The vertical distance between each of the lines (the contour interval) is constant and usually stated in the map legend.

Figure 5 explains how contours are used to depict the land surface.

Figure 5.1

Three-dimensional reprensentation of a small hill with a valley on the upper side

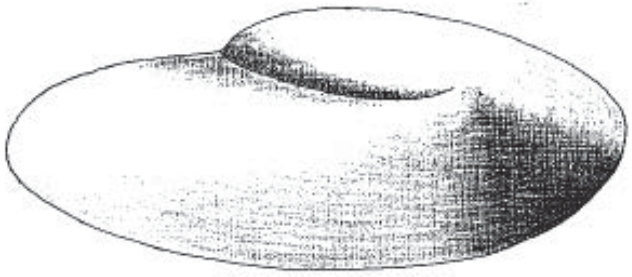

Figure 5.2

Same hill depicted by layers of equal height

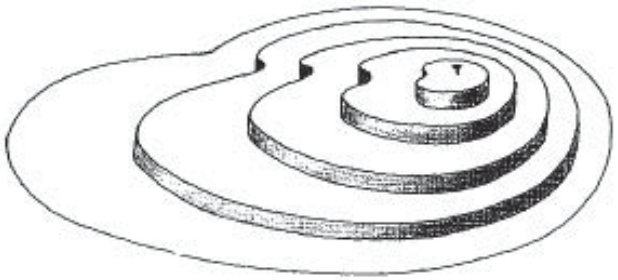

Figure 5.3

Edges of layers replaced by contour lines

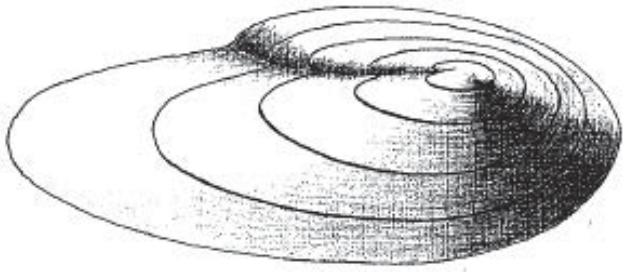

Figure 5.4

Hill depicted in two dimensions using contours

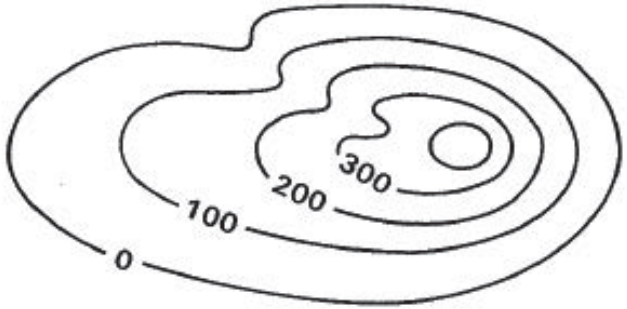

Figure 5.1 is a three-dimensional (length, width and height) drawing of a hill. The highest point is towards the right-hand or eastern side of the hill, and the slope is steeper here than on the left-hand or western side. A valley begins near the top of the hill and runs down the upper left-hand or north-western slope.

In Figure 5.2 the same hill is represented by a series of layers of equal height. Assuming the bottom layer to be sea-level, the edges of the other layers represent lines of equal height above sea-level—they are contour lines.

In Figure 5.3 the edges of the layers in Figure 5.2 are represented by lines on the three-dimensional drawing of the same hill—they are contour lines on the ground surface of the hill.

Figure 5.4 is a plan (map) view of the contour lines in Figure 5.3. Values for the contour lines (in 100-metre intervals) have been added from sea-level up to 300 metres. The highest contour, which represents 400 metres above sea-level, is unlabelled. Note that the contours are closer together where the slope is steep on the right-hand side, and wider apart on the left-hand side where the slope is more gentle. Also, the valley on the left slope is represented by contour lines which run in one side of the valley and back out the other.

In Figure 5.4 you will notice that the three-dimensional hill has been accurately depicted on a flat plane!

Figure 5 represents only a simple relief feature. In the real world, however, the terrain is very diverse and complex and to date little research has been undertaken on the ability of blind people to interpret terrain from contours.

Nevertheless, simple contours and other isolines can be readily interpreted as you will discover in the map reading exercises which use Figure 14.

Here isolines are used to depict two common types of data—elevation (height in metres) and population density—on small scale maps of Australia. However, it is advisable that you wait until you have read the following sections before attempting to read these maps.