

### 3. MAPS AND CROSS SECTIONS

#### I Main Topics

A Three point problems

B Map interpretation and cross sections

9/8/11

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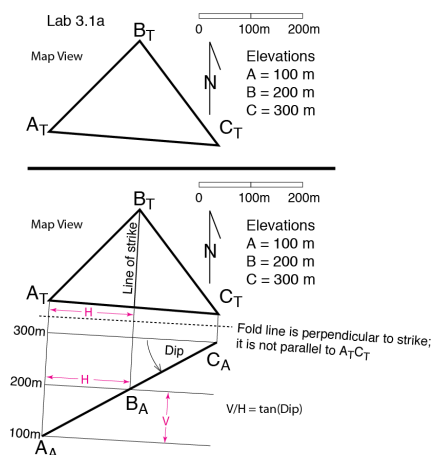
### 3. MAPS AND CROSS SECTIONS

#### II Three point problems

A Three non-colinear points define a plane

B The line of strike is given by the bearing of a horizontal line in a plane; a horizontal line connects points of equal elevation.

C The angle of dip is given by looking parallel to strike in a cross section drawn perpendicular to the line of strike.



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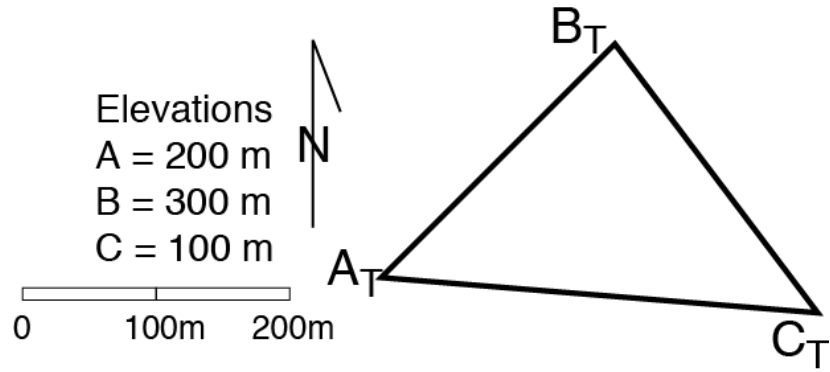
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### 3. MAPS AND CROSS SECTIONS

Lab 3.1b

Map View



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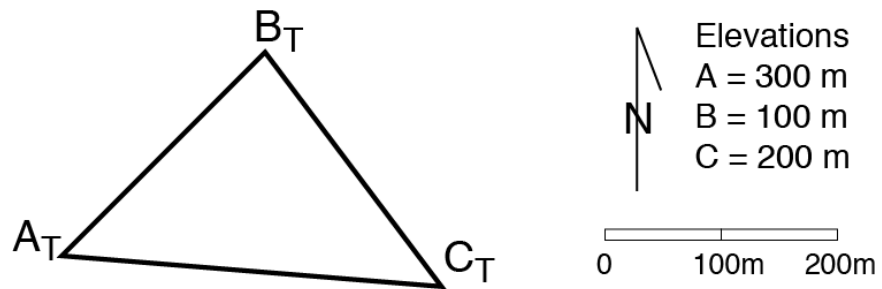
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### 3. MAPS AND CROSS SECTIONS

Map View

Lab 3.1c



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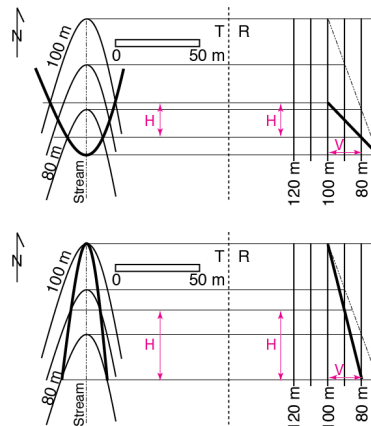
### 3. MAPS AND CROSS SECTIONS

II Three point problems (cont.)

D Procedure

- 1 Find a line of strike for the feature of interest by finding two points on the feature at equal elevation (this follows from the definition of strike). Points on opposite sides of a stream, where the feature intersects a particular contour line, are a good choice of points. Note the elevation of this line of strike.
- 2 Then find a third point at a known elevation on the feature that is off the line of strike (e.g., where the feature intersects the stream bed).
- 3 The positions and elevations of these three points allow the direction and amount of dip to be determined graphically by orthographic projection or algebraically.

Lab 3.2a



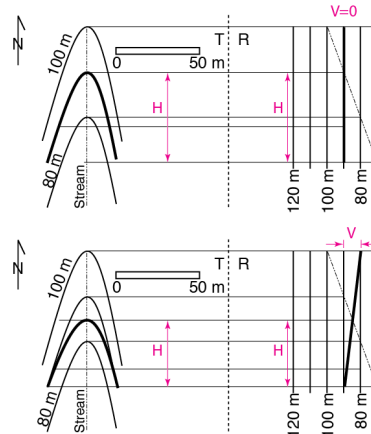
### 3. MAPS AND CROSS SECTIONS

II Three point problems (cont.)

D Procedure

- 1 Find a line of strike for the feature of interest by finding two points on the feature at equal elevation (this follows from the definition of strike). Points on opposite sides of a stream, where the feature intersects a particular contour line, are a good choice of points. Note the elevation of this line of strike.
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Lab 3.2b

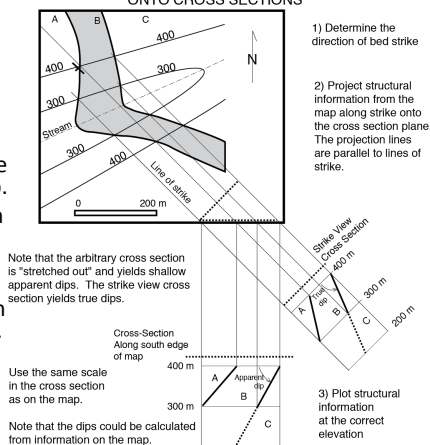


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IV Map interpretation and cross sections

- A Project structural information on planes (e.g., location of bedding, contacts) along lines of strike onto the plane of the cross section
- B The elevation of the structural information is plotted at the appropriate elevation. Use the same scale in the cross section as the map.
- C Strike view cross sections differ from arbitrarily chosen cross sections in that the lines of projection are straight in the strike view cross sections but are dog-legged (bent) in the arbitrarily chosen cross sections.
- D Cross sections of the geologic structure only will not show topography, just the geologic structure

PROJECTION OF STRUCTURAL INFORMATION ONTO CROSS SECTIONS Lab 3.3



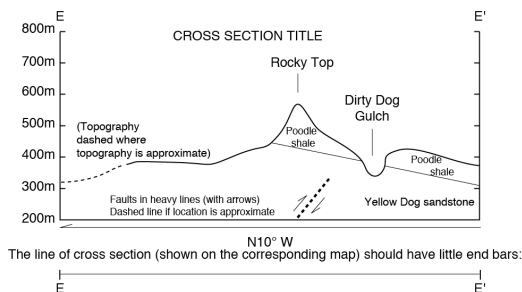
### 3. MAPS AND CROSS SECTIONS

Comments on Cross Section Construction

Lab 3.4

**1 Cross sections**

All cross sections should be neat. If they are sloppy they can not be relied upon.  
 All cross sections should have a title  
 The elevation bars at the ends of the cross section should extend to the same height and go to the top of the cross section  
 The direction of the cross section should be indicated somehow.  
 On structural cross sections the vertical scale should NOT be exaggerated; the horizontal and vertical scales should be the same. If they aren't, include a horizontal and vertical scale.  
 Label key geologic, geographic, or cultural features on all cross sections  
 The northernmost end of the cross section is usually to the left (this is not a hard rule)



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