

II The Round Earth on Flat Paper

25 minutes

1:10 to 1:35

*Introduction - non-technical*

A. Scale

- 1. The importance of scale
  - a. Controls amount of detail shown on maps.
  - b. Determines size of the sheet.
  - c. Influences the choice of projection to use.
- 2. Representative Fraction - R.F.
- 3. Large, medium, and small scales.

B. Introduction to map projections

- 1. Many different projections *Since Ptolomy*
- 2. The problem of flattening out the globe's surface.
- 3. Characteristics of maps.
  - a. Orthomorphic - conforms to true shape
  - b. *At any point scale is true in all directions*  
Equal area - correct size *Parallels + meridians intersect at right angles*  
*Distorted shape*
  - c. Azimuthal - all radial distances true  
*Other distances expanded*
- 4. Three methods of drawing maps - *perspective*
  - a. Orthographic - viewed from infinite distance  
Map of moon's surface
  - b. Stereographic - viewed from opposite surface *lights out*  
Scale true at outer edge.  
*Curved parallels + meridians*
  - c. Gnomonic - viewed from center of globe.  
Great circles are straight lines. *Star map.*
- 5. Examples of map projections
  - a. Mercator - all compass directions true. Straight rhumb lines  
Straight meridians & parallels  
great distortion at high latitudes
  - b. Transverse Mercator - follows great circle  
Uses only best part of Mercator, eliminating distorted part.  
Hard to construct *Good for route maps.*  
Rhumb lines are not straight *Curved parallels + meridians*  
*Good for large + med. scale military maps*
  - c. Polyconic - accurate for large scale maps. ~~?~~  
Hard to construct  
Curved parallels and meridians  
Good for north-south areas  
Scale true on central meridian and all parallels

*UTM*  
*Differentiate Large + small scales*

- d. Transverse polyconic - turned  $90^\circ$ 
  - Follows a great circle
  - Good for east-west area
  - Curved parallels and meridians
  
- e. Lambert conformal conic -
  - Good for mid-latitudes
  - Two standard parallels
  - Meridians straight lines - parallels <sup>are</sup> arcs of concentric circles
  - Meridians and parallels intersect at  $90^\circ$
  - True azimuths at every point

*5 min break*  
*hand out Hartford sheet*

III Map Reading

65 minutes

- A. The marginal legend - 20 min.
1. Map identification
    - a. Sheet name
    - b. Sheet number
    - c. Series name
    - d. Series number
    - e. Scale
  2. Symbol legend
  3. How to use bar scale (demonstrate how to mark edge of paper.)
  4. Credit note (point out it may indicate reliability)
  5. Coverage diagram (this may also indicate reliability)
  6. Index to sheets (gives sheet names and numbers of adjoining sheets)
  7. Index to boundaries
  8. Other marginal information
    - Contour interval note
    - projection
    - military grid information
    - declination note or diagram - *Magnetic Pole moves - annual change -*
- B. Film - #9112 Map Reading - British Symbols - 18 minutes
- 2:00
1. British symbols are some different from U.S. symbols.
  2. Conventional signs or symbols
  3. Interpolation of contours
  4. Questions on film.
- C. Film - #A9107 Map Reading - 20 minutes
- 2:25
1. Review how to read geographic coordinates
  2. Review how to read Military grid coordinates
  3. Types of maps
  4. Distance
  5. Direction
  6. Coordinates
    - a. Polar coordinates
    - b. Geographic coordinates —
    - c. Military Grid coordinates —
- D. Place names and gazetteers 5 min.
1. NIS Gazetteer
  2. Atlas gazetteers
  3. Other special gazetteers based on map series.

15 min. break