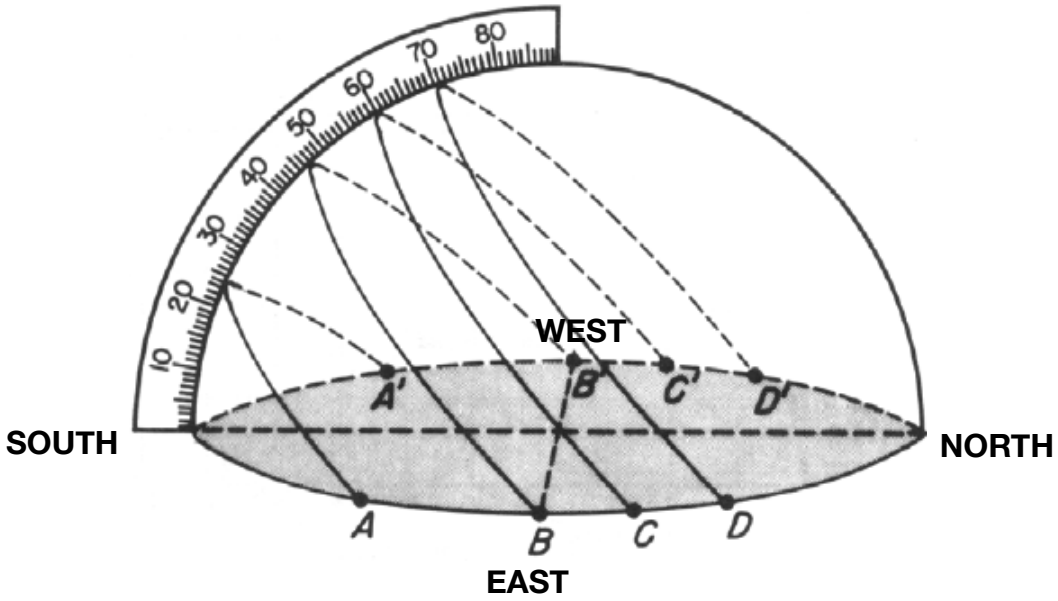

- This celestial sphere diagram shows the path of the sun as it moves through the sky on 4 different days of the year at a location in New York State.
- You, the observer, are standing in the gray, shaded area at the intersection of the 2 dotted lines.
- The top of the sphere (where the protractor is located) represents the highest, solar noon, altitude of the sun for that day.
- To see the sun at noon on any day of the year, the observer must look to the south.

Path D-D': It is the longest path. It will take the sun the longest time to travel this path. Therefore this is the path the sun takes on the day with the greatest duration of insolation (most hours of daylight), June 21st, the first day of summer in the northern hemisphere.

- The sun rises north of east and sets north of west.
- The noon altitude of the sun is about 71.5E, the highest noon altitude for any day of the year.
- Since the sun is high in the sky at noon, it's insolation is most direct (strongest).
- A stick placed in the center of the field (where the observer is located) will cast the shortest noontime shadow for any day of the year. At noon, that shadow will always point north.

Path B-B': Notice that the sun rises due east and sets due west. It's path divides the field into two equal halves. This is the path of the sun on the vernal (March 21st) and autumnal (Sept. 23rd) equinoxes.

- The path of the sun is shorter than it was on June 21st, so the duration of insolation is less. On either equinox there are 12 hours of day and 12 hours of night for every location on Earth.
- The noon altitude of the sun is about 48E. The insolation is less direct than it was in June.

Path A-A': It is the shortest path. The sun will be in the sky the fewest hours on this day (the shortest duration of insolation). It is December 21st, the first day of winter in the northern hemisphere.

- The sun rises south of east and sets south of west.
- The noon altitude of the sun is 24.5E, the lowest noon altitude for any day of the year.
- Since the sun is low in the sky at noon, it's insolation is least direct (weakest).
- A stick placed in the center of the field will cast the longest noontime shadow for any day of the year.

Path C-C': Since this path is between the equinoxes and June 21st, it could be either of two dates. It could be between June 21st and September 23rd , probably a day in mid August. Or it could be between March 21st and June 21st, probably a day in mid May.