

Sect. 2 — Astronomy —

Spectator on the surface of the

— Heavens appear spherical — only  
 Half seen — Horizon — Zenith —

— Stars appear to move from <sup>east</sup> west  
 to ~~east~~ <sup>west</sup> at <sup>the same</sup> ~~equal~~ distances from

one another — rotation in 24 hours  
 of the stars Planets. &c Annual

revolutions — Sun — Venus

Mercury move round the sun

in orbits less than the earth

— Phases of Venus. — Mercury

like those of Venus — Mars's

Phases — his orbit includes the  
 orbit of the earth — moves round

the sun not the earth — Jupiter

and Saturn the same —

Moon moves round the earth

### 3. Seasons

If the earth's axis were perpendicular to the plane of its orbit  
Days and nights equal - no variety  
of seasons - Incline causes a variety  
- Summer - Harvest - Winter -  
Spring - Greater inclination  
greater difference in the lengths  
of days and nights Seasons &c.  
- At the Equator different seasons  
but equal days and nights -  
- At the poles one day and one  
night in the year - Total  
darkness only about 3 months  
repaction

## 4<sup>th</sup> Astronomy

Earth nearer the sun in winter than  
in summer, — how this is determined  
Sun's diameter larger — Why is not  
the weather warmer? — Earth's excentricity  
 $\frac{1}{10}$  of the whole distance — oblique  
position of the sun — Moon keeps  
the same side towards the earth —  
half of the Lunarians never see  
the earth — 13, larger than the  
moon Lunarians can find their

## Longitude —

Earth is a moon to the moon  
waxing and waning — Moon's  
atmosphere — no seas in the moon  
— no clouds — dark spots caverns —  
Stars always visible to the Lunarians  
— Earth's rotation observable to  
the Lunarians — a Diast to the moon

Now the Luminous Distance  
 the length of the year - by the Poles  
 of our Earth.

Light and heat of the Planets

Mercury	7	} heat than the earth supposed 1
Venus	2	
Mars	$\frac{4}{10}$	
Jupiter	$\frac{1}{25}$	
Saturn	$\frac{1}{90}$	
Moon	$\frac{1}{300,000}$	of the Sun full
Saturn	3000	times the light of Moon

Planets do not reflect all the  
 sun's light moon only about  $\frac{1}{6}$   
 Light moves from the sun to  
 us in 8 minutes of time

- Eclipses of Jupiters Satellites
- Longitude of places - time kept
- Moon's distance from a fixed  
 star - Quadrant Sextant