Our Moon

Apparent Diameter:
30 arc minutes = 1800 arc seconds
True Diameter: 2160 miles
Average distance from Earth:
240,000 miles

**Langrenus: 82 miles in diameter,
and about the same apparent size as Jupiter!**

Section of the waxing crescent moon when it is four days past new.

The Need for Telescopes

Comparative Apparent Sizes

Our solar system is very large and the planets are very far away. So far that, even though some are much larger than Earth, their angular sizes are quite small. Consequently, they always appear star-like to the unaided eye. A telescope is required to magnify their pinpoint appearances, making them visible as small disks for study. Magnifications of greater than 100 power are often needed.

Compare the relative apparent sizes of the moon and the bright planets with this circle which represents a typical low-power field of view. In many low-power eyepieces, the moon is about the same size as the field of view.

Mercury *(greatest elongation)*

Venus (greatest brilliancy)

Mars *(closest)*

Mars *(farthest)*

Jupiter
and its four large moons
Callisto, Ganymede, Io, and Europa

Callisto

Ganymede

Io

Europa

Saturn
and its rings and its large moon Titan

We all know how large the moon appears in our sky. While Venus, the planet that approaches closest to Earth, has a true diameter of over three times that of our moon, it is always at least 108 times farther away. As a result, its small angular size in the sky is comparable to the apparent sizes of the larger lunar craters. The other planets appear even smaller.

	Apparent Diameter (arc sec)	Actual Diameter (miles)	Distance at closest approach (miles)
Mercury (closest)	10	3025	57 million
Venus (closest)	60	7500	26 million
Earth	---	7900	---
Moon	1800	2160	220,000
Mars (closest)	25	4200	35 million
Jupiter	47	88,000	390 million
Saturn (planet)	19	75,000	794 million
Saturn (rings)	40	155,000	794 million