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126 Moon: Hortensius dome field

Target	Type	Best lunar phases (days after New Moon)	Chart
Hortensius dome field	Lunar volcanic domes	Days 9 and 22	5.33

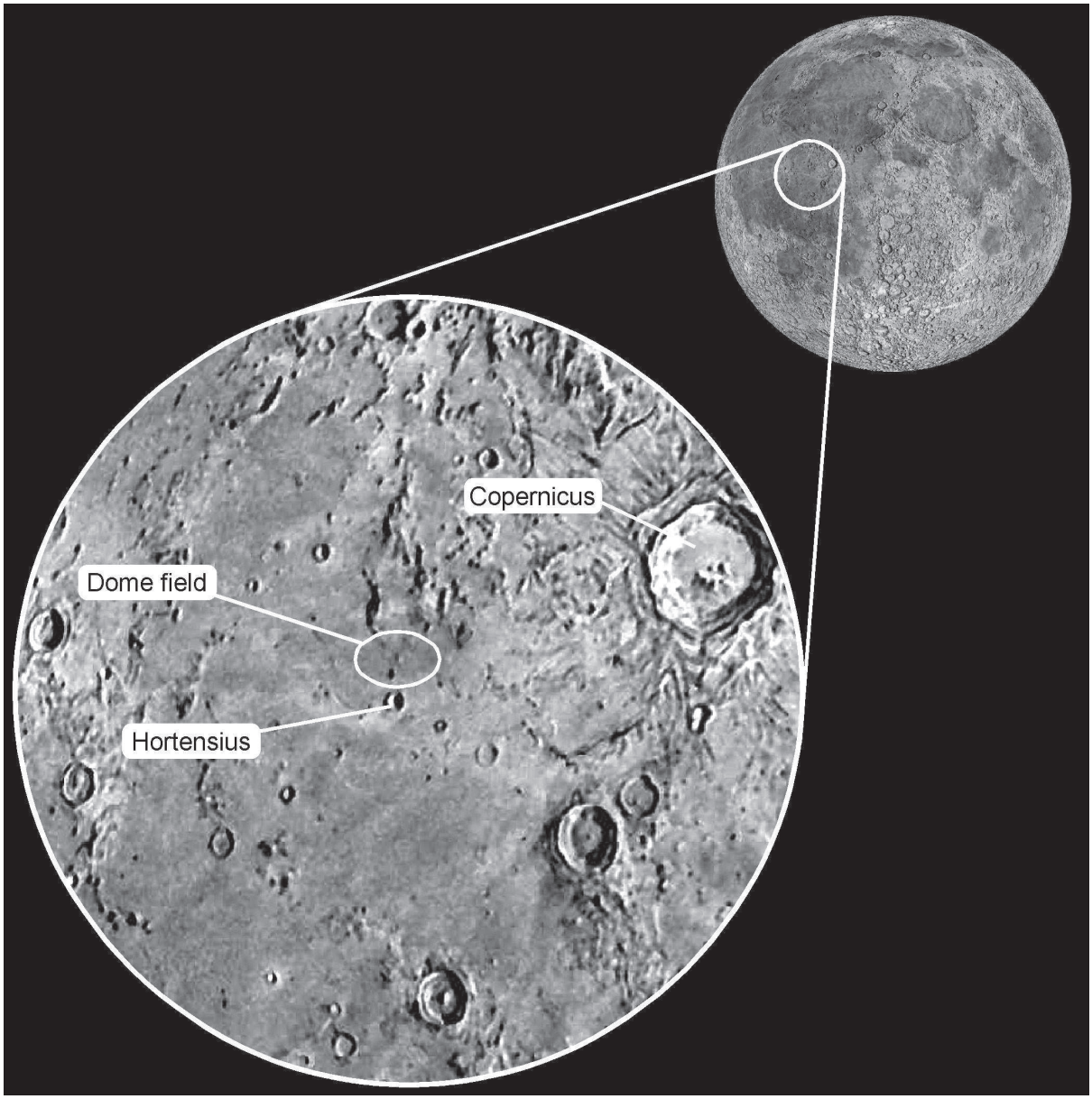

Chart 5.33 Moon: Hortensius dome field

Thanks to the lunar samples brought back by Armstrong, Aldrin, Collins, and the other Apollo astronauts, it is well established that the vast majority of craters are impact craters formed when leftover debris from the formation of the Solar System slammed into the Moon. But if we look carefully, scattered among all of those impact scars is direct evidence that the early Moon was also a hotbed of volcanic activity.

Some of the most intriguing evidence of that activity is the so-called lunar domes. Experts tell us that the lava that flooded the giant impact basins to form the maria we see today had a low viscosity. In other words, it flowed quickly due to its high temperature. As the lunar core cooled over time, however, the erupting lava decreased in flow rate as well as temperature, which increased its viscosity. As it continued to percolate through vents, the lunar lava's ability to flow away decreased, creating in the process low shield-like volcanoes, the lunar domes.

Most lunar domes are clustered together in small groups and lie in, or are immediately adjacent to, maria. A typical dome measures between 3 and 12 miles (4.8–19 km) in diameter, appears round or elliptical in shape, and has an average slope of only 2° to 5°. Owing to this gentle grade, volcanic domes are only readily visible right after sun-up. All quickly fade from view after the Sun moves higher in their sky. But when sunlight just grazes their tops, domes can appear quite striking.

At first pass, the crater Hortensius appears to be of no special significance. Just another impact crater among the myriad, right? Closer inspection shows that, although Hortensius itself is rather bland, its immediate surroundings are anything but. Visit here just as the light from the rising Sun grazes the adjacent plain of Mare Insularum (the Sea of Isles) and as many as six unusual mounds, or bumps, can be seen to the crater's northeast. The Hortensius dome field, as it is most often called, forms the Moon's best-known region of lava domes.

Although it only spans 9 miles (14.4 km) from edge to edge, Hortensius is easy to pinpoint thanks to two prominent craters on either side, Copernicus to its (lunar) east and Kepler to its (lunar) west. Since Kepler still lies in darkness during the dome field's prime viewing time, we need to rely on Copernicus as our guide. Hortensius resides just beyond the southwestern edge of Copernicus' pronounced ray pattern, or ejecta field, and forms a not-quite-equilateral triangle with the larger crater Reinhold, also to Copernicus' southwest.

Once you've identified Hortensius, switch to between 150× and 200×, or higher if conditions permit, and focus your attention just to its northeast. Can you spot five or six "bumps" in the otherwise flat plain? If so, look carefully and you should also see that five of the domes are punctuated by tiny craterlets – volcanic vents – centered on their summits. The vent of the sixth dome must have been concealed by lava.

Remember, timing is critical. The 10-day-old Moon, smack dab in the middle of the waxing gibbous phases, is best for spotting the Hortensius dome field, as is the 25-day-old waning crescent phase. Both position the Sun low in the dome field's sky, maximizing the visibility of their gentle topography.