MOREHEAD PLANETARIUM & SCIENCE CENTER

TAKEUPSPACE

Rare but not impossible: your last chance to see a Transit of Venus (June 5, 2012)

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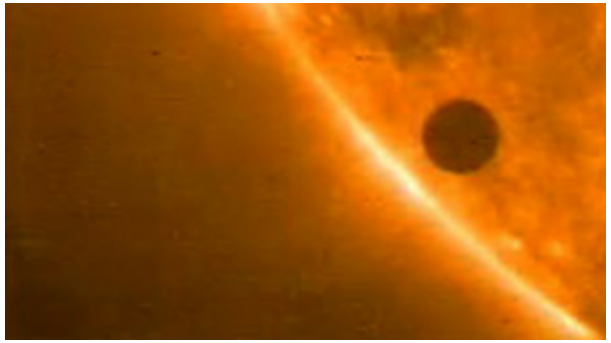

BY AMY SAYLE

My all-time favorite case of “impossible astronomy” happens in the final scene of **Dan Brown(http://www.danbrown.com)**’s popular novel *The Da Vinci Code*.

First, Brown invents a new moon that rises soon after sunset. (New moons actually rise at sunrise.) Then, that new moon—which by definition wouldn't be lit on the side facing Earth—somehow bathes a character in moonlight ("her face was beautiful in the moonlight").

Brown also tampers rather dramatically with Venus, flinging the planet right out of its orbit! See if you can spot the scientific impossibility in this excerpt from his novel, in which the character Robert Langdon makes this observation:

The stars were just now appearing, but to the east, a single point of light glowed brighter than any other. Langdon smiled when he saw it. It was Venus.

Consider the time: Since "the stars were just now appearing," it must be early evening. The Sun has recently set. And Langdon sees Venus in the east.

But if it's shortly after sunset and Venus is in the sky, the planet has to be more or less in the *west,* the same direction where the Sun set.

That's because **Venus can only appear near the Sun in our sky**. Venus orbits closer to the Sun than Earth does. So from our point of view, Venus appears to travel back and forth from one side of the Sun to the other, never straying too far from the part of the sky where we see the Sun.

Therefore, if you see Venus as an "evening star," Venus must be in the west. If you see it as a "morning star," it must be in the east.

For months, Venus has been shining brilliantly in the western evening sky, until recently, when it vanished into the solar glare. Later this month (June 2012), Venus will re-appear on the other side of the Sun, in the eastern morning twilight.

In the meantime, though, something unusual happens: On its way to becoming a "morning star" Venus will pass directly in front of—**it will transit(http://transitofvenus.org)**—the Sun on Tuesday, June 5, 2012. Over about six hours, the planet **will look like a black dot gliding across the face of the Sun(http://apod.nasa.gov/apod/ap111016.html)**.

If Venus and Earth orbited the Sun in exactly the same plane, these transits would be common. But because the two planets' orbits are inclined relative to one another, a transit of Venus is a **rare event(http://transitofvenus.org/faq/143-why-is-a-transit-of-venus-so-rare)**, one that occurs in 8-year pairs separated by more than a century. Since we just had one in 2004, **this June 5th is your last chance ever to see a Venus transit**. That is, unless you're planning on still being around for **the next transit(http://www.youtube.com/watch?v=IIbsMAuyl1Y&feature=youtu.be)** on December 10, 2117, or perhaps moving to somewhere else in the solar system.

Morehead Planetarium and Science Center will host a viewing of this rare, historic event. (Important note: To view the transit of Venus directly, **you MUST protect your eyes(http://www.transitofvenus.org/june2012/eye-safety)** at all times with proper solar filters, properly used.)

Our special **family science event for the Transit of Venus(http://www.moreheadplanetarium.org/index.cfm?fuseaction=news_item&id=665)** happens at our building, 250 East Franklin Street, Chapel Hill. On Tuesday, June 5, from 5:30 to 8:30 p.m., you can:

- Safely view the transit with solar telescopes and "eclipse glasses" (weather permitting, else we'll watch via the internet).
- See a live planetarium show in our fulldome theater. Learn how Venus transits helped us **measure the size of the solar system(http://transitofvenus.nl/wp/getting-involved/phone-app/)** and how astronomers use the transit method to find exoplanets.
- Tour the Morehead Observatory.
- Learn about the Sun and Venus from NASA/JPL Solar System Ambassadors.

- Participate in family-friendly hands-on activities: make a sundial, experiment with “sun beads,” design a sun mask, make a planet, hunt for exoplanets, and more.

Most activities are not weather dependent, so this event (which is FREE, by the way) happens rain or shine. Please join us!

Don't miss this! Your next chance to view a transit of Venus from North Carolina won’t be until 2125.

Photo: On June 5, 2012, witness the black silhouette of Venus slowly gliding in front of the Sun.

HOURS

Saturday:	10:00 am-3:30 pm
Sunday:	1:00 pm-4:30 pm
Monday:	2:00 pm-6:00 pm
Tuesday:	*Closed*
Wednesday:	10:00 am-3:30 pm
Thursday:	10:00 am-3:30 pm
Friday:	10:00 am-3:30 pm