

# Mountaineer Skies

## From The Editor's Desk

Next month, Mars will be closer to the Earth than it has been for over 70,000 years. This means that the Red Planet will be especially well placed for observation. Either binoculars or a telescope should reward the observer who gets up early in the morning. Should you wish to begin watching Mars this month (July), here are some selected times to look.

Date	Mag	Rises	Transit	Sets
<b>Jul 02</b>	-1.5	11:57 P.M. (In Aquarius)	5:14 A.M.	10:39 A.M.
<b>Jul 16</b>	-1.9	11:17 P.M. (In Aquarius)	4:35 A.M.	9:33 A.M.
<b>Jul 30</b>	-2.3	10:25 P.M. (In Aquarius)	3:42 A.M.	8:58 A.M.

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## In The Sky This Month

### Visible Planets in the Night Sky

#### Beginning of July, 2003

	Const	Rise	Transit	Set	Mag
Sun		5:52	13:24	20:55	- 26.8
Mercury	Gem	5:33	13:04	20:41	- 1.9
Venus	Tau	4:57	12:26	19:57	- 3.9
Mars	Aqr	23:57	5:16	10:36	- 1.5
Jupiter	Leo	9:01	16:05	23:06	- 1.8
Saturn	Gem	5:28	12:58	20:25	2.3

#### Middle of July, 2003

	Const	Rise	Transit	Set	Mag
Sun		6:01	13:26	20:50	- 26.8
Mercury	Cnc	7:00	14:16	21:37	- 1.0
Venus	Gem	5:17	12:46	20:16	- 3.9
Mars	Aqr	23:14	4:35	9:57	- 1.9
Jupiter	Leo	8:20	15:21	22:19	- 1.8
Saturn	Gem	4:41	12:11	19:37	2.4

#### End of July, 2003

	Const	Rise	Transit	Set	Mag
Sun		6:15	13:26	20:37	- 26.8
Mercury	Leo	8:18	15:00	21:44	0.0
Venus	Cnc	5:50	13:07	20:25	- 3.9
Mars	Aqr	22:18	3:38	8:57	- 2.3
Jupiter	Leo	7:34	14:31	21:25	- 1.7
Saturn	Gem	3:47	11:13	18:42	2.4

Gem	Gemini, The Twins
Tau	Taurus, The Bull
Aqr	Aquarius, The Water Bearer
Leo	Leo, The Lion
Cnc	Cancer, The Crab

## About: Origin of the Moon

The one thing that cannot be missed in the night sky is the moon, moving from first quarter, to full moon, to last quarter, and finally to new moon as the month goes by. Its gentle brightness and inconstancy has influenced the thoughts of scientists as well as poets throughout the ages.

Moons, or natural satellites, are very common in the solar system. Except for Mercury and Venus which have none, all of the other planets have at least one, with Earth having a single moon, Mars two, Jupiter with 60 and counting, Saturn 31 and counting, Uranus with 21 and counting, Neptune 11 and counting, and finally Pluto with one and perhaps another.

The composition of the moon is very similar, but not identical to, that of the Earth. Any viable theory of the origin of the moon must explain why this is so.

First Galileo, then others, tried to explain the origin of our moon. One of the first theories to gain support was called the “**fission theory**”. This hypothesis was suggested by Astronomer G. H. Darwin, son of naturalist Charles Darwin. He thought that very early in the solar system, about 4.5 billion years ago, when the planets were being formed, the moon was spun out of the still molten Earth. This was possible because the Earth was spinning much more rapidly then than it does today. This theory predicts that the Earth and Moon should be made up of identical material. But we have said that evidence shows that although the composition of the two bodies are similar, they are not identical, effectively voiding this theory.

The “**capture theory**” suggests that the moon came from somewhere in the solar system and was captured by the Earth’s gravitational force as it passed by. This theory lost credibility because it is improbable that a random body would be chemically similar to the Earth’s.

Another theory, the “**co-accretion or "double planet" theory**”, supposes that the Earth and moon simply grew together at the same time out of a primordial swarm of small planetesimals. Planetesimals are small bodies made up of frozen gas, rock particles, and grains of dust which coalesced as our solar system began to cool after its formation. Swirling around in the newborn solar system, some planetesimals impacted and stuck with other planetesimals to form the planets. Again, if this were the case, you would expect the chemical composition of the Earth and the moon to be identical and we know that that is untrue.

Perhaps the most recent theory, called the “**giant impact theory**”, is the most likely to be the correct one. This speculation says that about 4.5 billion years ago, when the Earth itself was just forming, some interplanetary body about the size of the planet Mars slammed into the Earth. This collision ejected material from the Earth that became the moon, so that our natural satellite was made up of material both from the Earth and the colliding body. This would explain why the moon is similar in makeup to the Earth, but not quite the same.

## Giant Impact Model



## 2003-2004 Planetarium Shows



August 22, 2003 <i>Midnight's Canvas</i>	September 12 & 26, 2003 <i>Midnight's Canvas</i>	October 10 & 24, 2003 <i>Midnight's Canvas</i>
November 14 & 21, 2003 <i>Midnight's Canvas</i>	December 5, 12, & 19 <i>'tis The Season</i>	January 9 & 23, 2004 <i>Midnight's Canvas</i>
February 13 & 27, 2004 <i>Midnight's Canvas</i>	March 12 & 26, 2004 <i>Midnight's Canvas</i>	April 9 & 23, 2004 <i>Midnight's Canvas</i>
May 14 & 28, 2004 <i>Midnight's Canvas</i>	June 11, 2004 <i>Midnight's Canvas</i>	July 2004 <b>Closed</b>

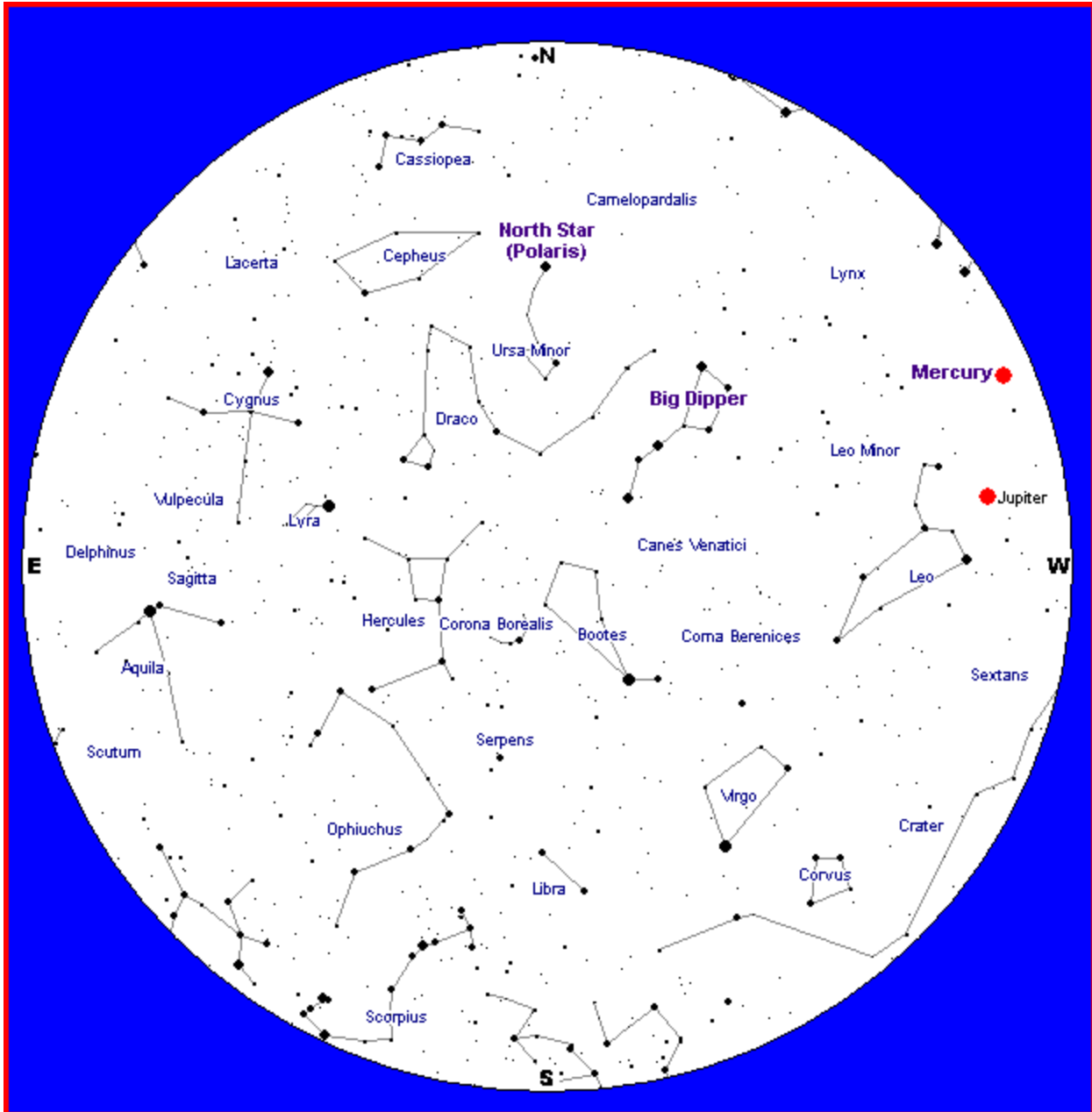
For those who are interested in bringing a group, such as schools or scouts, during the day, please call for more information. These shows are usually given on Tuesday or Thursday mornings.

For further information or reservations, please call John Hopkins at (304)293-3422, extension 1443 or by email at: [jhopkins@mail.wvu.edu](mailto:jhopkins@mail.wvu.edu)

### Selected Sunrise/Sunset and Moon Rise/Moon Set Times

Date	Sunrise	Sunset	Moon Rise	Moon Set	Moon Phase
July 6	5:57 A.M.	8:50 P.M.	1:03 P.M.	12:48 A.M.	First Qtr
July 13	6:02 A.M.	8:47 P.M.	9:16 P.M.	5:26 A.M.	Full Moon
July 21	6:08 A.M.	8:43 P.M.	12:44 A.M.	2:07 P.M.	Last Qtr
July 29	6:15 A.M.	8:36 P.M.	6:17 A.M.	9:23 P.M.	New Moon

July 2003 Sky Chart\* for:  
 10:00 P.M at the beginning of the month  
 9:00 P.M in the middle of the month  
 8:00 P.M at the end of the month



\*Sky Chart used with the kind permission of [Heavens-Above](http://www.heavens-above.com/) at <http://www.heavens-above.com/>

The TOMCHIN PLANETARIUM is named in honor of the late Harold Tomchin, of Princeton, W.Va., who made a generous donation to ensure its continuing operation, and whose family continues to support the planetarium for the educational benefit of WVU students, staff, and faculty members, as well as the local community. Contributions can be made in support of the planetarium through the WVU Planetarium Project at the WVU Foundation, Inc., phone (304)284-4000. Thank You.



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