

Mountaineer Skies

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<http://www.as.wvu.edu/~planet/index.html>

September 2002

From the Editor's Desk

What is a Blue Moon?

The phrase "once in a blue moon" is normally used to suggest an event that only happens infrequently. But how infrequently?

First of all, what is a blue moon? A blue moon is the second full moon in a month.

How often does it occur? On the average, there are about 41 blue moons each century or about 1 every 2.4 years.

In the next ten years there should be about 4 and indeed there are.

Year	Month	1 st Full Moon	Blue Moon
2004	July	2 nd	31 st
2007	June	1 st	30 th
2009	Dec	2 nd	31 st
2012	Aug	2 nd	31 st

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In The Sky This Month

The **Autumnal Equinox**, the first day of Autumn or Fall, arrives on Monday, September 23. The **Winter Solstice**, the first day of winter, starts on Saturday, December 21. The first day of Spring, the **Vernal Equinox**, begins on Thursday, March 20, 2003. And finally, the **Summer Solstice**, the first day on summer comes on Saturday, June 21, 2003.

Visible Planets in the Sky

Beginning of September

	Const	Rise	Transit	Set	Mag
Sun		6:46	13:20	19:51	- 26.8
Mercury	Vir	9:06	14:56	20:46	0.3
Venus	Vir	10:40	16:04	21:28	- 4.4
Jupiter	Cnc	3:59	11:11	18:26	- 1.9
Saturn	Ori	0:59	8:24	15:52	2.5

Middle of September

	Const	Rise	Transit	Set	Mag
Sun		6:59	13:15	19:29	- 26.8
Mercury	Vir	8:44	14:24	19:59	1.2
Venus	Vir	10:44	15:49	20:53	-4.5
Jupiter	Cnc	3:18	10:27	17:39	- 1.9
Saturn	Ori	0:08	7:32	15:01	2.4

End of September

	Const	Rise	Transit	Set	Mag
Sun		7:13	13:10	19:04	- 26.8
Venus	Lib	10:29	15:20	20:08	- 4.6
Jupiter	Cnc	2:32	9:39	16:49	- 2.0
Saturn	Ori	23:11	6:35	14:04	2.3

Vir	Virgo, The Maiden
Cnc	Cancer, The Crab
Ori	Orion, The Hunter
Lib	Libra, The Scales

About: Landing on the Moon – a hoax?

We have talked about some popular myths such as the “The Egg and The Equinox” and “Can you see stars during the daytime if you are in a well?” Lately, there has been a rumor circulating that we (the U.S.) did not actually land a man on the moon. The rumor suggested that when we saw Neil Armstrong put his foot on the lunar surface, it was actually an elaborate hoax, perpetrated by NASA, filmed in a California movie studio.

There are several arguments that refute this rumor. Here is one.

The Logic

The definitive incident occurred when Astronaut David Scott of Apollo 15 (late July through early August 1971) repeated Galileo’s famous experiment by dropping both a geologic hammer and a falcon feather at the same time on the Moon. After a few seconds falling, both landed in the lunar dust simultaneously.

Experiment 1

If you drop a baseball and a marble from the same height, believe it or not, they will arrive at the floor at the same time. Try it with various objects of different sizes and weights. This is always true. The objects will always fall at the same rate. Once you have become convinced that this is true, try experiment 2.

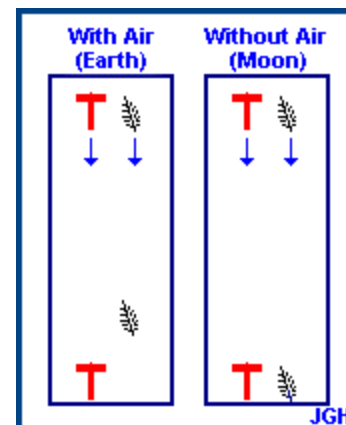
Experiment 2

Drop a hammer and a feather at the same time. This time they do not land at the same time. Why does this happen? The difference is that the feather has greater air resistance than the hammer, so the hammer hits first. This is similar to a parachute and a ball. The parachute falls much more slowly than the ball, again from air resistance.

Experiment 3

This experiment requires you to use your imagination because most people are not able to do this one at home because of the specialized equipment needed.

In order for the hammer and the feather to arrive at the same time, we have to remove the air from whence the resistance comes. On Earth, we can use a vacuum pump to remove air from a closed volume such as a Plexiglas tube that is closed at both ends. When we evacuate the air from the tube, both the hammer and the feather fall at the same rate because there is no friction from the air.



To do this outside a vacuum chamber we would have to go somewhere where there is very little atmosphere such as on the Moon. When David Scott dropped the hammer and the feather, they landed at the same time. This proved that the demonstration was done in a place where there was essentially no atmosphere, in this case, the Moon.

To convince yourself, just think it through a few times and you will see that the demonstration could be only done on the Moon, therefore they really must be there, not some movie studio on Earth.

2002-2003 Planetarium Shows



Narrated by Patrick Stewart

http://www.as.wvu.edu/~planet/mars_quest.htm

Coming in Early November



http://www.as.wvu.edu/~planet/tis_the_season.htm

THIS IS OUR MOST POPULAR SHOW.

September 13 & 27, 2002 <i>MarsQuest</i>	October 11 & 25, 2002 <i>MarsQuest</i>	November 8 & 15, 2002 <i>'TIS THE SEASON</i>
December 13 & 20, 2002 <i>'TIS THE SEASON</i>	January 10 & 24, 2003 <i>MarsQuest</i>	February 14 & 28, 2003 <i>MarsQuest</i>
March 14 & 28, 2003 <i>MarsQuest</i>	April 11 & 25, 2003 <i>MarsQuest</i>	May 9 & 23, 2003 <i>MarsQuest</i>
June 13, 2003 <i>MarsQuest</i>	July, 2002 Closed	

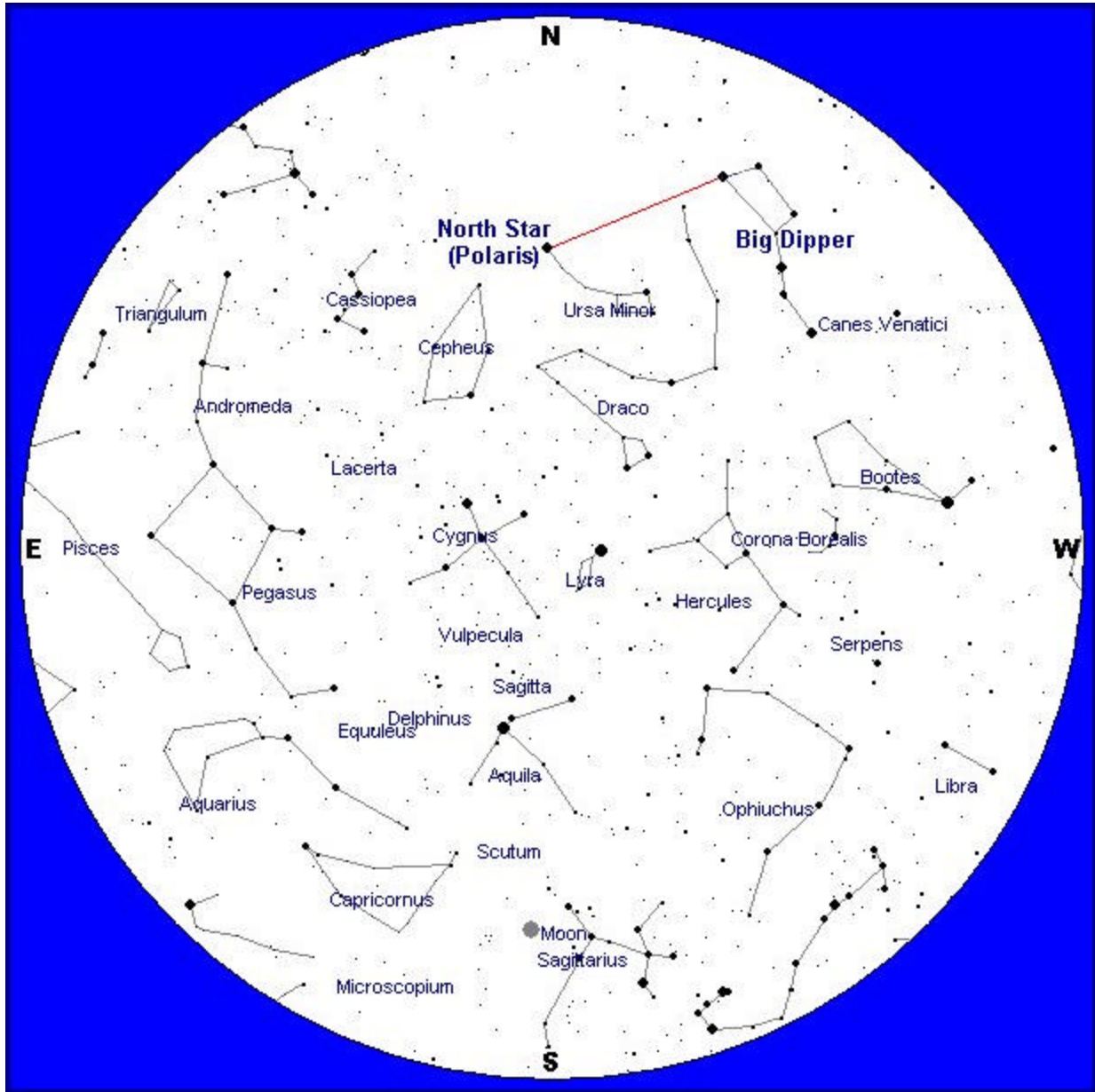
For those who are interested in bringing a group, such as schools or scouts, during the day, please call for more information. These shows are usually given on Tuesday or Thursday mornings.

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

Selected Sunrise/Sunset and Moon Rise/Moon Set Times

Date	Sunrise	Sunset	Moon Rise	Moon Set	Moon Phase
Sept 6	6:52 A.M.	7:43 P.M.	5:58 A.M.	7:57 P.M.	New Moon
Sept 13	6:59 A.M.	7:32 P.M.	2:37 P.M.	-----	Waxing Crescent
Sept 21	7:06 A.M.	7:19 P.M.	7:47 P.M.	6:56 A.M.	Full (Harvest) Moon
Sept 29	7:14 A.M.	7:06 P.M.	-----	2:51 P.M.	Last Quarter

September 2002 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** 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 Foundation Inc.



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