

Mountaineer Skies

Volume 10, Issue 4

<http://planetarium.wvu.edu/>

October - December 2010

Set your clocks back one hour on November 7 as **Daylight Saving Time ends**.

We are fortunate this year to have an early Christmas present from the sky. It is a **Total Lunar Eclipse** which will take place during the early hours of December 21.

* Moonrise	2010 Dec 20	16:26
Moon enters penumbra	2010 Dec 21	00:27
Moon enters umbra	2010 Dec 21	01:32
Moon enters totality	2010 Dec 21	02:40
Middle of eclipse	2010 Dec 21	03:17
Moon leaves totality	2010 Dec 21	03:53
Moon leaves umbra	2010 Dec 21	05:01
Moon leaves penumbra	2010 Dec 21	06:06
Moonset	2010 Dec 21	07:52

Remember that although all **solar eclipses require eye protection**, lunar eclipses do not.

Coincidentally, the **Winter Solstice** occurs on the same date, December 21. This is the day when the period of darkness is longest and the period of daylight, the shortest.

* Data from the U.S. Naval Observatory

In The Sky This Quarter

Visible Planets in the Night Sky

Beginning of October, 2010

	Const	Rise	Transit	Set	Mag
Sun		07:17	13:09	19:02	-26.8
Mercury	Vir	06:19	12:29	18:42	- 1.2
Venus	Lib	10:22	15:09	19:54	- 4.6
Mars	Lib	10:03	15:14	20:23	1.5
Jupiter	Psc	18:35	00:28	06:21	- 2.9
Saturn	Vir	07:09	13:11	19:09	0.9

Beginning of November, 2010

	Const	Rise	Transit	Set	Mag
Sun		07:49	13:03	18:18	-26.8
Mercury	Lib	08:45	13:41	18:41	- 0.6
Venus	Vir	07:25	12:33	17:35	- 4.1
Mars	Sco	09:52	14:40	19:28	1.4
Jupiter	Aqr	16:26	22:15	04:04	- 2.8
Saturn	Vir	05:25	11:19	17:16	0.9

Beginning of December, 2010

	Const	Rise	Transit	Set	Mag
Sun		07:22	12:09	16:56	-26.8
Mercury	Sgr	09:12	13:41	18:11	- 0.4
Venus	Vir	04:05	09:33	15:02	- 4.7
Mars	Oph	08:41	13:17	17:53	1.3
Jupiter	Aqr	13:27	19:16	01:06	- 2.6
Saturn	Vir	02:42	08:32	14:26	0.8

Oph	Ophiuchus, the Serpent Holder
Lib	Libra, the Scales
Psc	Pisces, the Fishes
Sco	Scorpius, the Scorpion
Aqr	Aquarius, the Water Bearer
Vir	Virgo, the Maid
Sgr	Sagittarius, the Archer

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About: The Amazing Antikythera Device, Part 1

In 1900, sponge divers were plying their dangerous trade off a small Greek island called Antikythera. This island lies midway between Kythira and the northwest corner of Crete. While diving for sponges, they found what a lot of us would like to find, a 2000 year old Roman treasure ship that was later determined to have sunk around 100 B.C. The ship was loaded with, among other things, precious and semiprecious jewels, statues made of bronze and marble, as well as undrinkable wine. A year later they were still diving the wreck, when someone brought up an unimpressive mass of metal, probably of bronze, with a curious cruciform device on the front. A side view indicated that this item was made up of a number of layers, but with the sea corrosion it was difficult to tell just how many.



The Antikythera Device as it came from the sea from Wikipedia with permission

This device, as well as much of the treasure, went to the state museum in Athens where it was looked at more closely. The examination revealed that the device contained numerous gears, at least 20. But what the mechanism did was not clear. At first it was thought to be some sort of navigational instrument similar to an astrolabe. But that was only a guess. No one really had any idea who made it or why they made it.

Years, decades, went by without anyone recognizing what the Antikythera mechanism was. This was primarily due to the corroded and compacted condition of the device when it was taken from the sea. Finally it was x-rayed and from that point on it became clearer and clearer what it did. This instrument was so incredible that at first no one really accepted the fact that someone 2000 years ago could make such a device. It required a high level of astronomical knowledge and the ability to machine these interlocking gears with very simple tools, probably just a file and scribe. I asked our Machine and Welding Shop Supervisor, Carl Weber, how long it would take him to manufacture a copy if he had the scaled drawings of the device, sheets of bronze metal, and all of the modern machining tools in his shop. He said that it would take three experienced machinists at least two months to make the Antikythera Device.

Probably the one person who did the most to lift the dark veil of uncertainty was Derek Price, a British historian who suggested in 1959 that the mechanism was a device that predicted astronomical events. After an incredible effort, he was able to construct a model of the Antikythera instrument in 1974.



Derek Price and his Antikythera model from Wikipedia with permission

Next issue – What does it do?

2010 Planetarium Shows



October 8 & 22, 2010 7:00 P.M. Origins of Life 8:00 P.M. Amazing Astronomers of Antiquity	November 12 & 19, 2010 7:00 P.M. Origins of Life 8:00 P.M. Amazing Astronomers of Antiquity	December 3, 10, & 17, 2010 7:00 P.M. 'tis the Season 8:00 P.M. 'tis the Season 9:00 P.M. 'tis the Season
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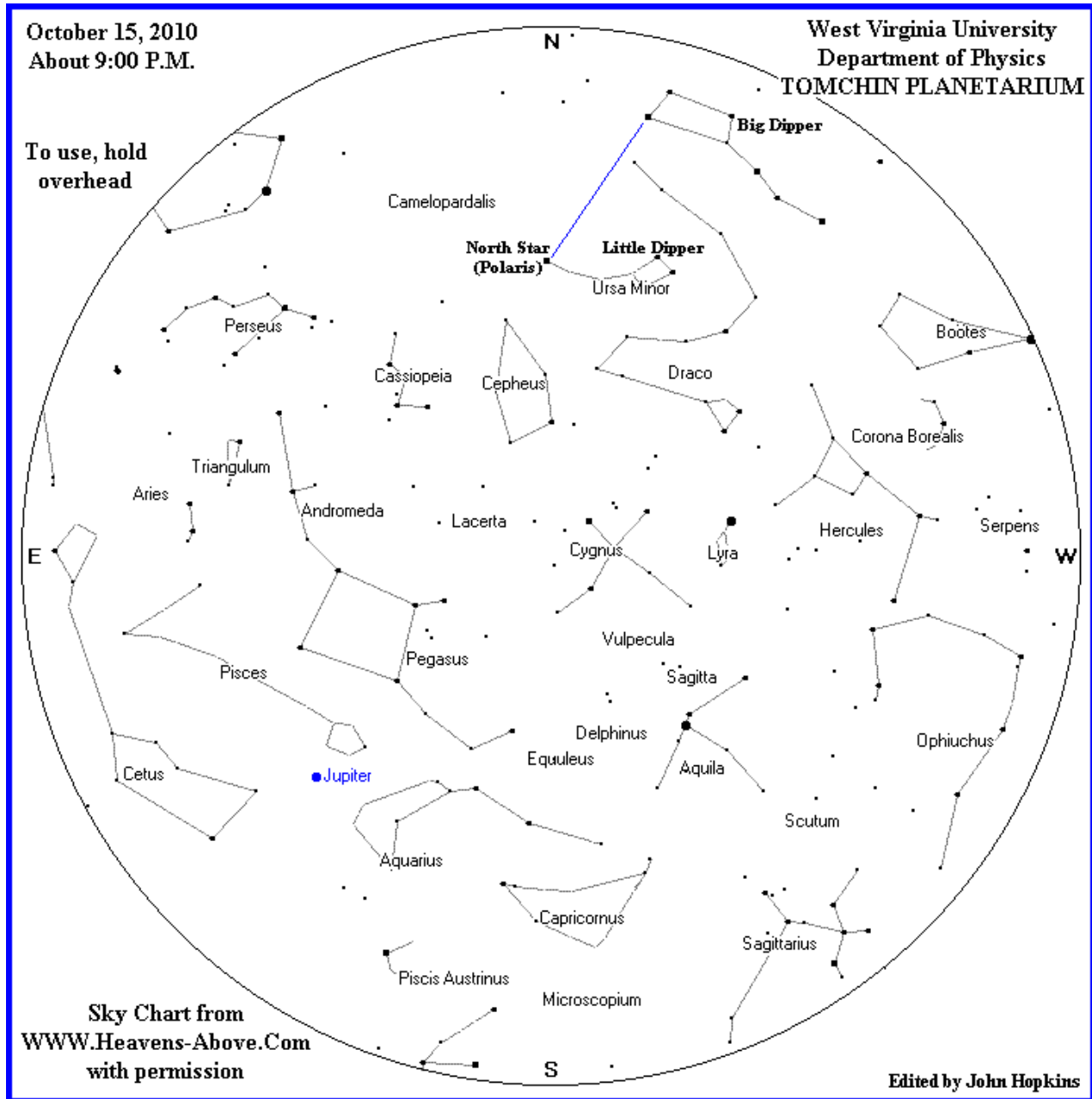
For those who are interested in bringing a group, such as schools or scouts, during the day, please call for more information. These shows are usually given on Tuesday or Thursday mornings.

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

Selected Sunrise/Sunset and Moon Rise/Moon Set Times (2010)

Date	Sunrise	Sunset	Moon Rise	Moon Set	Moon Phase
Oct 7	7:21 A.M.	6:54 P.M.	7:11 A.M.	6:29 P.M.	New Moon
Oct 14	7:28 A.M.	6:43 P.M.	2:26 P.M.	NA	First Qtr
Oct 22	7:36 A.M.	6:31 P.M.	6:00 P.M.	7:14 A.M.	Full Moon
Oct 30	7:45 A.M.	6:21 P.M.	12:01 A.M.	2:21 P.M.	Last Qtr
Nov 5	7:51 A.M.	6:14 P.M.	7:15 A.M.	5:36 P.M.	New Moon
Nov 13	7:01 A.M.	5:06 P.M.	12:57 P.M.	NA	First Qtr
Nov 21	7:10 A.M.	5:00 P.M.	4:50 P.M.	7:10 A.M.	Full Moon
Nov 28	7:17 A.M.	4:57 P.M.	NA	12:26 P.M.	Last Qtr
Dec 5	7:24 A.M.	4:55 P.M.	7:24 A.M.	4:51 P.M.	New Moon
Dec 13	7:31 A.M.	4:55 P.M.	12:11 P.M.	NA	First Qtr
Dec 21	7:36 A.M.	4:58 P.M.	5:30 P.M.	7:52 A.M.	Full Moon
Dec 27	7:39 A.M.	5:01 P.M.	NA	11:29 A.M.	Last Qtr

October, 2010 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 Planetarium Project at the WVU Foundation, Inc., phone (304)284-4000. Thank You.



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