From the Editor’s Desk

Once again it is time for the most famous of all meteor showers, \textbf{The Leonids}, so called because they emanate from the constellation \textbf{Leo, the Lion}. Although not as spectacular as last year, it will still be worth looking for in the ENE sky after sunset. Although the shower extends from November 14 through 21, its maximum will be on November 17 at 9:30 P.M. when up to 100 per hour may be expected. However, where we live, the meteor shower will probably not be visible until after midnight. Look in the ENE for the head of \textbf{Leo, the Lion}. You can expect the Moon to obscure fainter meteors. Unfortunately for those of us in the U.S., the favored sites are in Europe, Africa and much of the Near East.

\textbf{In The Sky This Month}

\textbf{Visible Planets in the Night Sky}

\textbf{Beginning of November, 2003}

\begin{center}
\begin{tabular}{|l|l|l|l|l|}
\hline
Const & Rise & Transit & Set & Mag \\
\hline
Sun & 6:46 & 12:03 & 17:22 & - 26.8 \\
Mercury & Lib & 7:13 & 12:21 & 17:33 & - 1.0 \\
Mars & Aqr & 14:48 & 20:17 & 1:47 & - 1.2 \\
Jupiter & Leo & 2:04 & 8:34 & 15:08 & - 1.9 \\
Saturn & Gem & 21:08 & 4:32 & 11:56 & 2.1 \\
\hline
\end{tabular}
\end{center}

\textbf{Middle of November, 2003}

\begin{center}
\begin{tabular}{|l|l|l|l|l|}
\hline
Const & Rise & Transit & Set & Mag \\
\hline
Sun & 7:01 & 12:04 & 17:08 & - 26.8 \\
Mercury & Sco & 8:12 & 12:54 & 17:40 & - 0.5 \\
Venus & Oph & 9:00 & 13:41 & 18:24 & - 3.9 \\
Mars & Aqr & 14:04 & 19:44 & 1:23 & - 0.8 \\
Jupiter & Leo & 1:19 & 7:47 & 14:18 & - 2.0 \\
Saturn & Gem & 20:11 & 3:35 & 11:00 & 2.1 \\
\hline
\end{tabular}
\end{center}

\textbf{End of November, 2003}

\begin{center}
\begin{tabular}{|l|l|l|l|l|}
\hline
Const & Rise & Transit & Set & Mag \\
\hline
Sun & 7:18 & 12:08 & 17:00 & - 26.8 \\
Mercury & Sgr & 8:59 & 13:30 & 18:03 & - 0.5 \\
Venus & Sgr & 9:27 & 14:03 & 18:41 & - 3.9 \\
Mars & Aqr & 13:20 & 19:11 & 1:03 & - 0.4 \\
Jupiter & Leo & 0:29 & 6:55 & 13:24 & - 2.0 \\
Saturn & Gem & 19:08 & 2:33 & 9:58 & 2.0 \\
\hline
\end{tabular}
\end{center}

\begin{center}
\begin{tabular}{|l|l|}
\hline
Lib & Libra, The Scales \\
Aqr & Aquarius, The Water Bearer \\
Leo & Leo, The Lion \\
Gem & Gemini, The Twins \\
Sco & Scorpius, The Scorpion \\
Oph & Ophiuchus, The Serpent Holder \\
Sgr & Sagittarius, The Archer \\
\hline
\end{tabular}
\end{center}
About: Total eclipse of the Moon, Saturday, November 8

For those who missed the lunar eclipse on May 6, 2003 due to bad weather, here is an excellent second chance.

On Saturday, November 8, a total eclipse of the Moon will occur. Those of us who live in the eastern United States should, if the weather cooperates, be able to see the entire event, though it will appear to be about 12% smaller than we could have seen on May 6. At totality, which lasts just 24 minutes, from 20:06 to 20:30, expect to see a bright rim along the Moon’s southern edge if atmospheric conditions are just right.

The color of the Moon at totality varies from orange to copper to blood red. It is hard to predict the color beforehand.

<table>
<thead>
<tr>
<th>EVENT</th>
<th>DATE</th>
<th>TIME (EST)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sunset</td>
<td>Nov 8</td>
<td>17:11</td>
</tr>
<tr>
<td>Moonrise</td>
<td>Nov 8</td>
<td>17:05</td>
</tr>
<tr>
<td>Moon enters penumbra</td>
<td>Nov 8</td>
<td>17:15</td>
</tr>
<tr>
<td>Moon enters umbra</td>
<td>Nov 8</td>
<td>18:32</td>
</tr>
<tr>
<td>Moon enters totality</td>
<td>Nov 8</td>
<td>20:06</td>
</tr>
<tr>
<td>Middle of eclipse</td>
<td>Nov 8</td>
<td>20:19</td>
</tr>
<tr>
<td>Moon leaves totality</td>
<td>Nov 8</td>
<td>20:31</td>
</tr>
<tr>
<td>Moon leaves umbra</td>
<td>Nov 8</td>
<td>22:05</td>
</tr>
<tr>
<td>Moon leaves penumbra</td>
<td>Nov 8</td>
<td>23:22</td>
</tr>
<tr>
<td>Moonset</td>
<td>Nov 9</td>
<td>07:27</td>
</tr>
</tbody>
</table>

What is a lunar eclipse? In case you forgot your high school science, a lunar eclipse occurs only when the moon is full and the earth is between it and the Sun.

In a lunar eclipse, since you are not looking directly at the sun, eye protection is not necessary. However, remember for solar eclipses, as you are directly viewing the sun, eye protection is essential to protect your eyes from serious damage. THIS IS NO JOKE.

Lunar (also solar) eclipses reoccur with regularity in cycles called saros cycles. The time between cycles is about 18 years, 11 days, and 8 hours.

This means that you should have a similar lunar eclipse every 18 years, 11 days, and 8 hours. And you do, sort of. From cycle to cycle the Earth-Moon distance is about the same and occurs at the same time of year. However, it does not return to the same geographical spot on Earth. This happens as the result of the 8 hours which adds an additional 120° to the Earth’s rotation each cycle. Therefore, 24 hours is equal to 360° so 8 hours is equal to 120°. Hence, we get a similar eclipse every cycle, but due to geometry, you must wait for 3 cycles to get an exact duplication.

Request for Articles and Photographs
If you have an article or photographs that you would like to submit for publication, please send them to:
John Hopkins
Subject: Submissions
256 Hodges Hall
West Virginia University
Morgantown, WV 26506
Or email to: jhopkins@mail.wvu.edu with “Submission” on the Subject line.
2003 – 2004 Planetarium Shows

November 14 & 21, 2003
Midnight’s Canvas

December 5, 12, & 19, 2003
‘tis The Season

January 9 & 23, 2004
Midnight’s Canvas

February 13 & 27, 2004
Midnight’s Canvas

March 12 & 26, 2004
Midnight’s Canvas

April 9 & 23, 2004
Midnight’s Canvas

May 14 & 28, 2004
Midnight’s Canvas

June 11, 2004
Midnight’s Canvas

July, 2004
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@mail.wvu.edu

Selected Sunrise/Sunset and Moon Rise/Moon Set Times

<table>
<thead>
<tr>
<th>Date</th>
<th>Sunrise</th>
<th>Sunset</th>
<th>Moon Rise</th>
<th>Moon Set</th>
<th>Moon Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nov 8</td>
<td>6:54 A.M.</td>
<td>5:11 P.M.</td>
<td>5:05 P.M.</td>
<td>6:26 A.M.</td>
<td>Full Moon</td>
</tr>
<tr>
<td>Nov 16</td>
<td>7:04 A.M.</td>
<td>5:04 P.M.</td>
<td>11:27 P.M.</td>
<td>1:21 P.M.</td>
<td>Last Qtr</td>
</tr>
<tr>
<td>Nov 23</td>
<td>7:11 A.M.</td>
<td>4:59 P.M.</td>
<td>6:45 A.M.</td>
<td>4:46 P.M.</td>
<td>New Moon</td>
</tr>
<tr>
<td>Nov 30</td>
<td>7:19 A.M.</td>
<td>4:56 P.M.</td>
<td>1:17 P.M.</td>
<td>None</td>
<td>First Qtr</td>
</tr>
</tbody>
</table>
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.

Edited by John Hopkins
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