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John Seaton

The President's Message

"Nothing is great or little otherwise than by comparison"

Jonathan Swift

On August 10th, 1877, the American astronomer Asaph Hall placed himself before the 26 inch refractor at the U S Naval Observatory in Washington DC and made a little history. As fate would have it, he discovered the tiny satellite Phobos circling about the planet Mars. Well, only two days later he spotted the even fainter moon, Demos. These two minor bodies of the solar system were then named after the attendants of the God Aries (Mars to the rest of us folks) : Fear (Phobos) and Terror (Demos). These two very small satellites of the god of war cannot be held to be in the same league as our generously sized moon but they do have the distinction of being noted in print before they were discovered . The English author, Jonathan Swift, wrote about the two companions of Mars in 1726 in his satirical novel Gulliver's Travels, over one hundred and fifty years before Hall's discovery. Needless to say, the discovery of these small orbs is firmly with Mr. Hall.

Phobos and Deimos are very hard objects to identify not only cause they are faint , but also due to the plain lack of distinguishing characteristics. They are points of light in even the largest telescope. A simple calculation of what Phobos looks like from earth under the best viewing conditions tells part of the story of why the discovery remained for the later part of the 19th century. The 23 kilometer (about 10 miles) in diameter mass of Phobos extends less than .05 arc seconds across the sky. This simply means that Phobos will always appear to be a star like point in the sky no matter how much power is applied at the eyepiece.

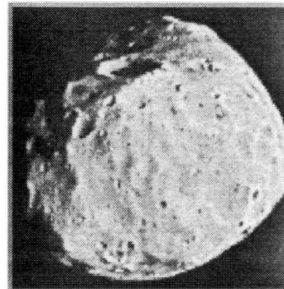
The other reason that the satellites elude the serious observer is the tremendous difference in apparent brightness between Mars and it's moons coupled with the very close separation between the two. Phobos, faintly glimmering at

about 12th magnitude, could be seen in a 6 inch reflector . Unfortunately, being next to a first magnitude planet means that there is about 12 orders of magnitude between the two objects (like the difference between the star Vega and the full Moon). The detection of Phobos therefore comes down to the ability to see a very close faint object next to a very bright disk.

You now have the challenge. Check out this interesting piece of history and check out where your observing technique takes you.

Enjoy

Roy Schmidt



PHOBOS

WHAT'S UP FOR AUGUST

MARS: The God of war rides silently through the constellation of Libra. Already have shrunk to a difficult 9.3 arc seconds in apparent size by the first of the month, this noble vestige of the age of Socrates will suffer the further indignity of having to compete with Jupiter and Saturn for our attention in the coming months. Catch him while you can.

JUPITER: The Jovial one heralds the coming of the new day, trumpeting grandly through out the later half of the night. Extending himself to 43 arcseconds in girth, he always puts on fine show....moons

and all. Look for the king of the planets in Aries.

SATURN: Saturn solemnly trudges the night sky in Aries. The rings are now tilting near their maximum departure from the plane of the Earth for this year (21 degrees). A small telescope will reveal the rings and the disk readily. High power is needed for a glimpse of even the grossest detail on the surface of the ringed one.

PERSEIDS: This delightful annual occurrence will peak on the morning of the 12th. After midnight the apex of origination will rise and with no optical aid (coffee may be an aid but it certainly isn't optical) you can follow the final moments of these visitors from beyond.

Roy Schmidt

Announcements

The star party for August is on the 14th at Angelus Oaks. For directions see your newsletter or call the hot line. Remember that the last part of the road to the heliport is not in the best condition . The last time I was at the helipad the road's final 50 feet were passable but rough. I will try and get the most up to date information and place it on the hot line.

The tour of the Big Bear Solar Observatory is at 2:00 pm on the 15th . You MUST call your president to get a spot on the tour (I need to let them know how many are coming. If you just show up, you probably will not be able to get in..... CALL).

The general meeting will be on the 27th at 7:30 pm. We will meet at Galileo Hall on the campus of Harvey Mudd college.

PVAA EVENTS CALANDAR

Month	Star Party	General Meeting	Board Meeting
August	14	27	6
September	11	24	3
October	9	22	1
November			

Members in Motion



Ron Hoekwater is pictured here getting his telescope out of the car for a quick evening of observing. Contrary to popular belief, Ski Sunrise isn't a bad place for a night's work. It's less than an hour from Alta Loma and ends up on a nice flat parking lot. Provided one can tolerate the glow covering the entire south portion of the sky and the contact with the indigenous life forms (kids) one can enjoy the experience.

Roy Schmidt

**PVAA General Meeting
2 July 1999**

Announcements.

- **July Star Party.** The Star Party will be at Kennedy Meadows. Please prepare for a somewhat longer drive and possible cold temperatures at night--in exchange for wonderful dark skies!
- **Next General Meeting.** The August meeting will be on August 27th--Please note the change to the end of the month. The fault lies in the "Inconstant moon", in Shakespeare's words. We adjust to stay close to the full moon.
- **V-P Materiel.** Our V-P Materiel, Dave Gardner, is on remote assignment at this time, so is unable to attend meetings. Bob Branch will act as substitute V-P Materiel for the remainder of this term (through August).
- **Summer Tour.** Our intrepid president, Roy Schmidt, has arranged for a tour of the Solar Observatory at Big Bear Lake for August 15th. Those who wish to go must be registered with Roy in advance. Get your name in early! Roy has worked on this for about a year!
- **Election.** Our annual election of officers will take place at the August meeting. We still have no name on the ballot for Secretary. If you are willing to take on this important position, please make your desire known, so your name can be written in on the ballot.

What's Up?

Bob Branch points out that Venus and Mercury are both visible at dusk, although Mercury will be, as usual, hard to spot. Mars is still in Virgo. Saturn & Jupiter are in the dawn sky. There is also a comet in the Western twilight.

The summer sky features the Milky Way and our special constellation, Sagittarius. Sagittarius is pictured in one of the Egyptian tomb, so it was recognized as a constellation quite early. There are many M-objects in and around Sagittarius, especially globular clusters. Your use of the Telrad to find objects is easier, if you use

geometry. Use locating stars that form a triangle or that describing a line pointing to the desired object. Interesting side-note: One M-object that never got an NGC designation is M25 (IC4725). Use a wide-field eye-piece or binoculars to look at this object, the Sagittarius star-field--it is too big for most telescope fields of view.

Speaker of the Evening.

Chris Clark, a member of the San Bernardino Astronomy Club, is a planetary specialist. Chris works at the college, Cal State San Bernardino. His subject: Mars.

Most people are interested in Mars, because of past speculations about life on the planet, as well as fascinating fictional accounts. The Italian astronomer, Schiaparelli, made drawings of his views of Mars, showing dark blotches connected with straight lines, which he dubbed "Canali"--Italian for "Channels". (Note that these events took place before astrophotography was developed). The American amateur astronomer, Percival Lowell, chose to take the word "Canali" to mean "Canals", and set out to convince the world that Mars was inhabited by intelligent beings. He built an outstanding observatory on "Mars Hill" in Arizona, and spent the rest of his life observing and writing about Mars.

Mars was also the center of the investigation of planetary motion by Tycho Brahe and Johannes Kepler. One of the reasons for the interest is that Mars has a very obvious "retrograde loop"--an optical phenomenon that occurs because the earth is traveling more rapidly in its orbit than Mars, on an inside track, so when the earth passes Mars, Mars appears to be moving backwards. This retrograde phenomenon was at the heart of difficulties with the Ptolemaic astronomy for 1100 years, until finally resolved by the Copernican revolution and Kepler's work.

Are there, or were there, really Martians on Mars? We still don't know for sure. The recent publicity over "microfossils" found in a meteorite of Martian origin indicates that at least a tiny, primitive form of life existed on Mars at the time this meteorite was blasted into orbit, several million years ago. These fossils, however, are only 1/100 to 1/1000 the size of a typical earthly bacteria. But then, who's to say

that life forms on Mars couldn't be different from those we know? It's that uncertainty that fuels the interest in the continuing exploration of Mars by NASA. Part of the confusion about Mars stems from the fact that the shifting sands tend to change the outlines of the dark areas. Mars is about 4,000 miles in diameter, compared with 8,000 for the earth. Our moon has 16% of the gravity of earth; Mars has 40%. The low level of gravity is blamed for the escape of most of the atmosphere of Mars. The axial tilt is 24 degrees, compared to 22 1/2 for earth. The pole star for Mars is Deneb.

Mariner probes in the 60's didn't help very much; their imaging equipment was too poor. Recent landings, however, especially, the recent robot explorer, have dispelled most of the fantasy about Mars. None the less, some people still persist in seeing a "Happy face" on Mars, or perhaps an image of Christ (whatever HE looked like), or perhaps, Elvis.

The Viking missions showed the dry, river-like channels, indicating a good possibility that Mars once had significant amounts of water (considered essential for life). With the lack of water and the thin atmosphere, the dryness and heavy ultraviolet radiation both indicate very little possibility of life there today.

Mars Pathfinder and the associated mapping orbiter have shown that if the ice caps were melted, they would release enough water to cover Mars to a depth of 30 feet. However, the atmosphere is very dry. However, the many dry channels, especially the Mariner Vallis (3,000 miles long and 16 miles deep) indicate there was once ample water there--or some other liquid(?). Olympus Mons is the largest volcano in the Solar System. It is a great shield volcano, 16 miles high, with a shield that would cover a sizable part of Texas. There is, in fact, a rich field of volcanoes on Mars, the size of several states in the USA.

Seeing from earth is typically poor. We don't see a great deal of detail, even with the largest telescopes. Sometimes a global dust storm will blot out the entire surface. As an amateur, you never know what you will see; the image quality changes quickly. The Hubbell telescope provides good, clear image, but nothing

compared to the close-up clarity of the orbiters and landers. We can expect continuing improvement in the images and information coming from the continuing series of Mars explorations by NASA--eventually expected to lead to a manned exploration

Patrick Nicholson

PVAA Officers and Board

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PVAA HOTLINE

Get the latest on the star party, club meetings, special events and astronomy happenings.
Call **909-985-1684**

PVAA WEBSITE

We are located at:
<http://www.cyberg8t.com/patrick/PVAA.htm>

Final Note

Our newsletter looks a little different this month. Our editor has been in the hands of the medical profession this month and was unable to get the newsletter out. We wish him a speedy recovery.