

# THE FOCAL POINT

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## CLUB CALENDAR

**Next Meeting:** September 16, 8:00 p.m. at Bradley Observatory.  
**Program:** Astronomer Edward Albin from Fernbank Science Center will present a talk on Mars. Mr. Albin is a specialist in planetary geology and has done extensive work concerning the geology of Mars.

**Editor:** ..... Steve Gilbreath  
**Contributing Editors:** ..... Hal Crawford, Richard Jakiel, Mark Lancaster

The **Focal Point** is published monthly during the academic year by the Atlanta Astronomy Club, Inc. The AAC is a non-profit organization dedicated to the advancement of amateur astronomy. Meetings are held the third Friday of each month (except the second Friday in December) at the Bradley Observatory on the Agnes Scott campus. Dues are \$25 annually for a single membership and \$30 for a family membership and include a subscription to *Sky & Telescope* magazine and use of club observatory in Villa Rica.

**Submissions:** Article submissions are welcome, and may be delivered to the editor for consideration. Articles on computer floppy disk are encouraged.

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## THE PRESIDENT'S SOAPBOX

by Leonard Abbey

For our club, Fall is the time of new beginnings and renewal. January is too cold for that sort of thing. This year, our forty-first, begins with a completely new slate of officers (almost), and is the most marked change in staffing which we have seen in recent years.

Your officers for 1988-1989 are:

First Vice-President (Program Chairman): Bill Bagnuolo. Bill is

the first professional to hold this position in decades, and has access to speakers which others are not aware of. We are expecting great programs this year!

**Second Vice-President (Observing Chairman):** Rich Jakiel. Rich is new to Atlanta, but not to observing. Coming to us from Buffalo, he has spent more hours at the eyepiece than most of us have spent in movie theaters.

**Recording Secretary:** Eugenia Abbey. Eugenia has been around for a few years, and has held several offices before. She has the distinction of being one of only two people who met their spouses through the AAC.

**Corresponding Secretary:** Steve Gilbreath. Steve has been a club member for several years, and is frequently seen out at the Villa Rica Observatory. He is representative of the young fresh talent the Club has been drawing in recent years.

**Treasurer:** Bud Rosser. Bud needs no introduction, he has held the post of Treasurer for several years, and has done his job well. As usual, his reward is more of the same!

**President:** Leonard Abbey. Leonard has been around for a few years too. He joined the Club in 1951, at a tender age. He has the distinction of being one of only two people who met their spouses through the AAC.

So you see, our lineup for the coming year is indeed stellar. Our programs promise to be fascinating, and we will be placing increased emphasis on observing, both at our regular outings at Villa Rica, and after our meetings. Mark the third Friday night of each month on your calendar. You will not want to miss one.

## DESTINATION: MARS

by Hal Crawford

"Such wonderful discoveries have already been made that it is not too much to say that perhaps someday we may be able to establish some sort of communication with Mars, and if it be inhabited by any intelligent beings, we may be able to signal to them; but it is almost impossible that any contrivance could bridge the gulf of airless space that separates us...."

-- The Children's Book of Stars, 1907

This month, Mars will appear closer to the Earth than it has in the last seventeen years. During this time, every astronomy enthusiast will have the best opportunity to see and enjoy the Red Planet, named after the God of War. At closest approach, Mars will be only 36 million miles away - a good third closer than

when the planets will be at aphelic opposition in 1995. What this means is that any visual observer with a 4-inch or larger telescope will be able to observe details not easily discernable at any other time.

Details such as atmospheric conditions, the south polar ice cap, vast dust storms and numerous Martian landscape features should be clearly visible during the months of August, September and October. During this period, Mars will be at least 20 arcseconds in size and at its peak will shine at a magnitude of -2.8 (3 1/2 times brighter than Sirius). This means that you won't have to go to Villa Rica to see it! On September 22, the Red Planet will appear closer to earth than anytime since 1971; you will have to wait until 2003 for an apparition with viewing conditions that can beat this year's close approach.

With a telescope, however, observing should be nothing short of spectacular. In a 4-inch telescope, the following should be visible: large surface features, bright clouds, limb brightenings (which occur when there's a lot of haze in the atmosphere), large dust storms, expansion or shrinking of the polar ice caps, and "violet clearing" that occurs when the Martian atmosphere becomes unusually clear to UV light. In a 6 to 10-inch telescope, you can follow the Martian features listed above in much greater detail, and over a longer period of time. In a telescope of 12 inches or more, high-resolution photographs can be made, in addition to subtle changes in color and detail of surface features and clouds. The planet should be clearly visible in the sky and free of the "horizon murk" by 10:30 pm.

Mars is very similar to the Earth in a number of ways. It rotates once on its axis in 24 hours, 37 minutes, and 17 seconds. The planet's axis is tilted at almost the same angle as Earth, producing seasons analogous to ours. No radiation belt has been detected, but a very weak magnetic field appears to exist with an intensity of about 2 percent of Earth's. Several volcanic craters dot the planet, although there is no volcanic activity today. The largest crater, Olympus Mons, is well over 500 km across and about 25 km high.

The planet's atmosphere is mostly carbon dioxide -- at a pressure less than one percent of Earth's. On a hot day on Mars, the soil temperature may reach 70 degrees F, but the thin atmosphere never gets that warm. The temperature varies between 32 degrees F at the equator to less than 180 degrees F below zero at the poles. At such low temperatures, the atmosphere itself freezes, forming the polar ice caps. Winds of up to 200 miles per hour are prevalent on the planet, but in the thin atmosphere, no explorer would be buffeted by them.

Mars has two moons, Phobos ("Terror" in Greek) and Deimos ("Panic"). These are small satellites in comparison with our moon, Phobos is 27 km and Deimos is 15 km long at their greatest length. Their origin is still unknown, however shape and composition suggest that Mars captured them from the asteroid belt. Phobos is gradually moving closer to Mars, while Deimos is slowly moving away. Some 30 to 70 million years from

now, Phobos will create a new large crater on the planet.

Several probes have toured the planet. Mariner 4 first visited the planet in 1965, followed by Mariners 6 and 7 in 1969. The Soviet probes, Mars 2 and 3, launched in 1971, and Mars 4, 5, 6 and 7, launched in 1973, were designed to place a satellite in Martian orbit and deposit a lander on the surface; but technical difficulties clouded mission plans. Closeup photographs were finally revealed by Mariner 9 in 1971, followed soon after by the Viking missions, which in addition to providing a thorough map of the planet also deposited landers on the surface during 1976. The U.S.S.R. has launched a probe to study Phobos, it is expected to reach the moon in April, 1989.

One concern of some planetary observers is the chance that dust storms on the planet will obscure visibility of most landscape features. Martian dust storms can erupt at any time of the of the Martian year in either hemisphere, but historically the most spectacular storms occur around the time of the southern hemisphere's summer solstice, which this year is on September 11. As Mars nears the Sun, the increased warmth melts the ice cap, which allows the planet to absorb more heat. This heat generates powerful convective winds which whip huge quantities of dust and sand two or three miles into the atmosphere.

Although these storms can wreck havoc among observers looking for pertinent landscape details, they can also provide an exciting and challenging opportunity to witness the development and life cycle of these storms. The use of a yellow filter will help brighten dust clouds, and orange and red filters will help to delineate the cloud boundaries.

The Association of Lunar and Planetary Observers (ALPO) is asking all amateur astronomers during the next few months to log all observations of Mars. Logging includes preparing a sketch of Mars, which should consist of the terminator (the arc dividing the bright and dark sides of the planet), the polar caps, and as much feature detail as can be described. ALPO suggests drawing a standard circle size of 42mm in diameter, since this will represent the 4200 mile diameter size of the planet. A night of observing Mars should consist of an 8 1/2" by 11" report with up to three 42mm Mars at the top of the form and all observing data listed below. They would like interested observers to contribute visual observations and color slides to:

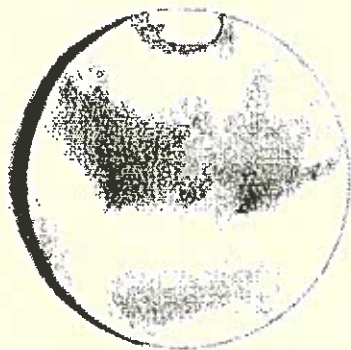
ALPO Mars Recorders  
Box 97-0469  
Miami, FL. 33197-0469

The Mars Section of ALPO also produces a newsletter, the "Martian Chronicle," which active observers can receive by sending eight self-addressed-stamped-envelopes to the above address.

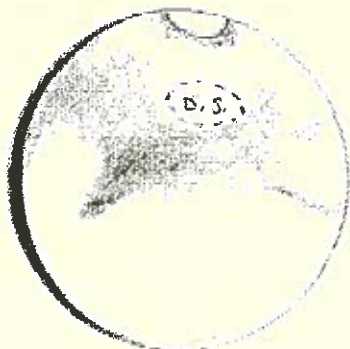
**OBSERVER'S CORNER**

by Richard Jakiel

Summer's brilliant skies are cluttered with spectacular deep sky sights. Many of the most interesting planetary nebula are located in this area of the sky. Perhaps the most familiar and easily located object of this class is M57, or the ring nebula in Lyra. Shining at 9.0 magnitude, and measuring 85 by 62 arc seconds it is easily visible in very small telescopes. The annular structure is visible in a 3 inch refractor, while in much larger telescopes such as the club's 20 inch reflector, faint filamentary structure can be seen surrounding the main mass. The central star is quite difficult to see, and usually requiring at least a 12.5



(1)



(3)

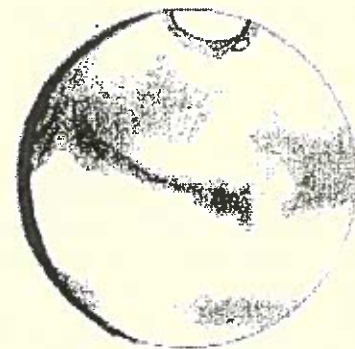
inch scope, although I have seen it with a 10 inch scope during a stretch of excellent seeing using high magnification.

About 10 degrees southeast lies M27 (NGC 6853), a huge bright planetary measuring 480 x 240 arc seconds, or about 30X larger than the Ring nebula. A 8 to 10 inch scope will reveal a bright central mass that vaguely suggests a "dumb-bell" (hence the popular name), along with fainter curved arcs enclosing dark regions. A 13.2 magnitude central star is clearly visible with this sized aperture, along with a half dozen stars strewn across the surface.

A relatively unknown but spectacular planetary/emission nebula is NGC 6302 in Scorpius. Using the club's 20 inch scope, this nebula consists of a bright central "bar" (10th magnitude) measuring about 25 to 30 arc seconds across, with bright jets and streamers emanating from the poles. As a result of its general

appearance, this nebula has been given popular names such as the "bug" or "bipolar" nebula. Another bright nebula, NGC 6878, is located quite close to the faint irregular galaxy, NGC 6822, also known as Barnard's Galaxy. In a medium sized scope it appears as a bright nearly uniform disc nearly 20 arc seconds across with a greenish hue.

Summer skies are not particularly known for their galaxies, but several large and fairly bright ones are visible even quite close to the milky way. NGC 6384 is a fairly large, bright galaxy (10.8 magnitude) located in Ophiuchus. In the 20 inch scope, I saw a bright nuclear hub with traces of two highly inclined spiral arms. Much more spectacular in a large telescope is NGC 6946 near the Cygnus-Cepheus border. Four spiral arms were clearly



(2)

**Mars - 1988 10 inch f/6 at Villa Rica**

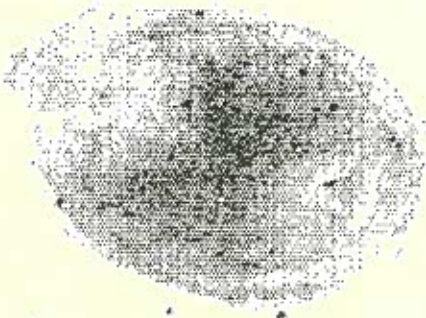
(1)	8/13/88 CM=36.5 degrees seeing=9	18.9" diameter 338x
(2)	8/14/88 CM=321 degrees seeing=7	19" diameter 338x, 435x
(3)	8/18/88 CM=303 degree seeing=4	20" diameter 338x

CM - Central Meridian  
DS - Dust storm observed in Hellas



Ring Nebula, M57

visible in this nearby Se spiral, and this galaxy has a remarkable similarity to M33 in a 8 to 12 inch telescope.



Dumb-bell Nebula, M27 (NGC 6853)

During the weekend of the Perseid meteor shower (August 12-13), skies of exceptional steadiness and transparency prevailed. Rick Clark and I observed exquisite planetary detail on both Mars and Saturn. Seeing was so steady that it was hard not to see Encke's division and subtle shadings on Saturn. Mars displayed a wealth of albedo markings, along with dust storms (in Hellas) and the break-up and subsequent shrinkage of the south polar areas. If you observe Mars during the next several months please submit copies to this column for future publication.

### THE 1988 PERSEID METEOR SHOWER - RENAMED

by Mark Lancaster

On the morning of August 13, 1988 Steve Gilbreath and I trekked to the dark skies outside of Buford, Ga. in order to view the spectacle of the years best meteor shower - The Perseids. Though the Perseids had peaked some 24 hours earlier, the only showers we would have viewed on the morning of the 12th would have sent us home wet. However, on the night of the 12th the skies were as clear as they get this time of year. Seeing and transparency were both magnificent. We anticipated the meteor shower with memories of the 1978 shower (or was it 1977?), when similar moonless skies unveiled a splendid count averaging 175 meteors/hour. Shortly after 1 a.m. we were situated and saw our first meteor. Within 10 minutes we had counted 12 meteors - not a bad pace at all. However, this was all of the excitement we would get all night as the "meteor shower" dwindled to average a mere 32 meteors/hour. Disappointed, but glad we endured, we journeyed home, having coined a new name for the event - "The 1988 Perseid Meteor Sprinkle."

### CLASSIFIED ADS

For Sale: Celestron Super C-8 Plus; star bright coating; heavy duty tripod; two eyepieces; \$1000

Contact: Mike Tuttle  
P.O. Box 45127  
Atlanta, Ga. 30320  
351-7239

For Sale: Back issues of Sky and Telescope donated by Emily Boland; issues range from 1970-1987; \$1 each; money will go to the club.

Contact: Lee Wilson  
872-8534

## THE FOCAL POINT

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