

THE FOCAL POINT

Vol. I, No. VI

The Newsletter of the Atlanta Astronomy Club

February 1989

TABLE OF CONTENTS

A Deep Sky Observer Looks At Mars	1
The President's Soapbox	2
The Casual Astronomer: February 1989	2

CLUB CALENDAR

Next Meeting: February 17, 8:00 p.m. at Bradley Observatory.
Program: Amy Lovell of Agnes Scott College will present a paper entitled "V794 Sagatarii: An RV Tauri Star With Unequal Maxima."

Editor: Steve Gilbreath
Contributing Editors: Dr. Ralph Buice, 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.

Duplication: Permission is granted to duplicate and redistribute in a nonprofit manner, in part or in whole, provided proper credit is made to this publication, club, and the authors.

OFFICER'S PHONE NUMBERS

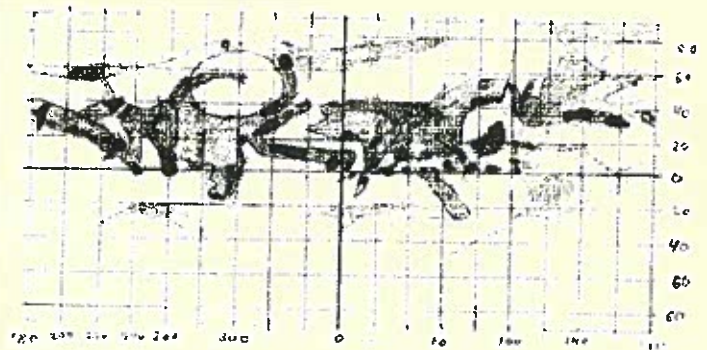
Leonard Abbey	<i>President</i>	634-1222
Bill Bagnuolo	<i>Program Chrm</i>	498-5451
Richard Jakiel	<i>Observing Chrm</i>	473-9873
Eugenia Abbey	<i>Recording Sec</i>	634-1222
Steve Gilbreath	<i>Corresponding Sec</i>	634-7466
Bud Rosser	<i>Treasurer</i>	879-0304

A DEEP SKY OBSERVER LOOKS AT MARS

by Bill Snell

The recent close approach of Mars was a prime opportunity for all astronomers, even deep-sky enthusiasts, to try planetary observing. Not only did the planet show a considerable amount of detail but it presented challenges which differ from those of deep-sky work.

Memorable views awaited those making frequent observations of the planet. For example, the "separation" of the ice-capped mountain known as Novus Mons from the shrinking south polar cap illustrated the progress of Martian seasons. In the region around Solis Lacus, often called the Eye of Mars, at least one volcano (Arsia Mons) was visible in modest sized telescopes as was a faint, elongated feature containing darker knots (possibly Valles Marineris). To the east, in the Mare



Erythraeum region, an overwhelming amount of detail could be glimpsed during moments of fine seeing on September 23rd, and drawing even a fraction of it was extremely difficult. Along the equator several small dark oases would shimmer into view only to disappear a split second later.

Though Martian weather proved to be mostly sunny, the blue-white north polar hood, limb hazes and a few clouds were visible. Dust storms covered a few limited areas, such as Hellas, but there was no planet-wide simoom [dust storm] during the months of close approach.

The apparition of 1990, though not as spectacular, will certainly be worth watching. The disc of the planet will appear larger than 17 arc seconds from late October through early December and the planet will be at high declination as well. Practice sketching Jupiter, Saturn and small lunar features this year in order to be prepared.

When viewing fine planetary detail the limiting factor will most often be the atmospheric seeing. Tranquil moments are rare and one must be prepared to take full advantage of them. Allow the telescope to cool off for up to an hour before judging the atmospheric conditions. Also, conditions can improve markedly over a short period so that patience is often rewarded.

Do not stop down a telescope during bad seeing since this ultimately results in a less detailed though perhaps more pleasing image. When the atmosphere steadies you want to be observing with as large an aperture as possible anyway. Only if the optics are poor will stopping down really improve the image. A similar rule applies to magnification; low power hides the effects of bad seeing but wastes rare stable moments. Besides high magnifications impress neighbors who stop by to look!



9/21/88 00:40 EDT
CM=358 Diam=23.7



9/23/88 04:20 EDT
CM=34 Diam=23.7

Sketches should be made during all but the worst nights. Draw every feature that you can see and then strive to see even finer detail originally overlooked. By doing so your skills will continually improve and you will be ready when conditions are excellent. Do not stare at the disc but instead look at various parts in turn and also pay attention to the contrast between the limb and the adjacent sky since any darkening here signals an improvement in the seeing.

Observing a planet through a telescope is an experience that is unlike looking at maps and spacecraft images.

THE PRESIDENT'S SOAPBOX

by Leonard Abbey

Any astronomy club, but especially one as large and old as ours, is an fantastic collection of resources for its members. Our most valuable resource however, is not our telescopes, or our free subscriptions. It is our people. We have astronomers, both amateur and professional, who can answer almost any question imaginable.

But sometimes we tend to take this largesse for granted. Knowing that expert assistance is available, we tend to forget how lucky we are to have it around.

At our January meeting, we recognized two of our most important resources. They are Anna Belle and Bill Close. Anna Belle and Bill were present on that fabled night in 1947 when our club was founded, and they have been to almost all of its meetings since. This alone is an amazing record. But that is not all. They have (jointly and severally, as the lawyers would say) held every office and performed every job which this club has to offer. And in their "spare" time they have not hesitated to assist and encourage anyone who might need their special talents.

In appreciation of these services, and in anticipation of many more to come, the membership has elected Anna Belle and Bill Honorary Life Members of our club. If you see them at the next meeting, (and I know they will be there!) make it a point to thank them for their contribution to astronomy in Atlanta.

THE CASUAL ASTRONOMER: FEBRUARY 1989

by Hal Crawford

The Politics of Light Pollution

If you're involved in observing at all, you have probably been affected by light pollution -- the gradual obscurement of the heavens by city and otherwise unnatural lights. The poor neophyte who has driven into the Villa Rica observatory area with his lights on now knows what doom awaits him. Unfortunately, there's not a lot astronomers can do about the lights of Atlanta.

Probably the most frustrating aspect of light pollution is that it is not primarily an environmental problem, but a political one. After all, unlike water pollution, it is not a health hazard (although it may certainly cause mental problems with most astronomers!). If you're not concerned with astronomy, it's certainly not ugly to look at, like littering or city dumps. The problems come when you call up a city, county or state representative, and try to get them to recognize a growing problem that they likely have never bothered to notice before.

Most astronomers today are likely to shrug off the problem, just as stagecoach drivers recognized their ultimate decline

when railroads took over the American West. But it's not right to surrender our children to the fact that they'll never be able to see the Milky Way without driving six hours to some otherwise forsaken spot.

Solutions are not only simple, but in most cases, they save money, and ergo taxpayer's dollars. Shields around light fixtures would direct light where it is needed, not into space. Signs should be lit **downward**, instead of upward into the skies. Encouraging the Department of Transportation and municipal governments to light the roads and highways with Low Pressure Sodium (LPS) lighting. LPS lights not only use less energy than the standard Mercury Vapor or High Pressure Sodium lamps, but they emit a narrow light wavelength that can be readily filtered out by astronomers.

The solutions are there, the problem now is getting the public and the governments to take notice. You can write to your representatives, and inform them about how you feel about light pollution and how it impacts you as an astronomer. Most politicians have no idea what light pollution is in the first place. Tell them what it is, and the solutions discussed above.

The Atlanta Astronomy Club does have a Light Pollution Committee, headed by Tom Buchanan. Tom has done a lot of fieldwork getting ideas and people together in the fight against light pollution. The current focus of the committee is on the proposed light tower, a 138-foot monstrosity to stand over the site of the nearly-renovated Underground Atlanta.

According to an article in the Atlanta Constitution, the \$100,000 light tower will have 92 upward pointing lights, which will be covered with various colored gels. Four oscillating search lights of 2,000 watts each will create a "random cloverleaf pattern in the sky," according to Joseph G. Martin, Jr., president of the Underground Festival Development Co.

Tom has been passing out petitions to increase public awareness of the project, and to develop a strong opposition to this threat to observational astronomy. "It will certainly be adverse to astronomy for several miles, including the observatories of Fernbank, Bradley, and Ga State. I would love to nominate the light tower for the 'worst light polluter award.'" The searchlights "would make the sky an uneven brightness, making it difficult for photometric work...spectrography would be more difficult or even impossible."

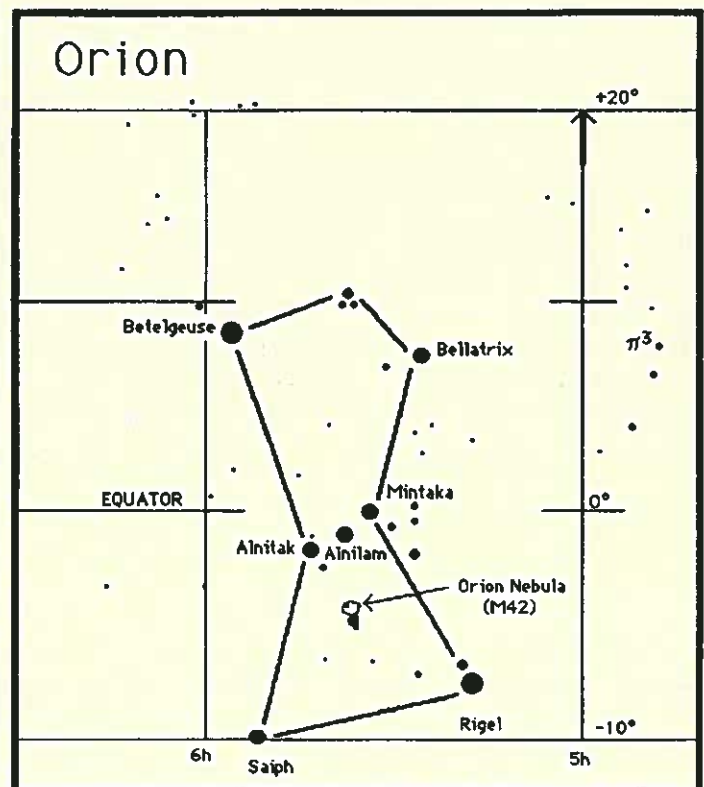
AAC members are encouraged to help out -- see Tom at the next meeting or call him at home at 587-0774 to see what you can do.

There is also an active organization dedicated to preserving dark skies -- The International Dark-Sky Association. Run by Dr. David Crawford (no relation), the IDA keeps members informed on all fronts on a local, national and international basis. Membership is only \$20 a year, although contributions are extremely welcome (donations and memberships are tax deductible). Astronomers who want to get more involved should contact the IDA at the following address:

International Dark-Sky Association
3545 N. Stewart
Tucson, AZ 85716

An Introduction to Orion

Orion is easily the most recognizable constellation in the sky. Visible evenings in the winter months, its wonders would probably take up a good portion of a book. Since our intrepid and long-suffering editor refused to give me permission to add the requisite pages to the Focal Point, this month, I'm only going to give what I would call an introduction to the constellation, and perhaps go over visually less-apparent details in another column.



Orion sits across the celestial equator. Most observers look for the three stars of the belt, in the southern region of the sky in the winter months. The brilliant stars of the constellation are features of a section of a nearby Milky Way spiral arm, sometimes described as the Orion spur. These bright stars range in distance from 800 to 2000 light-years.

Orion's name is believed to come from the word Uru-anna, meaning "The Light of Heaven." The folklore behind Orion is quite involved, with varying accounts of his life and eventual demise. In all accounts, however, he was a skillful and handsome

hunter, and was in love with the goddess Athena. After his death, she placed him in the heavens, and thoughtfully positioned a charging Bull named Taurus nearby to relieve him of boredom.

Although Betelgeuse (BET-el-jooz) is designated Alpha Orionis, it is the 2nd brightest star in Orion. To give you some idea of its position in the constellation, its name literally means "Armpit of the Central One." The class M2 star has a reddish glow, and can vary in magnitude from 0.4 to 1.3 over a period of 6.4 years. This is primarily because as a supergiant star, its size changes in size by about 20 percent over that period.

Betelgeuse is a BIG star -- it is easily 700 times larger than our sun (try comparing a B-B shot with a basketball) and lies 650 light-years away. Were it not for the Earth's atmosphere, most of the largest telescopes would actually be able to resolve the stellar disk. In 1975, however, computers at Kitt Peak were used to analyze photographs made with the 159-inch Mayall reflector and an image intensifier, producing a visual image of the gigantic star. The image revealed details of a mottled and cloudy surface, caused by subsurface convection and attenuated by its weak gravitational pull.

Rigel (RYE-jel) actually holds the title as the brightest star in the constellation, although its Latin form is Beta Orionis. 800 light years away, it is a bright blue-white (class B8) star located in the "lower right" area of Orion. Not surprisingly, the name means "Left Foot" (or "Left Leg", depending on what you read). Like Betelgeuse, it is a supergiant, and will likely explode into a supernova as the nuclear fires burn off.

The three stars that make up Orion's belt, from left to right,

are Alnitak (al-nih-TAK), Alnilam (al-NIGH-lam) and Mintaka (min-TAK-ah). These three stars only look close together, because they are actually 1500, 1600, and 800 light-years away, respectively. But they have always been associated together in folklore, as the Three Kings, the Three-jointed Arrow, the Scale, or Weighing Beam, and even the "Tavern"! Even the bible, Job 38:31, reads: "And the Lord answered Job out of the storm and said, '...canst thou...unfasten the Sash of Orion?'"

Note that the star pi-3 has been singled out on the map. Shining at magnitude 3.2, it is only 26 light-years away, and very similar in makeup to our own sun.

There are several nebulas and clusters visible in Orion -- but the most famous (and readily visible) is the Great Orion Nebula, located below Orion's belt. To the naked eye, M42 appears as a hazy patch, but even in small binoculars it can be fairly distinct. A neighboring companion is M43, which lies to the northeast. Gazing through a small telescope, M42 looks like a fan, with M43 as a handle to that fan. Using a larger telescope will reveal greater detail as dark obscuration lanes and intricate feathery structures come into view.

At the heart of the Orion Nebula is the Trapezium, or Theta-1 Orionis. 1600 light-years away, its four brightest stars form a distinctive rectangle. However, more than 300 stars are known to surround the Trapezium, making this one of the most distinctive star clusters in the winter sky.

Details on stars, clusters, and other nebulas (including the Horsehead) will have to wait for another issue. Until then, see you on the third Friday!

THE FOCAL POINT

Article submissions and address corrections to:
Steve Gilbreath, Editor
1410-C Druid Valley Dr.
Atlanta, Ga. 30329

AAC membership renewals to:
Bud Rosser, Treasurer
5198 Avanti Court
Stone Mountain, Ga. 30088



KA
W. Tom Buchanan
105 Carriage Station Circle
Roswell, GA. 30075