



# The Night Sky

The Newsletter of  
The Astronomy Club of Akron

www.acorn.net/aca

Volume 24 Number 5

May 2002

## May is Membership Renewal Month



### MEETING THIS MONTH

Friday May 24 8pm  
Speaker: Jay Svitko

Jay is a relative new member of the ACA, but has enjoyed astronomy since he was 8 years old. He will talk about the Messier Marathon over the next couple of meetings. This meeting will focus on the first half of the night. He will finish the marathon during the fall meetings.

There will be no meetings in June, July or August.

### MAY IS DUES RENEWEL MONTH

To remain a member in good standing Renew your dues now for the 2002/2003 membership year. Send them to:

THE ASTRONOMY CLUB of  
AKRON  
128 Sage Ave.  
Akron, OH 44301-2029

Please make all checks payable to: The Astronomy Club of Akron



### Firestone Summer Concert Series

During the summer, the Summit County Metro Parks system will be holding a concert series at the Firestone Metro Park.

The ACA will have a booth, at each concert, to promote the club. The time will be from 6:30 pm through 8:30 pm. The dates are June 27, July 18 and August 15.

This will be a good opportunity to promote the club and listen to some good music.

More information will follow.



### A May Night in the Southern Hemisphere

By Paul M. Bujak

We left Port Elizabeth just after sunset on a clear, late-autumn evening. It looked promising for a night under the stars, well away from the lights of the city. Bill and Melanie Harrison, my newfound friends, had promised to show me the night sky of South Africa from a dark site.

Port Elizabeth is a city on the southeast corner of South Africa, on the shores of Algoa Bay. The streetlights of the city brighten the night sky as thoroughly as do the lights of Akron or Cleveland. Fortunately, the city ends rather abruptly so as we proceeded northward, we soon left the lights behind and climbed into the farming areas past the nearby city of Uitenhage.

As Bill quickly motored northward, I looked out the passenger-side window - South Africans drive on the left side of the road - at Orion slowly setting. He was sinking headfirst toward the horizon but all his stars were clearly visible. I knew that it was going to be a good observing night.

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## Activities Calendar

### Club

May 24, Monthly Meeting  
June 1, Telescope Seminar  
June 15, Observatory Program  
July 6, Observatory Program  
July 20, Observatory Solar Program

### Celestial

May 26, Full Moon  
June 10, 20% Solar Eclipse  
June 12 Moon 2 Deg. N. of Jupiter  
June 13 Moon 1.5 Deg. N. of Venus

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The deadline for article submission is **two weeks before the next meeting**. All word processing files should be saved in straight ASCII text files or any version of Word to minimize import problems. We will not turn away **any** submission, as long as the article's subject is astronomy or a related topic. If you don't have access to a computer, don't hesitate to write something out long hand. As long as it is legible, I will slave over the keyboard and get it published.

**PLEASE SEND IN YOUR ARTICLES!!!!**

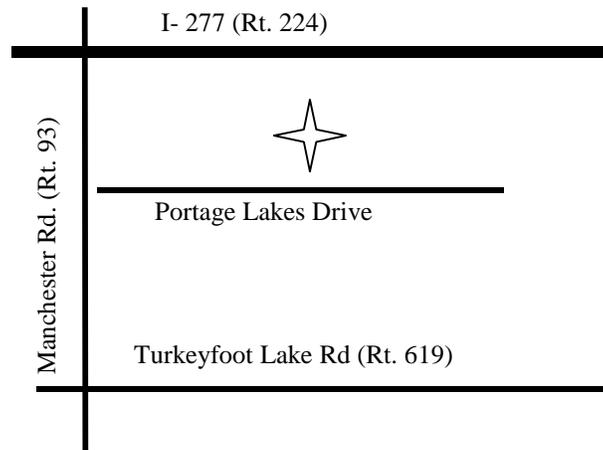
**The newsletter (and the club) will be much richer with your contribution. Thanks to all who have used their valuable time to author or collect material for the Night Sky. (Editor)**

Send your articles, items for sale, and comments to:

**Ray Hyer, 725 Brewer St. Akron, OH 44305** Email: [rhyer@neo.rr.com](mailto:rhyer@neo.rr.com)

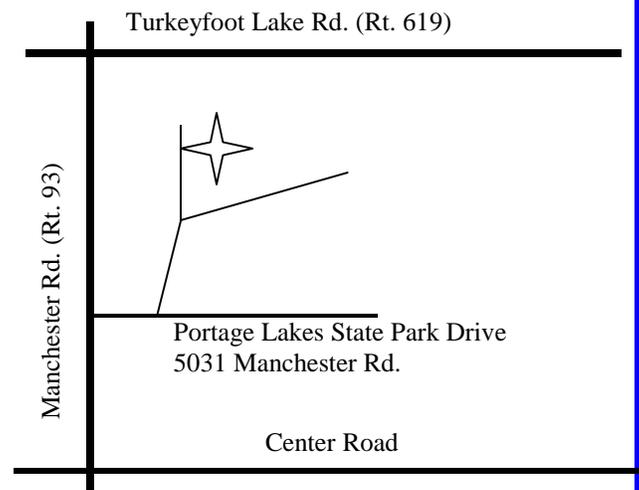
### MONTHLY MEETING LOCATION:

The Astronomy Club of Akron meets at 8:00 PM at the Kiwanis Hall, 725 Portage Lakes Drive.



### OBSERVATORY LOCATION:

The ACA Observatory is located within the Portage Lakes State Park on Manchester Rd. (Rt. 93). Turn left off Manchester Rd, then left at the first drive. Observatory is across the street from the Park Office.





## Jupiter Satellites

FOR IMMEDIATE RELEASE:  
May 16, 2002

UH Astronomers Announce Discovery of 11 New Satellites of Jupiter

### Summary

University of Hawaii astronomers announce the discovery of 11 new satellites of Jupiter. These new satellites, when added to the eleven discovered the previous year by the Hawaii team, bring the total of known Jupiter satellites to 39. This is more than any other planet.

### Discoveries

The new satellites were discovered during mid-December of 2001 by a team led by Scott S. Sheppard and David Jewitt from the University of Hawaii's Institute for Astronomy and including Jan Kleyna of Cambridge University, England. They used the Canada-France-Hawaii (3.6 meter) telescope with one of the largest digital imaging cameras in the world, the "12K", to obtain sensitive images of a wide area around Jupiter.

The digital images were processed using high speed computers and then searched with an efficient computer algorithm. Candidate satellites were monitored in the succeeding months at the University of Hawaii 2.2-meter telescope to confirm their orbits and to reject closer asteroids masquerading as satellites. Orbits of the new satellites were fitted by both Robert Jacobson at the NASA Jet Propulsion Laboratory and Brian Marsden at

the Minor Planet Center. The satellites were formally announced by the International Astronomical Union on Circular No. 7900 (May 16, 2002).

### Properties

The 11 new objects all belong to the so-called "irregular satellite" class, meaning that they have large semi-major axes, eccentricities and inclinations. All are retrograde (they orbit in the direction opposite to the rotation of the planet), and possess similar semi-major axes (about 300 Jupiter radii or 20 million km). The estimated diameters are between about 2 and 4 kilometers, assuming a 4% albedo. As yet, nothing is known about their surface properties, compositions or densities, but they are presumed to be rocky objects like the asteroids.

The new discoveries bring the known total of Jupiter satellites to 39, of which 31 are irregulars. (The 8 regular satellites include 4 large objects discovered by Galileo and 4 small objects on circular orbits interior to that of Io). Jupiter's nearest rival for having the largest number of known satellites is Saturn, with 30 (of which 13 are irregular).

### Significance

The large, elongated and inclined orbits of the irregular satellites strongly suggest an origin by capture. Since no efficient contemporary capture mechanisms are known, it is likely that the irregular satellites were acquired when Jupiter was young, possibly still in the process of condensing down to its equilib-

rium size.

The precise mechanism of capture remains unidentified but there are two leading theories for the capture process. In the gas drag hypothesis, passing asteroids are slowed by friction with proto-Jupiter's bloated atmosphere. Those which do not burn up in the atmosphere like meteors are trapped in looping orbits like those of the new satellites. In the mass growth hypothesis, the rapid growth of Jupiter leads to capture of nearby, co-moving planetesimals.

Both processes would have operated in the first million years of the solar system.

The irregular satellites are grouped into distinct dynamical families or clusters. This suggests that individual satellites are pieces of a few precursor bodies that have been shattered. The disruptions occurred either during the process of capture or possibly after capture due to collisions with Jupiter-crossing comets. Future measurements of the size distribution, surface properties and orbits of the satellites will help determine how they formed.

The Institute for Astronomy at the University of Hawaii conducts research into galaxies, cosmology, stars, planets, and the Sun. Its faculty and staff are also involved in astronomy education, deep space missions, and in the development and management of the observatories on Haleakala and Mauna Kea. Refer to <http://www.ifa.hawaii.edu/> for more information about the Institute.



## ETHER DRAG

By Jeff Hudson

An ongoing series of sky events, launches and anything else I see fit to write about.

As you know, the Leonid meteor shower happens every year in mid-November. The Leonid meteors come from the debris field of the comet Tempel-Tuttle.

Last year, the Earth plowed head-on through this field and we were treated to a full fledged meteor storm. Experts have just released their predictions for this year. The meteor rates for 2002 may equal or exceed the 2001 rates. The predicted peak time for our area is 5:30am on November 19th, 2002 and as a bonus we will have a full moon! It should not be that bad, because at that time in the morning Leo will be in the East and the moon will be setting in the West.

I expect quite another good display this year. I am sure we will hear more about the Leonids as the date gets closer, just something to keep in mind.

May 30 is the next scheduled launch of the Space Shuttle, this will be mission, STS-111.

In case you did not know the STS, in STS-111, stands for Space Transportation System. While I am on the topic, the term Space Shuttle actually refers to the three main components: the orbiter, the external fuel tank and the two solid rocket boosters.

This mission will be the 14th shuttle mission to visit the International Space Station. During the mission, the crew will per-

form three space walks to complete the installation of the Canadian Robotic Arm. This component will allow the arm to travel along the station's truss. Also, a new crew will be delivered the space station.

You can get the details at <http://spaceflight.nasa.gov/shuttle/>

In 1972, a probe was launched to the outer planets. The probe was designed to last 21 months, the time it took to get to Jupiter. Now 30 years later, the probe is nearly 7 billion miles from Earth and still sending back data. The probe's name is Pioneer 10.

I read that Pioneer 10's funding was formally ended in 1997 but control has continued under the Lunar Prospector program. This was the program that deliberately crashed a lunar probe into the Earth's moon in an effort to verify the existence of water. But, the Lunar Prospector program will end this fall and other programs will continue to check in on Pioneer 10 on a "voluntary basis."

Makes you wonder where that plaque, with the drawings of a human male and female, will end up.

This is so cool. NASA, the IMAX Corporation and Lockheed Martin, has created the first-ever three-dimension (3D) IMAX space film.

The film gives an insider's look at what's taking place in the building of the International Space Station (ISS). The movie was filmed over three different shuttle flights between December 1998 and July 2001. They had one camera aboard the ISS

and one camera bolted within the cargo bay of a space shuttle.

Over 80 theaters worldwide have signed up to show the film, sadly there are no theatres signed-up in Ohio. You can get the details at <http://www.imax.com/spacestation/>

Aristotle proposed a finite, spherical universe, with the earth at its center. The central region is made up of four elements: earth, air, fire, and water and the heavens are made of a fifth, and different element, called ether. A superior element, ether is incapable of any change other than change of place in a circular movement.

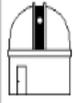
In Aristotle's world, the heavens are made of unearthy matter, ether or quintessence and are not capable of or susceptible to change.

Aristotle's theory held until Galileo Galilei turned his hand-made spyglass device on the Moon in 1609. Galileo reported that the moon had craters and mountains. He showed by mapping the Pleiades, Praesepe (you may know this as M44 or the Beehive cluster), and parts of Orion, that more stars existed than can be seen with the naked eye.

He observed that Venus had a cycle which could not be explained by its rotation around the Earth, but could be explained by both the Earth's and Venus's rotations around the sun.

Finally, Galileo discovered the existence of four "stars" orbiting Jupiter. In a quick span of time, Galileo showed that the sun, and not the Earth, was the center of universe and that the universe was capable and sus  
(Continued on Page 4)





## A May Night in the Southern Hemisphere

(Continued from Page 1)

We stopped at a now-closed road side “quick-stop” store to eat the take-out fish and chips that Bill and Melanie had so thoughtfully brought along. It was quite windy and cold so we ate quickly in the car. The fish and chips, calamari rings, breaded prawns and cole slaw quickly satisfied our hunger and we eagerly continued our journey.

We turned onto a dirt road when we were about 75 km from Uitenhage and then branched off onto even smaller dirt track leading ... somewhere. We drove along a game fence that didn't seem to hinder the kudu we saw jumping over the fence to avoid our headlights. We scared up a few owls, too, which flew away with rapid strokes of great wings. I supposed we had flushed them from their dinners and, having just had a full meal, felt rather sad at disturbing them.

Finally, Bill decided we had driven far enough and pulled to the side of the road. We got out and gazed in awe at the Milky Way arcing from east to west above us. So many stars! What constellations were we seeing? Scorpius was upside down as was Bootes. It was as if I had landed on the other side of the Galaxy; nothing looked familiar. It was time for a look at *Sky & Telescope's* Southern Hemisphere Sky Map and my trusty *Collins Gem Guide – The Night Sky*.

A star-hop from Sirius to Canopus led to the Large Magellanic Cloud. It was easy to see it was a galaxy – it didn't move like a water vapor cloud. The Tarantula Nebula, 30 Doradus, glowed brightly. I remember that, 14 years ago, I had viewed Sn 1987a, in all its dying glory, from this same country.

Continuing along the same line, I found the Small Magellanic Cloud. Slightly east of the SMC was 47 Tucanae; the second best globular cluster, after  $\omega$ -Centauri. A huge collection of stars was visible in my binoculars. I wished I had brought my telescope.

Where was  $\omega$ -Cen? Luckily all I had to do was follow the meridian from 47 Tuc straight up to the finest globular cluster in Earth's sky. It was almost lost in the jumble of clusters and Milky Way star clouds. But it was impressive! I could only imagine what it must be like to be on a planet orbiting a star in the cluster. How bright was that sky, filled with stars? Our sun would only be a dim speck on a far-away arm of the Galaxy.

Now that I was visiting the constellation of Centaurus, it was time to find Alpha and Beta Centauri. Our closest neighbors were bright beacons leading me to Crux, the Southern Cross. With the Cross almost overhead and the Coalsack Nebula snuggled within its arms, I thought of mariners, long ago sailing the southern seas, wondering at that dark patch near the cross. The Jewel Box cluster was a bright concentration of stars, which, unfortunately, showed no colors in my binoculars. I guessed I was seeing only the diamonds.

To the east, Scorpius was crawling upward toward the zenith. Antares looked like just another red star compared with nearby, brilliant Mars. Globular clusters, like M4, and open clusters M6 and M7 near the tail, presented a rich variety of stellar associations. It was truly amazing how rich the southern sky is. To one accustomed to our hemisphere, the vast wealth of stars visible to southern astronomers is almost unbelievable.

By now the wind had thoroughly

chilled us so we sadly decided to call it a night. We were shaking so much we could not keep our binoculars steady. Bill said there would be other nights. I certainly hoped so.

We drove swiftly back to Port Elizabeth, mindful of the kudu at the side of the road. Soon we were back in the lights of the city. Only Mars, Antares,  $\alpha$ - and  $\beta$ -Centauri and a few other stars were visible to the naked eye. No matter! I had all the wonders of a really dark May sky in South Africa etched in my memory. I'll be back, I told myself.

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(Ether Drag, Cont.)  
ceptible to change.

Galileo carefully recorded what he saw through his telescope. Without a visual recording he would have had a difficult time publishing his findings in 1610.

Nearly 400 years later, I use my own 8" reflector telescope to reveal more of the heavens than Galileo could ever have imagined. I can look at the same moon he looked at and map the same constellations he did.

I started becoming a serious amateur astronomer a couple of years ago and one thing I have failed to do in keep an observing logbook. The best I have done, is a list of objects with tick marks next to the observed ones. Instead, I want to have an "observing diary". Having my observing logbook will help to show others what this hobby is all about.

If you have any tips and hints on maintaining a logbook, please email them to the club's email list.