The Warren Astronomical Society Paper
P.O. Box 1505
Warren, Michigan 48090-1505
www.boonhill.net/was

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The WASP (Warren Astronomical Society Paper) is the official monthly publication of the Society. Each new issue of the WASP is mailed to each member and/or available online www.boonhill.net/was. Requests by other Astronomy clubs to receive the WASP, and all other correspondence should be addressed to the editor, Cliff Jones, email: cliffordj@ameritech.net

Articles for inclusion in the WASP are strongly encouraged and should be submitted to the editor on or before the first of each month. Any format of submission is accepted, however the easiest forms for this editor to use are plain text files. Most popular graphics formats are acceptable. Materials can be submitted either in printed form in person or via US Mail, or preferably, electronically via direct modem connection or email to the editor.

Disclaimer: The articles presented herein represent the opinions of the authors and are not necessarily the opinions of the WAS or the editor. The WASP reserves the right to deny publication of any submission.

Astro Chatter
by Larry Kalinowski

Believe it or not, it's happened! Just as many of us suspected, we're back in the space race again. Our president won't admit it but the Chinese have given our leaders the incentive to colonize the Moon. Let's face it, Americans don't want to be second. With all the know-how we've accumulated from our landings there before, we have a good chance of waving hello to the Chinese as they descend to the Moon's surface. And that's not all. Bush has set our eyes on Mars too. He's not about to let John Kennedy steal his thunder in the history books. Bush has promised to increase NASA's budget by five percent each year to accomplish a permanent colony on the Moon and a visit to Mars. The total estimated cost is $100 billion. Is it enough? We certainly will see. One of your children will be setting their feet on Mars in the not too distant future.

It looks as though the first sample of comet dust will be returned to Earth because our Stardust space probe has finally reached its goal of meeting with the periodic comet Wild 2 (pronounced Vilt 2). One of the first photographs (Fig. 1) of the nucleus is shown below. The photo was taken from about 149 miles, as it approached the comet. As it passed by the comet, moving through the halo of vapor and dust that surrounds the nucleus, it captured a few

Fig. 1 - Comet Vild 2
grains of the material being sublimated (melted), by the Sun, around the nucleus. The craft was cruising at 13,650 MPH when it passed, taking 72 black and white close-ups. The cometary dust, contained in a canister, will be dropped to the surface of the Earth in Utah, during January, 2006.

Japan tried recently, even the UK but they both failed. The ever popular landing on the surface of Mars was successful for the USA. A triumph of technology on our part. It's true, we've failed before but we've succeeded too, something the other countries can't brag about. Pictured on another page is the vehicle (Fig. 3) that will probe the surface of the planet. Six wheels will provide the mobility, along with a dual head camera to send back stereo pictures in both color and black and white. The rover also contains a soil and rock analysis device to scrape surface crud from rocks to better analyze the material. Just how the rover was eased down to the surface of the planet is depicted in the drawing (fig. 2) by NASA personnel.

The first 360 degree picture taken by the rover's camera is shown in fig 4. Another 360 degree picture was taken in stereo but I didn't put it in the article because color is required for viewing with stereo glasses.

Fig. 5 shows Spirit examining a boulder that was near the landing site. The rover contains an arm that after extended, is able to bring forth special tools for scraping, drilling and microscopic analysis.

As of January 25, Spirit has yet to be brought back to full operation on the surface of Mars but hope still abounds at The JPL. With "Opportunity" knocking on the other side of the planet, getting ready to show off its capability, all eyes are waiting for further pictures from Mar's other side.

The FIRST RIDER'S - FAAC ASTRONOMY SWAP SHOP was a success. About fifteen tables were loaded with goodies in the "Kroger" shopping center near Five Mile and Merriman. All kinds of astronomically related software, hardware, optics and reading material was available at great low prices, all day long, from 8 to 3pm on January 25th. I made an easy $50, after expenses and Bob Watt's optical warehouse did even better. Marty Kunz acquired a great buy on a Starliner equatorial mount, All thought it would be nice to have it even twice a year, in mid Spring and mid Fall. Outside it was 20 degrees but inside all were quite toasty.

Last January 16, the countdown began on the Hubble Space Telescope. President Bush signed the death warrant for destruction. Any future repair trips to the Hubble have been canceled. No more repair trips mean the telescope will slowly fall apart, with scientific returns decreasing until it no longer can earn its right to remain in orbit. How much time remains? That's anybody's guess. Each section of the instrument will cease to function until it can no longer sustain itself. Then a fiery death becomes its funeral pyre. Alas, poor Hubble, I knew it well.

Astronomers have found an extremely large group of galaxies that formed much earlier in the life of the known universe than was believed possible. Povilas Polunas, who leads a team of astronomers at the University Of Texas, says this group of objects contains 37 galaxies and a quasar, all aligned to form a structure 300 light years long and 50 light years wide. Located about 10.8 light years away, it was formed at a point when the universe was only 20 percent of its present, calculated age.

Just as quickly as Nancy Rowe became our new treasurer, she now must abdicate her position to take on a new job in North Carolina, were she'll be teaching science in a middle school. We're going to miss you Nancy, hope you keep in touch.

Our speakers for February will be Norman Dillard and Bob Johnson. Norm, our 1st vice president, plans to talk about the ten brightest stars in the sky, on February 2, at the Cranbrook meeting. Bob, is speaking on binocular repair and collimation at the MCCC meeting on February 19.

By the time you read this, a computer, donated by Cranbrook, will be placed in position at our observatory. It's a Pentium 3 that runs about four or five times faster than our old Pentium 1. However, because of the cold temperatures, please don't operate the system until spring when the temps start getting into the sixties, otherwise damage may result to the hard drive.

(M13 by Phil Martin)
Descent to Mars

The spacecraft Spirit burst through the Martian atmosphere at 11:29 p.m. Eastern time on Saturday and landed on the surface six minutes later.

ENTRY INTO ATMOSPHERE
73 miles from surface
6 minutes from landing

PARACHUTE DEPLOYED
5.3 miles 2 minutes

HEAT SHIELD SEPARATED
93 seconds

LANDER SEPARATED
83 seconds

GROUND RADAR DATA RECEIVED
1.5 miles 35 seconds

THREE GROUND IMAGES RECEIVED
1.2 miles 30 seconds
1.1 miles 26 seconds
0.9 miles 22 seconds

CONTACTING EARTH
During the entry and landing, Spirit sent a medley of radio frequencies coded to report landing status.

AIREAGS DEPLOYED
932 feet 8 seconds

ROCKETS FIRED TO SLOW CRAFT
440 feet 6 seconds

TETHER CUT
33 feet 3 seconds

LANDING
Bounced about 12 times and rolled up to two-thirds of a mile before stopping.

Sources: NASA, Cornell University

The New York Times

Fig. 2 - Artist's view of Spirit's decent to the surface of Mars.

Fig. 3 - Sprit on a simulated Mars.

Fig. 4 - First view from Spirit's 360 degree panoramic camera.

Fig. 5 - First rock examination.
THE SWAPSHOP

This column is for those who are interested in buying, trading or selling items. Call 586-766-720, (cometman@mybluelight.com) if you want to put an item for sale or trade in this section of the WASP. The ad will run for six months. The month and year, the ad will be removed, is also shown.

WANTED. Used, five inch Maksutov or Schmidt-Cass. Contact Mike Best at 734-459-2378 or starmikebest@aol.com, (8-04).

FOR SALE. Celestron, 8 in. Schmidt Cassegrain, 9 volt electric drive, PEC (periodic error correction), four speed quartz drive, heavy duty aluminum adjustable tripod, enhanced coatings and carrying trunk. Best offer over $695. Mike Best, starmikebest@aol.com, (8-04).

FOR SALE. Classic 6 in. Criterion RV-6 Dynascope., Newtonian reflector, 110v AC electric drive, aluminum pier with three feet, 6x30 two ring finder and rotating tube. Best offer over $395. starmikebest@aol.com, (8-04).

FOR SALE. Refractor, 3 in., metal tube, 1 ½ in. two ring finder scope, 2 in. tracking erecting eyepiece telescope, Eastman Kodak Aero-Ektar 7.12 in. (178mm) f.l., 5x5, F2.5 camera #EM6294 ($150 estimated value), AC heated dew shield for the 2 in. tracking scope, wood, heavy duty, surveyors tripod, two fitted wooden cases, two boxes of machine equipment tools for telescope construction. No mount. Best offer over $495. starmikebest@aol.com, (8-04).

Raffle results from the Christmas Party

Raffle Items Donor Winners
Red Dot Star Pointer ------ Jim’s Mobile ---- John Rasmussen
“Magnificent Universe” - Larry Kalinowski--- Nancy Green
Celestron Star Charts------Rivers Camera Shop---- Job Watt
PC33c color video camera--Supercircuits-------- Jon Root
Miller Planisphere----------Roger Civic----------Jon Root
“Beautiful Universe”-------Sky Publishing Corp.---------
2004 Calendar------------ “ David Harrington
Starry Nights CD----------- “ ?????????
$25.00 Certificate--------Scope City------ Larry Kalinowski
$25.00 Certificate--------Scope City--- Alan Rothenberg
Eyepiece 10MM--Riders Hobby Madison Hgts---Riyad Matti
Eyepiece 16MM--------------- “ ---------------- Bill Beers
Celestron 10x50 Binocular--“- Livonia-------Ken Crysler
Telrad-----------------------”-- Livonia---Ken Bertin
“Messier Marathon”--------- “ Livonia--Jon Root
Filter “Contrast Booster”----Riders Hobby Shop-- Mat Fogarty
2004 Calendar-------Steve Green-------- Fred Judd Jr
$25.00 Certificate-----Lumicon Corp.------ Larry Kalinowski
$25.00 Certificate-------- “ ----------------- Jim Wynn
Eyepiece SPL 25M----Sky Instruments--Brian Klaus
“Hubble Visions”-----Bob Watt------------- Al McDonald
Welders Glass-------Mike O’ Dowd-------Fred Ghofulpo
Eyepiece 16MM----Ken Bertin------ Ken Crysler
Eyepiece 6MM----Ken Bertin------ Fred Ghofulpo
WAS Coffee Mug------Dave Harrington----- Brian Klaus
Eyepiece 10MM--Dave Harrington Blaine Mc Cullough
“Sky Watching”--Steve Green------------- ?????????
WAS Club Shirt-------------WAS----------- Bob Watt
Stargate Shirt---------------WAS---------------- Bob Watt

Thank You to all the donors.
The 10 beautiful table centerpieces were raffled off.
Bob Watt - Secretary

Minutes Of Meetings
By Bob Watt, Secretary
Cranbrook Meeting 1/5/04

Members In Attendance—45
Visitors---8, Guy Maxim, John Mathews, Bob Zinke & Tracy, Mike Robacker, & Michele Gateley with her husband & brother

Meeting Started At 7:30 PM

Ken Bertin, President, Welcomed one and all to the meeting, introduced the visitors and went over the itinerary for this evening. He went over the details of our party on Dec 18, the raffle added $323.00, a good time was had by everyone.

Norman Dillard, 1st Vice President, introduced the people that will be giving talks in the upcoming meetings. He said the introductions were a way to get to know people, a good move.

Riyad Matti, 2nd vice president gave a report on Stargate, what is going on and what items are in need of attention, he mentioned the new shed for the 22”, he made mentioned of all the other scopes for member use.

Nancy Rowe, treasurer. Nancy has accepted a teaching position in North Carolina so can not take the position of treasurer. We all wish her well and good luck in her new teaching role. She will be missed.
Bob Watt, secretary, being my first day on the job I did not have a report, you will need to read the “Meeting Minutes”.

Norman Dillard introduced our speaker, Ken Mullin. Ken`s talk covered each of the planets, well done.

The meeting ended at 10:05 PM. Ten members went to the Ram`s Horn, much lively discussion ensued.

__________________________________________

MINUTES OF MEETING
By Bob Watt, Secretary
Macomb Meeting 1/15/04

Meeting started at 7:30 PM.
Guests: Bill Kendall and Gary Ross.
Members present: 33.

President Ken Bertin opened with officer introductions: Norman Dillard, 1st VP; Riyad Matti, 2nd VP; Bob Watt, Secretary and our new Treasurer, Jim Shedlowski. Sub Group Chairmen – Special Events, Dave D’Onofrio; Computers – Gary Gathen; Solar – Marty Kunz; Deep Sky – (open) and Viewing – Dennis Schmalzel.

Ken Bertin read from a letter he wrote that is going to be sent to the media. The subject, “Use Robotics and Instruments in Space Instead of Human Beings.” A very lively discussion followed.

Mike O’Dowd showed the CD, “Eyes on Mars,” A very interesting presentation.

Guy Maxim presented his program, “The beginning, the End and Everything In-between.”

The Meeting ended at 10:10 PM.

(Editor’s Note: Guy Maxim, from the Oakland Astronomy Club, wrote an excellent article, “Take it With a Grain of Sault,” which you will find in the November 2003 issue of the WASP.)

UPCOMING WAS EVENTS

<table>
<thead>
<tr>
<th>Month</th>
<th>Date</th>
<th>Time</th>
<th>Location</th>
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<tr>
<td>Feb</td>
<td>Thu. 19</td>
<td>7:30 pm</td>
<td>Macomb Meeting</td>
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<tr>
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<td>Cranbrook Meeting</td>
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<tr>
<td>Jul</td>
<td>Mon 5</td>
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<td>Dec</td>
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<tr>
<td></td>
<td>Thurs 16</td>
<td>7:30 pm</td>
<td>Holiday Awards Banquet</td>
</tr>
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NGC 891 by Phil Martin
February Calendar

Monday, February 2
• 4:00 am: Neptune is in conjunction with the Sun
• 11:00 pm: The Moon passes 4° north of Saturn

Tuesday, January 6
• 7:00 pm: The Moon passes 5° north of Saturn

Friday, February 6
• 3:47 am: Full Moon

Sunday, February 8
• 9:00 am: The Moon passes 3° north of Jupiter

Wednesday, February 11
• 7:00 am: Asteroid Eunomia is at opposition

Friday, February 13
• 8:40 am: Last Quarter Moon

Sunday, February 15
• 4:00 am: Mercury passes 2° south of Neptune

Monday, February 16
• 2:42 am: The Moon is at perigee (228,865 miles from Earth)

Friday, February 20
• 4:18 am: New Moon

Friday, February 21
• 9:00 pm: Uranus is in conjunction with the Sun

Monday, February 23
• 2:00 pm: The moon passes 3° south of Venus

Wednesday, February 25
• 9:00 pm: The Moon passes 0.9° south of Mars

Friday, February 27
• 10:24 pm: First quarter Moon

Saturday, February 28
• 5:44 am: The moon is at apogee (251,195 miles from Earth)


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**NASA Space Place article**

Compliments of Nancy Leon of JPL/NASA

(Editor’s note: For those interested in recent news about the rovers on Mars and the Stardust comet approach, Nancy recommends going to: Blast off to a Mars Adventure" at [http://spaceplace.nasa.gov/mars_rocket.htm](http://spaceplace.nasa.gov/mars_rocket.htm) and, "Tails of Wonder" (Stardust) at [http://spaceplace.nasa.gov/stardust/index.shtml](http://spaceplace.nasa.gov/stardust/index.shtml)

### Flying in Formation

By Patrick L. Barry

You can almost see the tabloid headlines now: "Mid-west farmer spies UFO squadron flying in formation!" "First signs of imminent alien invasion," the subtitle will read.

If only this fictional farmer had been
keeping up with NASA's Space Place column, he would have known better. The string of white dots moving in formation across the pre-dawn sky were satellites, not alien spaceships.

Beginning next year, a series of challenging, high-precision launches will insert four satellites into orbits with just the right altitude, position, and orbital inclination to follow in lock-step behind NASA's Aqua satellite (launched in May 2002). Scientists have dubbed this squadron of satellites the "A-Train." Along with Aqua, the celestial parade will include Cloudsat, CALIPSO, PARASOL, and Aura.

In April 2004, NASA will launch CloudSat, an Earth-observing satellite with unique cloud-measurement abilities. These measurements will fill an important role in our understanding of global climate change, making long-term climate change scenarios more accurate and dependable.

So why bother flying in formation? By passing over the same swath of land within seconds or minutes of each other, the satellites will give scientists snapshots of essentially the same scene using a total of 14 different measuring instruments. CloudSat alone carries only one: a millimeter-wavelength radar sounder. This sounder—the first of its kind put into orbit—lets scientists see a vertical "slice" of the atmosphere that shows clouds, water, and ice between the ground and 30 km altitude, with a vertical resolution of 0.5 km. Even by itself, this instrument would provide an important and unique view of Earth's atmosphere, since the accurate portrayal of clouds is one of the glaring weaknesses with current simulations of climate change.

But this cloud data is even more valuable when combined with measurements from the other satellites in the A-Train—for example, air temperature, trace gases, and radiation into and out of the atmosphere. Scientists can then see connections between, say, temperature and the resulting behavior of clouds. A better understanding of these connections is one of the most sought-after goals of climate research, because changes to global cloud cover would, in turn, have a feedback effect on global temperatures.

The real story of this satellite squadron may not make the tabloid headlines, but at least there's evidence that the imminent threat of climate change is real, which is a lot more than you can say for alien invaders!

Learn more about CloudSat and the A-Train at cloudsat.atmos.colostate.edu. Kids (and grownups) can do interactive cloud picture scrambles and learn "Cloudspeak" (the names of different kinds of clouds) at The Space Place, spaceplace.nasa.gov/cloudsat_puz.htm.

This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.
CloudSat, to be launched in November 2004, will take its place as part of the "A-Train" of satellites flying in formation to take closely timed snapshots of essentially the same scene using a total of 14 different measuring instruments.
If you would like to renew your membership and have not already done so, or if you would like to become a member of the Warren Astronomical Society, please complete the following and submit with the appropriate US funds by Check or Money Order.

<table>
<thead>
<tr>
<th>Membership</th>
<th>Definition</th>
<th>Dues (US Funds)</th>
</tr>
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<tbody>
<tr>
<td>Student</td>
<td>One person under 18 years of age enrolled in grades 1-12</td>
<td>$17.00</td>
</tr>
<tr>
<td>College</td>
<td>One person attending a College or University</td>
<td>$22.00</td>
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<tr>
<td>Sr. Citizen</td>
<td>One person 65 years of age or older</td>
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<tr>
<td>Family</td>
<td>More than one person living at the same address</td>
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<tr>
<td>Individual</td>
<td>One person not fitting a category above</td>
<td>$30.00</td>
</tr>
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Fill in the WAS application and send it to our current Treasurer:

- Nancy Rowe
- c/o Warren Astronomical Society
- P.O. Box 1505
- Warren, Michigan 48090-1505

Warren Astronomical Society
Membership Application

About You:
Name(s): __________________________________
Address: __________________________________
Telephone: __________________________________
E-Mail: ___________________________________

Membership Type:
Individual       $30.00_____  
Family           $37.00_____  
College Student  $22.00_____  
Student          $17.00_____  
Sr. Citizen      $22.00_____  
The society holds meetings on the first Monday and the third Thursday of each month, starting at 7:30 pm.

First Monday meeting:
Cranbrook Institute of Science
1221 North Woodward Avenue
Bloomfield Hills, Michigan

Third Thursday meeting:
Macomb Community College
South Campus, Bldg B, Room 209
14500 Twelve Mile Rd
Warren, Michigan