

ANNOUNCEMENTS!

Hey new members! Have you noticed the "member's profiles" in every issue of the Pulsar? That's how we introduce you to the rest of the IAAA. If you haven't been profiled yet, please send one in. Also, we'd love to see some of your art work, so send that in too. Mail it to Jon Ramer, 5007 Rhine Way, Dayton, OH, 45458. Tell everyone about yourself!

SLOTS STILL OPEN FOR ICELAND!

HEY ALL YOU WORKSHOP FANS! There are still plenty of slots open for a workshop in gorgeous ICELAND. The dates most favored are 28 Aug to 5 Sep 1999 (Sat to Sun). If you are interested in seeing volcanoes, hot springs, geysers, and landscape that makes Mars look like home, then this is the place to go! Drop an e-mail or letter to Kara Szathmàry in your members directory. Do it TODAY!

Web Surfin' Sites to check out :

<http://www.flatoday.com/space/next/sked.htm>
<http://www.dia.org/galleries/amerart/landscape/landscape.html#76.89>
http://www.uniba.sk/~ago_modra/english.htm
<http://near.jhuapl.edu/Education/gallery.html>
<http://www.centrum.is/icerev/daily1.html#vat>
<http://www.marssociety.org/>
<http://www.lpl.arizona.edu/imp/sky/clouds.html>
<http://mpfwww.jpl.nasa.gov/mgs/index.html>
http://www.jpl.nasa.gov/ice_fire
<http://mpfwww.jpl.nasa.gov/mgs/index.html>
<http://www.jach.hawaii.edu/~wsh/press/dustydisks.html>

Satellite answers from page 4:
A: An Iridium communications satellites
B: A Global Positioning Satellite
C: A military infra-red monitoring satellite
from the Defense Support Program.



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IAAA POINTS OF CONTACT

MEMBERSHIPS:

Dale Darby
6001 Moon St. N.E. # 932
Albuquerque, NM 87111-1451
Tel: (1) 505-797-9192
e-mail: Darby0147@aol.com
Annual Subscr: US \$40.00 (or UK
£26.00 to DAH below)
Life membership: \$350/£230

PRESIDENT and UK SUBS:

David A. Hardy
99 Southam Road
Hall Green, B28 0AB, England
Tel: (44) 121 777 1802
Fax: (44) 121 777 2792
e-mail: Dave@hardyart.demon.co.uk

EUROPE VICE PRESIDENT:

Jackie E. Burns
21 Rose Valley Crescent
Stanford le Hope
Essex, SS17 8EH, England
Tel: (44) 01375 403 252
Fax: (44) 01375 404 775
e-mail: 101641.1113@compuserve.com

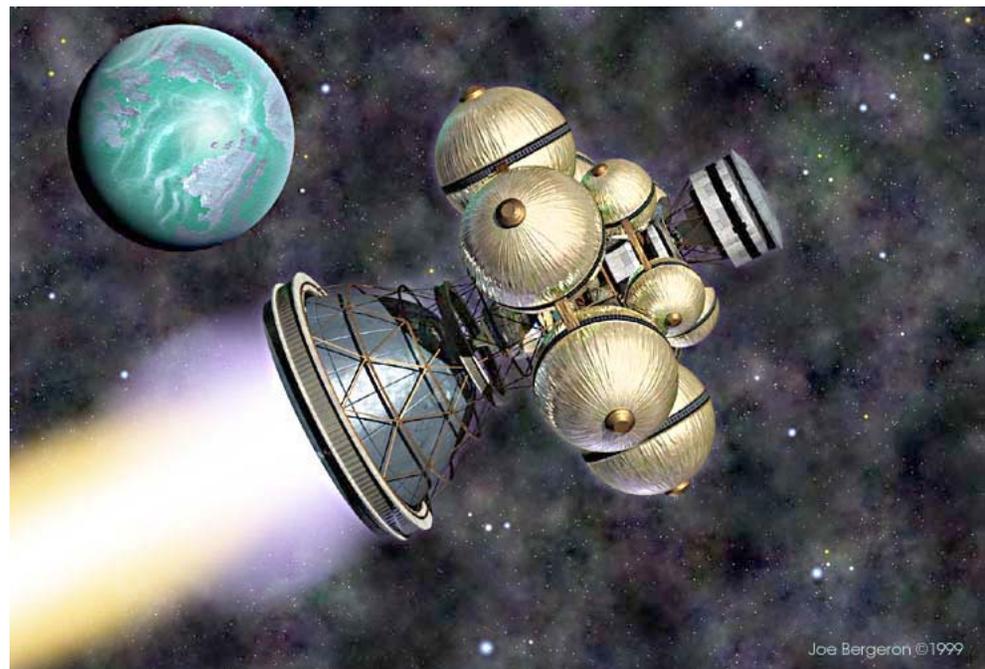


Feb / Mar 99

The Official Newsletter of the



International Association of Astronomical Artists



Joe Bergeron ©1999

Daedalus Starship by Joe Bergeron.

This is a mostly digital image I did for a new astronomy text which has just been published (The Cosmic Perspective, Addison Wesley Longman). The ship is the old British Interplanetary Society design for a fusion-powered unmanned starship. I modeled and rendered it with Strata Studio Pro. The planet in the background was painted on a scrap of watercolor paper for a planetarium show years ago, scanned and added to the scene.

Editor: Jon Ramer

IAAA Website: <http://www.iaaa.org>

IN THIS PULSAR...

Profile: William Stolpin

ANOTHER Workshop Announcement!

Workshops That Changed (my) History

Kudos Korner

Profile: Bill Wright

Gathering Bits of STARDUST

Art Tips -

Profile: Melvin Schuetz

ASTRONOMY Showcase!

Astronomical Feature of the Month -
SEYFERT GALAXIES

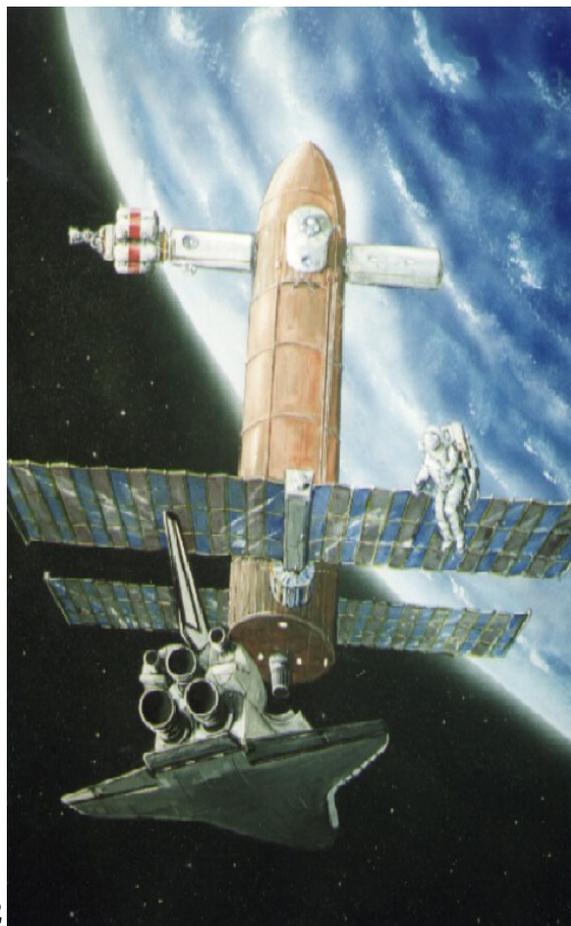
From Jon Ramer

By Michael Carroll

From Gary Harwood

From Daid Hardy

By Jon Ramer



From the Editor-

Hi Gang. This month we talk about hardware and workshops. We've got hardware images from all over too, Earth, Mars, Jupiter, and deep space. Check 'em out! Next time: ALIEN LIFE.

See ya then!

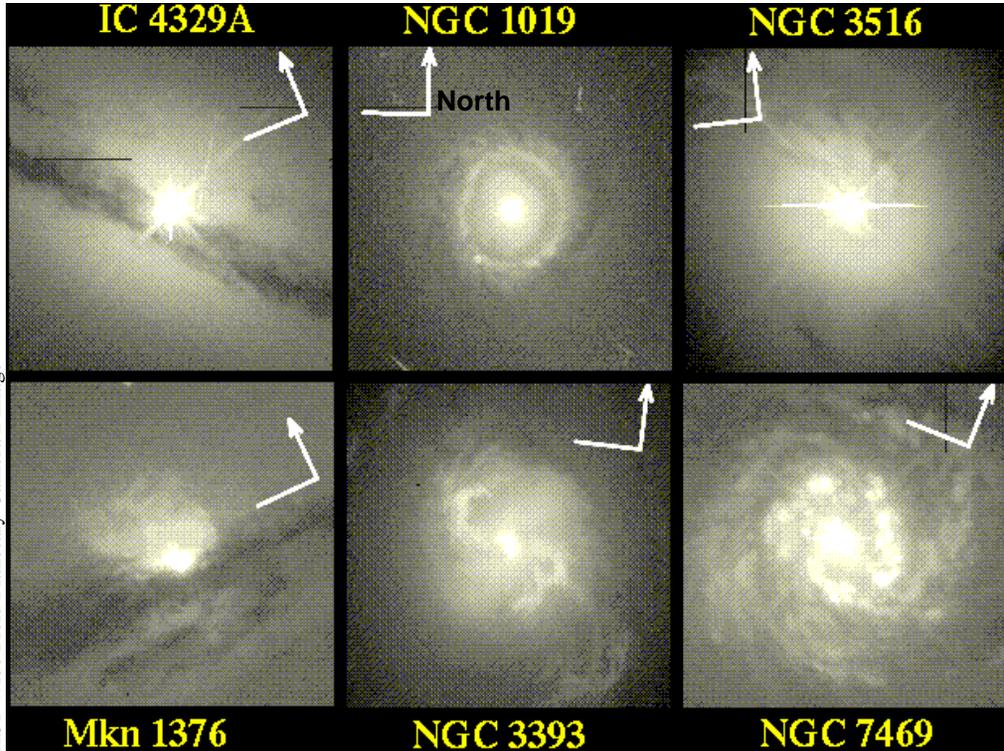
Jon!

ET Station

by Bill Wright

NASA has done studies on possible uses for the external tank instead of letting it burn up over the Indian Ocean. One idea was to boost it the rest of the way into orbit and use it as the center module for a space station.

HST Wide Field Planetary Camera 2 image



Astronomical

-- SEYFERT --

Feature of the Month : -- GALAXIES --

They are the most powerful members of the galactic "zoo" - Seyfert galaxies. Seyferts are spiral galaxies with unusually bright, star like cores that fluctuate in brightness. Most are powerful sources of infrared radiation, though some emit intensely in the radio, X ray, and gamma ray regimes too. Around 2% of all spiral galaxies are Seyfert galaxies. Some astronomers believe the heart of our own Milky Way galaxy contains a supermassive (although quiet) black hole. They even suggest that all spirals erupt now and then. We may be living in what was once (or will one day be) a Seyfert galaxy!

There are two kinds of Seyfert galaxies, Type I and Type II. Both types have emission spectral lines in their nuclei, which is evidence of highly excited gas. The difference arises in the shape of the emission lines. The lines of Type I Seyferts are very broad, suggesting gas velocities of over 1000 km/sec. The emission lines of Type II Seyferts are much narrower, which suggests that the gas in these galaxies is moving much more slowly.

These differences could be explained by our viewing angle. Some astronomers believe we are viewing Type I Seyferts nearly straight into the jets where we would expect to see broad lines because the gas is very hot and moving rapidly. Type II Seyferts are viewed through the accretion disk. The disk blocks the light from the central black hole and the jet. The light we see comes from slower-moving gas farther from the black hole and, thus, produces a narrower spectral line.

The point though is that a Seyfert galaxy has huge jets of excited gas shooting from the core, which has all the makings for an excellent painting... 11

ASTRONOMY SHOWCASE!

The art is in and the selections made. We can now tell you that ASTRONOMY Gallery of IAAA Art should appear in the April issue, and will feature all or some of the following artwork, as chosen by their editors:

'Pluto' by Ron Miller

'Neighbors' by David Hardy

'Mars Global Surveyor' by Jackie Burns

'Legacy' by Lynette Cook

'Across the Sea' by April Faires

'Nova' by Michael Carroll

'Sunset from Neptune's Spot' by Sally Benusen

Well done to everyone! We had a huge number of submissions - just the kind of turnout the IAAA should have! We'll try to post all the submissions to a web page for everyone to view - stay tuned....

Dave Hardy, President

Jupiter Probe by Michael Böheme

The Galileo Probe parachutes into the Jovian atmosphere, gently falling between cloud formations the size of continents.



Profile: William Stolpin

Bill Stolpin was born in Flint Michigan in 1942 and grew up in both Wisconsin and Michigan. He earned his Bachelors of Mechanical Engineering degree from GMI Engineering and Management Institute and an Associate of Arts degree from the Charles S. Mott Community College in Flint. He studied lithography with Emil Weddige and Robert A. Nelson, both internationally known lithographers. He has continued his education both formally and informally, at Eastern Michigan University (Ypsilanti), the University of Michigan (Flint), the Cranbrook Academy, the Sun Valley Center for Arts and Humanities and the Flint Institute of Arts. Retired as Product Assurance Manager for the Service Technology Group of General Motors, Bill is also the resident artist for the Robert T. Longway Planetarium in Flint, Michigan.

Stolpin generally works in a 'small edition' printmaking environment focusing on screen printing, but has developed a love for various relief and intaglio processes as well. He was brought up in a many-faceted environment with an engineer/sculptor for a father and composer/stockbroker for a mother. This may account for the variety of subjects he includes in his work. "I make images that are interesting to me," he says hoping that others may share his interest to one degree or another. His work, however, tends to revolve around four main themes: portraits of buildings (new and old), mythical fantasy images, natural images and space related images. Bill often likes to juxtapose two or more apparently unrelated elements encouraging

TIME for ANOTHER WORKSHOP!

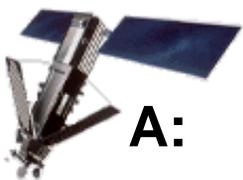
Yes it's true! We're having another workshop. This time we're going to the heart of Spacetown itself – the Kennedy Space Center! The plan is to get some "backstage" facility tours as research for works of art. The proposed dates for the workshop are 14 - 20 May. On the workshop itinerary are visiting the ISS, the VAB, an OPF with orbiter, Mission Control, the landing runway, the 747/shuttle mate/demate crane, the crawler, one of the STS launch pads, the Air Force rocket museum, the tourist side of KSC, and seeing an Atlas and Shuttle launch (from the Press site!) Sounds neat, eh?

For security reasons, all tours stop three days prior to a launch, so the backstage tours are only open on the 14th & 15th. NASA regs also only allow groups of eight (plus escort) on tours. There are only two escorts available for us, limiting the number of folks who get to go on the escorted tours only to 16. This does not limit attendance to the rest of the workshop in any way.

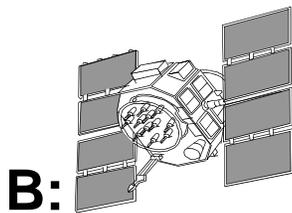
To avoid controversy in deciding who gets to on the escorted tours on the 14th & 15th (if there are more than 16 folks interested), we are going to randomly draw names from a hat. If you would like to be included in the random draw, e-mail or write to Jon Ramer at 5007 Rhine Way, Dayton, OH 45458, USA. You must state clearly in the note that you **ABSOLUTELY WILL** attend the workshop from 14 - 20 May if your name is drawn. NASA will have to conduct background checks on all attendees. There is a great deal of interest in this workshop, we cannot change the list after giving the names to NASA and do not want anyone to miss out. If you are not positive you will go under any circumstance, then please do not submit your name. Names must be received by Jon no later than **15 March 1999**, no extensions. Names will be drawn that day and sent to NASA so they can begin background checks.

So, the Cape is calling – are you going to answer? See you in May!

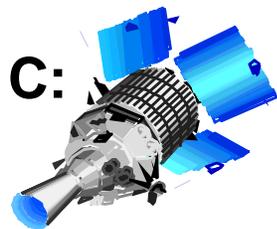
Name the Satellite! How well do you know your hardware?



A:



B:



C:

Answers on back cover...

WORKSHOPS THAT CHANGED (my) HISTORY!

by Michael Carroll

I thought I was just having a good time. I had no idea, going into the 1982 Death Valley Workshop, that the way I paint, the way I relate to others, the very way I perceive reality, would be changed forever. But that's why we have workshops. It was in Death Valley, on a blustery November afternoon, where I learned to see the sky. Really see it.

"Don't look at it," said Don Davis. "Look around it. Scan the whole sky. Use your peripheral vision." And when I did, there was so much to see. Such subtlety! Crepuscular rays, the cast shadows from high clouds beyond the horizon. Sun dogs, elegantly painting the sky with their ice crystal halos, diamond-shaped rainbows above the desert dunes. And one very special afternoon, the star-like space shuttle in its lazy orbit. Were those astronauts experiencing a paradigm shift in their senses, as I was 150 miles below?

If Don Davis taught me how to look up, it was Joel Hagen who reminded me to gaze down. Twenty artists were perched on the rim of Ubehebe crater, a volcanic caldera blasted from the desert mountains a dozen-thousand years ago. Everyone studied the layering in the deep crater walls, and the ash flows, the meandering colors like a titanic melting sundae, and the grand vista. But not Joel. He was kneeling on the gray ash, studying something else.

"Look at these," he said, pointing to our footprints. "Look at how the sand is raised around them, like a crater rim. And look inside." Within the boot indentations were layers, just like those in the side of the great Ubehebe. Two craters, gigantic and minuscule. Nature's differing scales. Forms within forms. I always remember to look down, to see the small as well as the large.

Later, Joel and I wandered into the bottom of the crater, where I photographed the bizarre mud cracks and he gathered a small sample of clay to fire when he got back to his studio. Joel and I always seem to end up where nobody else goes. In Hawaii, we discovered an ice field on Mauna Kea. It took us about two minutes to scamper down a steep slope to reach the ice, sculpted into meter-high impressions of Three-Mile-Nuclear-Plant cooling towers. The sun filtered through the translucent columns, scattering blue and silver across the red sand beneath. In the thin air, it took us half an hour to struggle back up, but I learned something about painting ice, and about how light plays through a translucent form. I learned something about friendship, too.

These events, and many like them, gave me skills to paint, and treasured friends for life. That's why we do workshops.

Rosetta

Lander

by Eric Viktor

Rosetta is a European Space Agency mission to visit a comet. The lander will be carried piggyback by the orbiter and released upon encounter with comet Wirtanen in 2011.

Profile:

Melvin Schueta

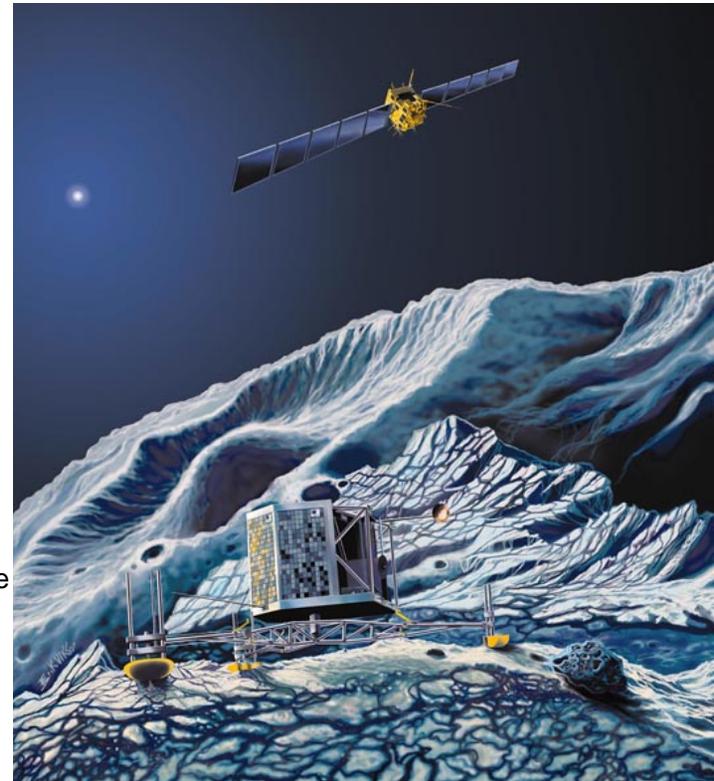
After a career in satellite operations in the USAF and private industry, I decided to move to the "quieter" realm of academia, and have been on the staff of Moody Library at Baylor University for the last five years. This was an ideal place to be while pursuing my life's passion - researching the published space art of Chesley Bonestell.

My first introduction to Bonestell art was (as with many people, I suspect) with seeing THE CONQUEST OF SPACE. I saw a copy for the first time in the third grade (in 1960) - and was instantly enthralled. By the time I was in high school, I started trying to find books with Bonestell art in them, and began with obtaining my own copy of "CONQUEST." That was about 31 years or so ago, and now my Bonestell book and magazine collection is almost certainly the largest in existence (maybe 650 items).

I sat down in 1994 with the basic idea of cataloging my collection, and ended up writing a bibliography of publications containing CB art (at least one painting). When I finished (and after recent additions I've just added) the manuscript listed 758 publications containing Bonestell art. Many of the newspaper articles listed I only have photocopies of (not originals) of course, but I do have the majority of the books and magazines listed in my collection.

I had an academic publisher last year originally declare an intent to publish my book, and later back out with the stated fear that my book was only salable to a very small audience. Maybe they are right, but I have now decided to proceed (within the next few months) with self-publishing it to make it available at least to those who would like to have the information it contains.

With the passing away last November of Mrs. Bonestell we lost the last close personal link to Chesley. But I am hoping that my research, and my book, will help to maintain (and hopefully expand) the collective memory of what he accomplished and how important his work was in its contribution to making possible our actual beginning footsteps into space.



Many newcomers to oil painting are confused by the various uses of the three main types of painting white: lead white, titanium white and zinc white. So what follows is an attempt to review the uses of these three types of white in color mixing and how to use their individual qualities to good effect. "Isn't one white just like another?" you may ask. Well, surprisingly, the answer is no. "Not all whites are created equal."

The first thing to realize is that some oil color whites are ground in paler vegetable oils than linseed oil, such as poppy oil or safflower which usually gives a softer paint film and takes longer to dry. Some manufacturers continue to use colors ground in cold-pressed linseed oil which gives a harder paint film but is also prone to some darkening over time. All white oil paints yellow with age to some extent, but this can be avoided, or at least slowed down, when finished paintings are allowed to dry (say, six months to a year) facing daylight, rather than tucked away out of the light in a cupboard.

Lead white, nowadays often called Cremnitz white or Flake white (a marketing ploy, I imagine, try selling anything with "lead" on it!), was the only white oil color available to artists until about the middle of the last century. It is toxic if improperly used but it has some very desirable properties when ground in oil. Its soft hue and slightly warm edge makes it a favorite as a base for mixtures with other colors, to gain flesh tints and off-whites and creams. Try combining lead white with Mars yellow and a touch of Venetian red to gain a wonderful Naples yellow hue which is warm and resonant. Lead white also has a good buttery consistency which gives fine brushing qualities and is relatively opaque, with a quick drying flexible paint film. One disadvantage: it does not mix well with cadmium colors tending to make them 'dirty'.

Zinc white is not as opaque as lead white and its slight transparency allows for half mixtures that retain the original chroma of the mixed pigment, and also gives subtle pastel shades that are bright and luminous. Zinc white is much more inclined towards the blue than lead white and gives bright clean glaze colors when mixed with transparent colors like veridian or thalo blue.

Titanium white is a 20th century pigment and has greater opacity and covering power than either lead white or zinc white. When mixed with other colors it tends to dull the chroma of the color mixture and is best used thinly, perhaps diluted with a little medium, to kill its bright effect. The glaze produced by mixing black and titanium white appears cooler or more bluish in comparison to the warmer or neutral grays of lead white and black.

To gain some idea of the differences in relative transparency try mixing some ultramarine blue with each of the three whites above. You'll see that lead white gives a slightly warm and dull mixture but carries the blue well. Titanium white dulls the blue pigment and gives a dense opaque mixture. Zinc white retains the brightness of ultramarine but gives a stronger tint of blue (because the white is more transparent, so the blue shows though more).

As always, some experimentation with color mixing is the order of the day, but the above characteristics will hold well with most of the colors normally encountered. I hope this shows that white is not only versatile but its proper use forms a useful extension to the artists range of color effects.

Kudos Korner

- Kudos to Pat Rawlings for his illustrations on the cover and interior of Ad Astra on religion and space! WAY TO GO PAT!!! Great work.

- In the Edmond's Scientific and other catalogues, you can find an educational device for teaching the nighttime skies at home called Star Theatre. It projects onto walls and ceiling the stars of the four seasons. Included is a 56-minute audio tape describing the skies and telling the mythology of the names of the constellations. Two of the seasons are described by a man, and the remaining two by a woman: IAAA's very own Laura Brodian Freas. Congradulations Laura!

- Kudos to Mike Carroll and Don Davis for their great images in the Planetary Report. Good job guys.

- Andy Chakin did a talk about the Apollo 8 anniversary, including the famous "Earthrise" photo, on National Public Radio's Morning Edition on Christmas Eve. As usual - well done Andy!

A Bussard Ramscoop, Jupiter-type Planet and M3



by Leland Long

Traveling at a large fraction of light speed, a Bussard ramscoop spacecraft collects interstellar protons (H+) via an intense magnetic field. The protons are compressed in a fusion drive and the plume exits as a hot plasma of hydrogen and helium. Glowing dull red, large radiators dump thermal radiation from the the engine's heavy-weight cooling system. A large Jupiter-type planet is seen close by. The nearby globular cluster is M3, consisting of more than 100,000 metal-poor stars.

Profile: Bill Wright

As long as I can remember I have always had an interest in space. Most of my work is done using acrylic paints on illustration board with some airbrush. I like to paint in a realistic style exhibiting elements of the celestial sphere in close relation with the works of man. I like to mix futuristic hardware with planets. I seem to slip into time dilation mode whenever I work on a painting as I become absorbed in the adventure of the piece. I have read everything from Azimov to Zubrin and hold deep respect for Clarke and Stephen Baxter for their contributions to the images that explode into my mind - I feel rather strongly about what I do!

My educational background is in the biological sciences and medical technology, I earned a BA and a medical technology certification. Much has changed over the years though, now I'm involved in creating large format computer images on a 9600 series Power MAC hooked to an IBM RIP station that controls a 36" Xerox inkjet printer and a 54" Xerox electrostatic printer. I create graphic images used for corporate exhibits, murals, and billboards.

I have produced numerous paintings purchased by people in the Baltimore and Washington DC area and I have contributed work to the Maryland Science Center in the production of the planetarium programs that are produced there, thanks to the planetarium director and fellow IAAA member Mr. Jim O'Leary.

I look forward to learning a great deal from the members of the IAAA and hope that I may be able to contribute a little of what makes up Bill Wright in the process.

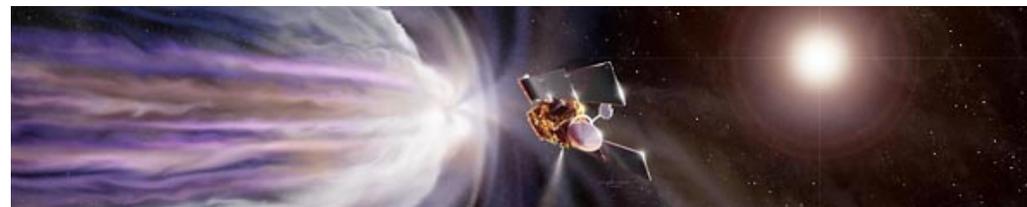
Mars Polar Lander by Michael Carroll

Mike gives a "bird's eye view" of the old design of the Mars Polar Lander exploring the landscape of the Martian south pole. The MPL should land on Mars on 3 Dec 1999 - fingers crossed!



Encounter - The Final Trim by BE Johnson

The Stardust probe is making it's final trim burn to rendezvous with comet Wild 2.



GATHERING BITS OF STARDUST...

STARDUST! Those elusive bits of "otherworldly" matter that could hold the clues to the evolution of the sun and planets and possibly into the origin of life itself. The trick is how do we examine some? We build a spacecraft of course! And "Stardust" is its name. Stardust is the first US mission dedicated solely to a comet, and will be the first probe to ever return samples of extraterrestrial material from outside the orbit of the Moon.

NASA's fourth Discovery mission (which IAAA members Joy Day and BJ Johnson just happen to be involved with), Stardust was successfully launched February 7 1999 atop a med-lite version of the Delta II launch vehicle. Its primary goal is to collect comet dust and volatile samples during a planned close encounter with comet Wild 2 in January of 2004. Additionally, the Stardust spacecraft will bring back samples of interstellar dust, including dust recently discovered streaming into the solar system from the direction of Sagittarius. These materials consist of ancient pre-solar interstellar grains and nebular condensates, including remnants left over from the formation of the solar system.

The spacecraft will make three loops around the sun. On the second loop, the trajectory of the spacecraft will intersect that of Wild 2. During encounter the spacecraft will send back pictures of Wild 2, counts of comet particles striking the spacecraft, and real-time analyses of the compositions of the particles and volatiles. The capture mechanism for the returned samples will use a unique substance called aerogel attached to panels on the spacecraft to soft-catch and preserve the cometary materials. These will be dropped off in a reentry capsule that will parachute to Earth in 2006.

Stardust will approach Wild 2 from above its orbital plane, then dip slightly below it, 150 km on the sun side. The goal is to collect at least 1,000 particles of interstellar material. After the encounter with Wild 2, Stardust will orbit the Sun once more and orient itself with Earth so it can jettison the capsule containing the aerogel panels for a soft landing in the Utah Test and Training Range early on a January morning in 2006. After recovery, the canister will be transported to the planetary materials curatorial facility at Johnson Space Center and the "quest for knowledge" begins!

(data from Stardust home page: <http://stardust.jpl.nasa.gov/>)