MEMBERSHIP OPS

A few members have asked "How much?" or "Who do I pay?", etc. From the www.iaaa.org website:

There are three tiers of membership:

Associate - For non-artists: collectors, publishers, anyone who is interested in space art and keeping up with our news. $40/£26

Artist - For artists/illustrators who produce space art in any form. Artists get first choice for places at workshops, etc. $45/£28

Fellow - This is an honour to which a member in good standing must be elected by a Committee of Fellows. Fellow members may place the designation FIAAA after their signature on works that they produce, indicating their position of stature. $50/£31

As to who to pay, see below right.

Exhibition & Gallery News

The IAAA travelling exhibit, The Artists' Universe, is being returned to the United States. No new show dates are scheduled; more information will appear in PULSAR and online when and if arrangements are made.

Richard Bizley has opened a gallery. He writes: "At long last after a series of mishaps, the Gallery finally opened today. I shall be open three times per week (rest of the week is working from home doing another job). So, a holiday seaside village famed for it's fossils is now having a shop with space art, science fiction as well as "normal" pictures! Makes a change of the usual gift shops, etc. Already someone picked up an IAAA flyer saying he has an 80 year old brother who is mad on space art. For the gallery I am getting a recyclic spray booth (for small airbrush work) and I'll be actually painting in the gallery so, hopefully the public will be interested to see me working, though my biggest problem is being deaf I shall have to keep looking up otherwise they might think I am ignoring them!

BizleyArt
12a Coombe Street,
Lyme Regis,
Dorset,
DT7 3PR, UK

INTERNATIONAL ASSOCIATION OF ASTRONOMICAL ARTISTS

IAAA POINTS OF CONTACT

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Make all payments out to "IAAA"

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Annual rates by member type, 26, 28, or 31 GB Pounds.
Make all payments out to "IAAA"

Jan-Feb 2003

PULSAR

The Official Newsletter of the INTERNATIONAL ASSOCIATION OF ASTRONOMICAL ARTISTS

"Venera 14, Well Done" by Norm Siegel

Editor: Rick Sternbach IAAA Website: http://www.iaaa.org

PULSAR Jan-Feb 2003

The Official Newsletter of the
INTERNATIONAL ASSOCIATION OF ASTRONOMICAL ARTISTS

From the Editor –

This is definitely not the editorial I had intended to write for this issue. The space shuttle Columbia's destruction during reentry on February 1st once again brought home the fact that human space flight is a dangerous activity. Collectively and individually, we mourn the loss of the Columbia crew and offer condolences to their friends and families. The debris collection, data analysis, and accident board investigation will lead to fixes to the orbiter and NASA management alike, and bring about the eventual return to flight. The International Space Station continues in Earth orbit, now tended by a two-man American-Russian crew while plans to complete the core station construction are delayed.

As citizens of many nations — the IAAA is after all an international organization — we may harbor differences of opinion regarding human spaceflight and robotic exploration; I know many of us have strong feelings for and against ISS, NASA management, the shuttle, funding levels, planetary missions, and space education. No doubt similar questions over four decades have plagued the Russian space program, with its share of accidents. I believe, however, that as space artists we are likely all in agreement that the exploration of the heavens must continue. Spacecraft continue to gather scientific data and send back astounding images. We continue learning about human physiology in the micro-*g* environment and how to build large structures off the planet. As a species, we will continue to extend our reach outward.

Space artists will continue to support space projects and educate those who come upon our images. We will continue to visualize hardware and destinations. We will draw and paint the people and machines that look outward, that lift up into the sky and sometimes fall back again.

We still have a universe to explore.

Rick Sternbach

* * *

With this issue of PULSAR, we are expanding to sixteen pages and are firming up the regular departments outlined in the Winter 2002 issue. News-gathering and production are slowly catching up to real time. The Mar-Apr 2003 issue will follow this one by a shorter interval than before. Thanks to all IAAA members who have responded to the call for art and news bits.

For some of our interior pages, we can certainly use black & white art to complement the color Gallery pieces (see the Hall of Fame page in this issue). If you have B&W art or color art that can be dropped to grayscale, we'd love to run it. See the Submission Guidelines on p.12.

Cover: "Venera 14, Well Done" by Norm Siegel.

Norm descibes the painting: "I work in gouache and have always had a fascination with the 'funky' design of the then Soviet Union'sspace probes. The Venus landings by the Russians were their most successful planetary space explorations. Venera's 9,10,13,14, sent back pictures of the surface, that revealed an orangy surface due to "Rayleigh" light scattering as sunlight is filtered through an approximately 30 mile layer of sulfuric acid-laden clouds. Transmission of information ended after about an hour of 800 plus degrees and a fine rain of sulfuric acid. The tongue and cheek title not only refers to the mission's success but the blistering temperatures that fried the spacecraft. The painting is 20"x30"." ©2003 Norm Siegel.

LAUNCHING BY LAND, SEA, AND AIR continued from p.11

electrical cables, the flame deflector was a small metal cone towed into place by a truck, and the foundation was a plain concrete block.

One if By Land

Most launch sites are built on land, located in remote regions or in coastal areas to keep people downrange from the site safe in case of an accident. The first satellite, Sputnik I, was launched by an R-7 intercontinental ballistic missile from the heart of the old Soviet Union. The launch pad design was the precursor to the pads that the Russian space program still uses to this day, a concrete platform built over a large pit for the exhaust flames. The gantry was a "clam shell" design with "fingers" that grasped a rocket on all sides and leaned backward at launch. American pad designs favor a fixed gantry with some sort of mobile structure that transports an upright vehicle to the pad, while other designs use cranes to assemble rocket directly on the pad.

Two if By Sea

Launching a rocket from a location near the equator can give a significant boost in velocity due to the rotation of the Earth, over 1,000-mph in fact. Unfortunately, launch sites close to the equator are difficult to come by – at least on land. Commercial companies from Norway, Russia, Ukraine, and the United States have joined together to create the "Sea Launch" system. Sea Launch has converted a deep-sea oil-drilling platform into a "Launch Platform" (LP) that floats in the equatorial waters of the Pacific Ocean. The LP has become the gantry and foundation in one, while the exhaust from the vehicle harmlessly dissipates into the ocean, eliminating the need for a flame deflector.

Three if By Air

The Pegasus rocket has taken launch pads to the ultimate step – by not needing one at all! The payload is mated to the Pegasus booster in a processing facility on the ground and the rocket is hung beneath the belly of an L-1011 airplane. The plane takes off and climbs to an altitude of approximately 40,000 feet, then the Pegasus is released. Five seconds later the rocket engine ignites and boosts the payload into orbit. The L-1011 has effectively become both the launch pad and the first stage of the rocket.

Pads of Tomorrow

Someday, launch pads could be a thing of the past. Studies are being conducted on new and different ways to put payloads in to orbit. One of the more interesting ones is a NASA idea called "Maglifter." The concept uses magnetic levitation as the first stage of a rocket. The payload and upper stages of a vehicle are laid horizontally on a sled built with super-conducting magnets. The sled is then accelerated via magnetic repulsion and attraction on a track that curves up the side of a mountain. At the top of the mountain, the launch vehicle ignites its engines and takes the payload to orbit. Studies have shown that a track between three and four miles long on a 10,000-foot high mountain could accelerate a rocket to 600 miles per hour before the rocket burns a single drop of fuel. Savings like this could reduce the cost of orbiting payloads to less than $500 per pound and make the $10,000 dollar per pound launch pads of today obsolete.

What will we do with all the launch pads if new vehicles that don't need a pad are developed? Chances are they will simply be abandoned. Pad 34 at Kennedy Space Center launched the first Apollo mission, today it is barren concrete structure with the words "Abandon in place" stenciled on the side.

URL to Check: http://www-pao.ksc.nasa.gov/kscpao/visit/kscovrprelau.htm

Books & Magazines

In response to a PULSAR query about your favorite books, we received the following list, along with a few choice emails:

From Robert Little:
"Challenge of the Stars" - Patrick Moore/David Hardy
"Beyond Jupiter" - Arthur C. Clarke/Chesley Bonestell
"The New Challenge of the Stars" - Revised
"Our World In Space" - Isaac Asimov/Robert McCall
"Cosmos" - Carl Sagan/A Bunch Of People On This List
"Grand Tour" - William K. Hartmann/Ron Miller
"Out of the Cradle" - previous plus Pam Lee
"Cycles of Fire" - those guys again (busy bunch...)
"Comet" - Carl Sagan/Ann Druyan/a few IAAA members
"The Solar System" - Ludek Pesek
"In The Stream of Stars" - guess who?

From Jackie Burns: Talking about books, I also bought another one just before Christmas that I can highly recommend 'The History of Space Vehicles' by Tim Furniss. An absolutely brilliant read and reference book with 256 pages packed with photos and cut-away diagrams of 'everything' to do with space that has ever flown. It's not brain-numbingly in-depth, but there is enough detail and history to cater for high-school students and anybody else who isn't looking for degree-level information. It is last years' publication (ISBN:1-84013-370-8) rrp 25 pounds sterling. **Jackie also says:** I've just got hold of Andy Chaikins' new book "Space: A History of Space Exploration in Photographs". Forward by Jim Lovell. A very, very nice pictoral history that's a cut above the usual coffee table book. Some of the usual, well known images, but there's also quite a lot of not so well known stuff that goes right back to George Melles' 1902 film 'A Trip to the Moon'. Two of my favorites : a double page spread of the very first Saturn V rocket launch from KSC on 9.11.67; and the very first television image of Earth from space transmitted from Tiros 1 on 1.4.60.

From Nahks: For a bit of sentimental rambling (and in response to "call for books"), I still have rather fond memories of a 1985(?) book called "Space, Time, Infinity" by James S. Trefil (I guess I'd have been 8 at the time). Unfortunately, I couldn't really tell you if it's a 'must-read' for space/art enthusiasts, because I've never actually read all of it, myself - I mostly went in for the pictures (snicker). I don't mind telling the imagery in that and similar books are what got me into what I'm involved in now - 'crazy as plenty of people close to me say it is...

From Bob Kline: I was at a Barnes and Noble bookstore just browsing through the shelves of the space and science section and ran across some reprints of the 1931 "The Conquest of Space" by David Lasser! David Lasser was the founder of the American Interplanetary Society. This book was ahead of its time. It is good reading and much of what is said in the book still holds up today. David Lasser writes about many aspects of what it takes to get into space from the velocities needed to get to earth orbit and escape velocity to rocket engine design to what it would be like to be in a weightless environment. His descriptions of a zero-g are very accurate for 1931 or 2003! Lasser even describes what happens to water in zero-g, that the surface tension would draw up the water into spherical globules, and his solutions for eating and handling food in space are exactly what NASA and the Russians do today. The reprint has an introduction by Sir Arthur C. Clarke. Clarke said, "My encounter with The Conquest of Space, soon after its publication in 1931, was one of the turning points in my life, and I suspect, not only of mine...". I highly recommend this book for anyone's library. Does anyone have a copy of the 1931 first edition? I have never seen the 1931 1st edition in any used book store or even on ebay. I been looking for years for this book and glad Apogee Books made a reprint. The 1931 edition I think was published by Penguin Press, N.Y.

SPACE SCIENCE

In the Winter 2002 issue we ran Michael Carroll's article on Tupan Caldera on Io. Your editor asked Mike a few questions.

Rick: About the caldera walls; what do you think of the slope angle? Can it be that steep on a place like Io? Would you have the cohesion to defy gravity and tidal stresses?

Mike: Great questions. [JPL's] Rosaly [Lopez] and I chatted about that quite a bit. The reasoning is that we are dealing with lava, similar to the walls on Kilauea, which has a high cohesion coefficient even in low gravity (depending on what it's made of). So we decided it was likely that you would get steep walls. Also, even tho the images are pretty low res, the cliffs show no evidence of that alluvial fannish spreading or slopes of collapse debris. There may be some on scales below the resolution, but no evidence yet, so I just gave it those dramatic cliffs. Maybe I should show more debris at the base, but also refer to Tohil Mons, where the caldera floor abuts the cliff with absolutely no debris piles, as if the surface is still viscous and assimilating any boulders or gravel coming down the mountain face (resistance is futile on Io — it will be assimilated).

* * *

Berkeley - Using a state-of-the-art computer model of the lunar interior, geophysicists at the University of California, Berkeley, have shown that a mighty burp early in the moon's history could account for some of its geologic mysteries. - Robert Sanders, Media Relations (excerpt)

URL to Check: http://www.berkeley.edu/news/media/releases/2003/01/08_moons.html

* * *

URL to Check: http://perso.club-internet.fr/legault/
High-resolution CCD images of the moon and other celestial objects.

* * *

Interesting bit from Dr. Bill Hartmann, as part of an email discussion on Mars' atmosphere: "I think the air pressure conditions for Mars' surface are matched at an altitude around 36-37 km in Earth's atmosphere, more or less as stated earlier. As best I understand, it looks a dark deep grey-blue. What I have to add to the discussion is from my work in last two years with some Russians, calculating the conditions for breakup of meteoroids in Mars atmosphere. Turns out that fireballs in Earth's atmosphere typically explode, by coincidence, around this same 36-40 km height. There are some differences in the two atmospheres, because the Martian atmosphere is more "spread out" due to lower gravity (larger scale height, i.e. less compressed to surface). Our result is that meteoroids capable of making craters less than about 0.2 to 2 meters in diameter on Mars should burn up or blow up above the ground on Mars, so those would be the smallest craters."

* * *

From Brian Smallwood: http://sohowww.nascom.nasa.gov/data/realtime-images.html

The site offers the very latest SOHO images - truly amazing movies and images - from clouds of plasma being ejected from the surface of the sun to spinning tornadoes of hot gas as wide as the Earth. The detail is good enough to be CGI!! If ever you need a perspective on life, here it is. A link to the latest SOHO mpegs is:

http://sohowww.nascom.nasa.gov/data/realtime/mpeg/

* * *

URL to Check: Always a great site is Astronomy Picture of the Day at http://antwrp.gsfc.nasa.gov/apod/

Another good site to check is space.com; sign up for daily email headlines, an easy way to keep up with various space events.

SPACE SCIENCE

A great space science list to join is run, strangely enough, by NASA's Office of Space Science, with updates each week or so from list operator Craig Tupper. It is yet another Yahoo groups list, which means that you might have to endure weird breakdowns in Yahoo's system, but the information and URLs are terrific. To subscribe, send a blank email to:

oss-update-subscribe@yahoogroups.com

Archives are at: http://groups.yahoo.com/group/oss-update/messages
Space Science home: http://spacescience.nasa.gov/

Sample stories from OSS:

Astronomers Find a Hero (Hyper Extremely Red Object) - it's a very distant galaxy, but how red, and how distant? http://www.jpl.nasa.gov/releases/2003/3.cfm

The mystery of why large features called supergranules move across the Sun's surface faster than the Sun rotates has been solved. It's an illusion. http://www.gsfc.nasa.gov/topstory/2003/0102wave.html

* * *

From Don Davis: While waiting for Cassini to arrive at Saturn, there are still Voyager images of the ringed planet deserving attention. One such image is included in John Spencer's space visualization site: http://www.lowell.edu/users/spencer/digipics.html and can be seen at:

http://www.lowell.edu/users/spencer/ringlightsub.gif

Business Topics

From Lynette Cook: Here's one for you for the section on who's misusing art:

http://www.airsd.org/

They are using two of mine without permission. An Edoardo Rocca asked permission months ago after he'd already posted my work on the site. He's giving me no name credit, copyright notice, or a link to my site. I responded back, eventually telling him to pay me or take the art off. He's ignored all my e-mails (curious - why did he ask permission in the first place?) and obviously intends to keep using it no matter what.

* * *

From Mark Garlick: Anybody had any dealings with spacer.com or spacedaily.com? They have posted an image of mine at the URL below, without first requesting permission. Just to warn you.

http://www.spacedaily.com/news/life-03m.html

Ed. Note: Mark was asked if he contacted them about the misuse, to which he replied:

Yes, and they removed it immediately to their credit, but after some BS about getting the image in with a bunch of press releases, and assuming it was in the public domain. My name was on the image, along with the copyright symbol (not that it's needed), and still they decided to just 'assume' it was a NASA freebie or something. So it looks like it's not ENTIRELY thier fault, but they could have checked. Meanwhile, the real source is undisclosed -- some astronomer used it for a press release.

THE IAAA HALL OF FAME

LUCIEN RUDAUX: THE FIRST 'REAL' SPACE ARTIST?

by David A Hardy, FIAAA

The IAAA's premier annual award, for artists who are not only respected for their skills but have advanced the 'cause' of astronomical and space art through their work, is named the 'Lucien Rudaux Memorial Award'. Why?

The Frenchman, Lucien Rudaux, was born in 1874 and became director of the observatory at Donville, Normandy, where he made many observations and produced a photographic map of our Milky Way galaxy. He also wrote and illustrated his own books, such as the classic Sur les autres mondes. Often he observed the 'limb' or edge of the Moon, where its ravaged surface is seen in profile. So while other artists (including, or perhaps especially, Chesley Bonestell!) showed lunar mountains as being steep, jagged peaks, Rudaux painted them as rounded and eroded; not by air or weather, of course, but by eons of impacts by micrometeorites and extremes of temperature. In fact, his paintings, while quite impressionistic, often resemble Apollo photographs. He was made a Knight of the Legion of Honour in recognition of his work, and a crater on Mars has been named after him.

Rudaux worked to a very small scale — usually the same size as the painting would be reproduced, and frequently in monochrome, again because it would appear in black-and-white in the book or magazine for which it was intended. Bill Hartmann has suggested that he may have worked in thin oils, but I have seen his originals (as Bill has), and think it more likely to be gouache (a type of watercolour, but using white as body-colour). He took great care to calculate the correct size of a planet, moon or the Sun in the sky, the shadow cast by the rings of Saturn upon the planet, and so on. Truly a good model for all space artists!

WORKSHOP NEWS

At the present time there are no workshops scheduled. Research into possible workshops include:

• **May or June 2004** — Italy/Sicily, including Mt. Etna and environs. Contact: Jon Ramer (ramerj@worldnet.att.net)

• **Late 2004** — Death Valley. An informal exploratory committee, so to speak, is studying the possibility of a return to Death Valley, site of the 1983 IAAA two-week workshop. This would be a one-week session, with extended time left up to individual members. IAAA members discovered "Mars Hill" there, eventually used to test Mars rovers like the Russian Marsokhod because of the area's littering of vesicular basalts. Committee members are investigating lodging and transportation, as well as digital technology to be used in the field and at "base" for keeping IAAA members informed as the event takes place. Contact: Rick Sternbach (rsternbach@earthlink.net)

• **May 2005 or 2006** — Columbia Ice Fields. From Paul Hoffman: "Hello, folks! The Board is investigating the possibility of a workshop (AFTER the proposed Mt. Etna workshop) - probably for May of 2005, or May 2006 even, in the Columbia Ice Fields. The region is on the border between the western provinces of Alberta and British Columbia in Canada. It's basically between the cities of Banf and Jasper, including Banf National Park, Jasper National Park, and the Ice Field Parkway, which goes between. Glacier, hot springs, mountains, etc. In May, there should still be a good amount of winter snow intact, and the tourists will not have descended. We're just putting it forth now to gauge interest on the part of the membership. Any takers?"

Here are a couple of web sites to give you some info about the area:

http://www.canadianrockies.net/icepwy.html

http://www.parkscanada.gc.ca/pn-np/ab/banff/

PULSAR Submission Guidelines

We're always looking for news and images for PULSAR. Feature articles generally run 500-1500 words; news bits can be as short as a few lines. Even in this age of internet email lists, if you have anything of interest to the space artist, you can share it here.

Hard copy, mailed: Text should be typewritten, double-spaced. Images can be photographic prints, sketches, or photocopies suitable for scanning, either black & white or color. Mailing address: Rick Sternbach, PULSAR, 12417 Hesby Street, Valley Village, CA 91607.

Email and Other Web Options: email all text to rsternbach@earthlink.net. Text files can be saved in any format which can be opened by Microsoft Word. Text files can also be placed on a website for downloading; please furnish the proper URL. Images should be roughly 1800 pixels wide or better. Images can be PSDs, JPGs, GIFs, or PNGs. Other formats, like QuickTime, are also acceptable; please check with your editor first. If emailed, please keep file size to 2MB or zip-compress larger files. Large images can also be placed on websites for download; again, please furnish a URL.

Please provide credit and copyright information for articles and images. If no copyright information is provided, a © notice will be placed with the artist's name and current year.

Business Topics

From Dave Jones: As one of the newest members of the IAAA, I wanted to send a brief hello to the list. Although I have only been reading this list for a few days, I have been a space art enthusiast for as long as I can remember. A couple of years ago I created an online space art gallery called Solar Voyager, which really is a labor of love. Many of you have become friends since then as you have contributed to the website with artwork, suggestions and good conversation. Everyone I met from the IAAA always demonstrated a great deal of kindness and genuine interest. I am very happy to be part of this organization and continue to be in awe of the work this group produces. If you haven't seen the website, stop by for a visit - it is my small way of contributing to the community. With that said, I look forward to reading the list here and speaking more with everyone in the group! — Dave Jones, www.solarvoyager.com

IAAA European Vice President Dave Hardy replies: Good to hear from you Dave. It says something for your site that, after a few queries on this list, everyone in the IAAA seems very happy to contribute to it. If only other sites were as 'artist-friendly' and had such integrity! Keep up the good work in spreading the word on space art. . .

* * *

From Mark Garlick: Can somebody please tell me what 'work for hire' means? This is prom a potential client in Australia. It's a term I have not come across before — perhaps it's not used in the UK? I guess from the tone of her message that the work I might do would be sold to them on an exclusive basis — i.e. I don't keep copyright?

Don Davis replied: I believe that's the case. 'Work for hire' as a 'hired gun' on a project is generally a situation where your contributions are swallowed up in some large undertaking and they own everything. There may be wider definitions of this term, as the Graphic Arts Guild is opposed to 'work for hire'. **Ed. Note: URL to Check:** http://www.gag.org

Paul Hoffman replied: Absolutely correct. If at all possible, stay away from "work for hire" contracts - the client ends up having full rights and ownership of what you produce.Explain to your potential client that, while other contracting work can be and is done this way, art work almost exclusively is done with the artist retaining rights to the work. (You could possibly suggest that you would accept a clause in your agreement in which you would promise not to re-sell the work or reproductions of it. This would allow you to reproduce it on your web site and show reproductions in your portfolio. Maybe that would allay their fears and allow you to keep copyright.)

* * *

IAAA European Vice President Dave Hardy wrote to Aviation Week & Space Technology magazine concerning their art contest, and received the following reply from the American Society of Aviation Artists, an organization partnered with AW&ST. We are following up with ASAA.

Dear Mr.. Hardy,

Aviation Week and Space Technology forwarded your recent email to me. You are correct in your assumption that there was very little space art submitted in our competition - and we would like more. Please visit our website at asaa-avart.org. You can get information on our 2003 exhibition there and download entry rules and entry forms. Contact between our organizations would probably benefit both of us. I will post a link to your FIAAA website in our member's area and would like to propose an exchange of newsletters. If you will give me an appropriate address, I will see that your organization receives a copy of our quarterly. If you reciprocate, I would like permission to publish portions of your newsletter on our website for our members. We have a similar arrangement in place with the Australian aviation artists.

John Sarsfield, VP ASAA **URL to Check:** http://www.asaa-avart.org/

COMPUTER OPERATIONS

Ed. Note: The personal computer and the internet have affected practically every aspect of our work in the space art field, from sharing information on email lists (far more than we can ever compile and reprint here) to paint programs to terrain generators. We'll be discussing the art creation and science programs here, and discuss more general web topics elsewhere. We'll also cover some bits of hardware, such as display cards, printers, and scanners.

Beginning with the next issue, along with the theme of asteroids and impactors, we'll be examining terrain generators like Bryce, Vue d'Esprit, and Terragen. We'll also begin examining 3-D modeling software like Lightwave, Maya, and others. In the meantime, if you're looking for planetary maps, try our own Bjorn Jonsson's site at http://www.mmedia.is/~bjj/ or James Hastings-Trew's site at http://www.jht.cjb.net/.

Valles Marineris rendered in TGMac ©2003 Rick Sternbach

If Terragen sounds like something that will work for your terrain modeling needs, and you're on a Mac, here's a bit of news from Jo Meder, the fellow who is porting TG over from the PC side, in response to a question about beta testing:

"Yes, the public beta is open to anyone. All they would need to do is subscribe to the public beta mailing list, and then they could have access to it. There are more details available here :

http://www.planetside.co.uk/terragen/mac/betaTest.html

PC users like our Ron Miller have long ben able to get Terragen from the normal Planetside site (truncate the above URL), and Mac users can now work with it. TGMacBeta works in both OS9 and OSX.

* * *

Computer Software Survey

In 2002 Jim Plaxco conducted a survey of IAAA computer users to discover who was using what. Below is the first of the tabled results. The full survey results can be seen at http://www.astrodigital.org/iaaareport.htm

Table 1: Summary of Users by Platform

Platform	# Users	% Total Responses
Windows	13	48.15
Apple	10	37.04
Linux	1	3.70
Windows XP and Linux SUSE 7	1	3.70
Windows 2K and Apple OS X	1	3.70
Windows 98 and Windows 2000 Pro	1	3.70
Total Responses	27	

Telescopes and Observing

From Don Davis: Has anyone besides myself in this group seen the shadow of Venus? I have seen it several times mover the years. A few mornings ago I took a sheet of white paper and carefully sheltered it from ambient night lighting, in sight of brilliant white Venus near the Eastern horizon. I could move the paper about and see the crisp shadows move about of every blade of the leaves of a palm tree about a hundred yards away! I could also see the shadow of my hand held at arms length. At times I needed peripheral vision to see the shadow boundaries. In a dark location the shadows would be a good deal clearer.

From Kara Szathmary: This morning I saw a dazzling view of Venus about 30 degrees above the eastern horizon. The first thing I looked for was indeed a shadow of myself upon the ground. Why? Well, when I was on the Mediterranean Sea on the Island of Formentera (1970), I experienced my shadow from the bright star lights of a moonless sky. It was a stunning experience which I never forgot. I also sensed the rotating of the Earth as I was laying on the ground while looking up at the majesty of the heavens. So I looked this morning for my shadow, generated by the sunlight reflected off the surface of Venus. Unfortunately, the city lights prevented a convincing opportunity, though my brain wanted to claim to see it.

From Dan Durda: Fun observation! Yes, I once observed my own shadow from Venus during an observing session on the University of Michigan Peach Mountain Observatory's 24". Like your recent observation this was also an early morning experience with Venus near maximum brilliance. The observatory is in a dark sky location with no other lighting around, so it was surprisingly easy to see Venus' shadow. For those of you who know the name, I was observing with Phil Plait, the "Bad Astronomer". Sadly, with so much ambient lighting these days, many people hardly get to see STARS in the sky anymore, let alone these other fun things... Another fun and even easier trick, of course, is to see Venus during the daytime. When I was still in Tucson at LPL Jim Scotti and I would have a near-daily contest to see who could first spot Venus while walking back from lunch!

SPACE ENGINEERING

LAUNCHING BY LAND, SEA, AND AIR

by Jon Ramer

Like everything else in mankind's exploration of space, launch pads have evolved with the emergence of new technology, but the basic components of the pad have remained the same. Every launch pad has three basic parts: the foundation, which is the base that everything is built upon; the gantry, which supports and gives access to the vehicle and payload; and the flame deflector, which prevents the engine exhaust from damaging the rocket. The actual design of a launch complex depends upon the mission and vehicle to be launched from it. Some pad designs are so different from each other that it can be difficult to imagine they are used for the same purpose.

An Icy Beginning

The very first liquid fueled rocket, launched in March of 1926 by Dr. Robert Goddard, was launched from a frozen snow-covered field. In October of 1942, Germany launched the first rocket to reach space, the A-4. That launch pad had all of the basic components, but in the simplest of forms. The gantry was nothing more than a 35 foot long metal pole supporting some

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NOTES FROM THE FIELD continued from p.7

pelvises and ribs, decorative geometric designs are fashioned from scapulas and mandibles, trailer art from the suburbs of hell.

La Specola had been a deliberate quest on my journey, as anticipated as the opportunity to see David and the Prisoners first-hand. What surprised and captivated me in Florence, however, was the Galileo connection.

Near the Ufizzi, the remarkable collections of the Museum of the History of Science include many of Galileo's original instruments. His telescopes are there, wrapped in marbled Florentine paper. In a nearby case is the lens through which he first discerned the four "Medician Stars" aligned at Jupiter, Io, Europa, Ganymede and Callisto. That wonderful cracked lens is housed in an ornate contrivance of ivory, glass, gold and ebony, as though a reliquary to a saint of science.

Next door, a special exhibit in the basement of the Ufizzi detailed the development of the science of perspective. Among the cases of early instruments and diagrams, a book caught my eye. It was one of Galileo's journals, opened to a page with his delicately detailed sepia wash drawings of the lunar surface as revealed through his optics. My rudimentary Italian was sufficient to understand the label and deduce that this was one volume of many housed at the National Library in Florence.

An hour later, I stood at the desk of that institution, making specific requests with a hastily assembled vocabulary including phrases like, "journals with original drawings by Galileo," "teacher of art," and "International Association of Astronomical artists." These requests were politely received and upon returning the next day, Kathy and I were ushered upstairs into the sanctum of rare manuscripts. There, I spent 30 memorable minutes holding Galileo's journal from 1610 in which he methodically tracks the positions of Jupiter's moons. Night after night he drew a precise record of changing alignment. Jupiter is represented as a small circle and the moons as asterisks. Here was implied evidence on a celestial scale of his revolutionary concepts of inertia. If Jupiter could move through space with moons entrained, then so could earth and our moon move through a sun-centered system. Page by page I shared vicariously the discoveries of this Tuscan space explorer.

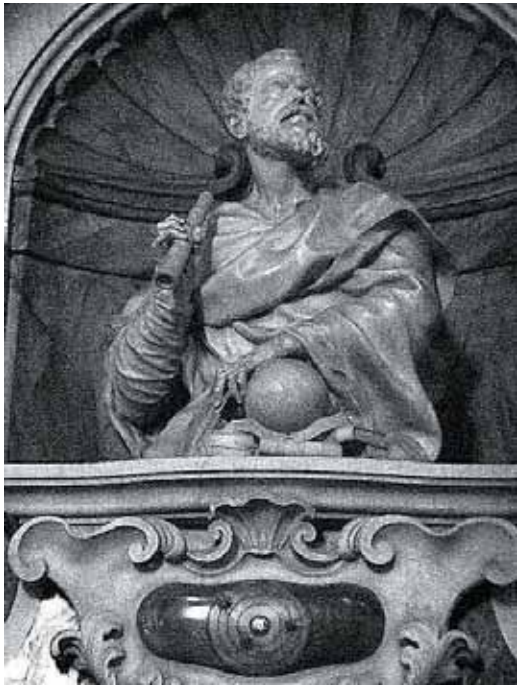
Later, walking the winding streets away from the river and its feral Nutria tribes, we came to the beautifully ornate church of San Croce. Inside in the hollow silence, across from the tomb of Michelangelo is the striking bust of Galileo marking his own vault. Beneath the bust is a simple jet-black cabochon, a paving stone on the path to understanding the universe. Graven deeply into this slab are four defiantly concentric circles surrounding the golden symbol for Jupiter. In each orbit rides an asterisk moon.

Given Galileo's troubles with a Catholic political view of science, there is both triumph and irony in this memorial. Perhaps even more ironic is a bizarre curiosity tucked away on a shelf at the Museum of the History of Science. In the case next to his wonderful lens, rests another reliquary object. Galileo's severed middle finger is enshrined in a delicate glass and gold egg, raised as though in final gesture toward Rome from the halls of science.

Florence.

Website for a QTVR tour of the Galileo room at the Museum of the History of Science:
http://galileo.imss.firenze.it/vr/index.html

Joel



NOTES FROM THE FIELD: OCTOBER, 2001

BY JOEL HAGEN

Florence.

Huge rat-like creatures the size of young spaniels slopped in the mud of the Arno as I stared down at them from Ponte Grazie. Their heads looked like shoe boxes swaying back and forth as the sun set beyond Ponte Veccio. Escapees from some Tuscan fur venture gone awry, this breeding population of Nutria scavenges the riverbeds of Florence.

Kathy and I were returning from the Institute of Zoology's incredible collection at "La Specola." While La Specola actually refers to the observatory built there in honor of Galileo, the collection of interest is a sculptural tour de force of 18th century wax anatomical models. Exquisite representations of every aspect of the human body are spread through a labyrinth of old wood and glass museum cases. The color, texture and detail are mind-boggling. A full female figure reclines peacefully, stroking her long hair while her body cavity lies open, an order of magnitude beyond nakedness. Full size male figures surround the room in various stages of dissection. Hundreds of cases detail the ear, the eye, the nerves of the hand and every conceivable aspect of the body. This is part of the essence of Florence to me, a confluence of art and science. Masterful craftsmanship and esthetics partnered with scientific curiosity and exposition.

I could not help but contrast the stature of this exhibit with the lunacy of the Cappucin crypt in Rome with its delightfully insane catholic folk art. The basement of that church is a horror-show funhouse created from the exhumed skeletons of hundreds of monks who died with no idea of the loony fate awaiting them. Walls are covered with clavicles, chandeliers are made from

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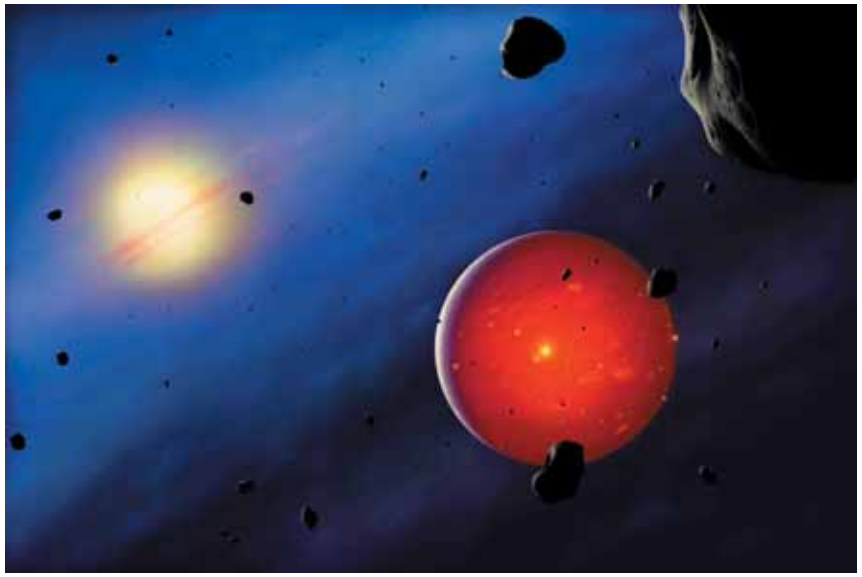
PULSAR Gallery



"KH 15 D" by Lionel Bret

"Possible gas giant in its accretion phase (from the observation of a rather strange occultation curve of the star)" ©2003 Lionel Bret

"Tunguska" by Dr. William K. Hartmann

"This scene of the explosion over a cabin was painted in Flagstaff, and shows the view from the Vanavara Trading station about 60 km S of the explosion." ©2003 William K. Hartmann

"47 Ursae Majoris" by Phil Smith

"The painting depicts a gaseous moon orbiting a large ringed planet orbiting 175 million miles from 47 Ursae Majoris. The white clouds are composed principally of ammonia, boiling up into the hydrogen stratosphere. The sky is a deep blue color during the day due to the tiny size of the refracting hydrogen atoms in the upper atmosphere." ©2003 Phil Smith

"On Phobos: Where I'd Rather Be" by Paul S. Hoffman

"This is just a "for fun" one I did a while ago. I haven't openly shared it with the IAAA community yet, although it is on my web site. Digital (I used Photoshop, hand sketching with a tablet, over a filtered pictorial collage built up from photos.)" ©2003 Paul S. Hoffman