

ANNOUNCEMENTS!



Web Surfin' Sites to check out :

- <http://www.locusmag.com>
- <http://ciclops.lpl.arizona.edu/>
- http://ciclops.lpl.arizona.edu/ciclops/images_jupiter_new.html
- <http://neo.jpl.nasa.gov/cgi-in/db?name=433>
- <http://home.interstat.net/~slawcio/artsf.html>
- <http://photojournal.jpl.nasa.gov/>
- <http://www.flight100.org/gallery/ig-pigg.html>
- <http://lonestar.texas.net/~efdietz/stamps/shut1175.htm>
- http://www.space.com/missionlaunches/missions/discover_plane_001122.html
- <http://www.dfrc.nasa.gov/gallery/photo/>
- <http://www.crosslink.net/~blackcat/Callistopeaks2.jpg>
- http://www.jach.hawaii.edu/JACpublic/UKIRT/news/Michelle_fl.htm
- <http://www.eso.org/outreach/press-rel/pr-2001/phot-27-01.html>
- <http://www.sundog.clara.co.uk/halo/download.htm>
- <http://www.swri.org/press/impact.htm>
- <http://www.psi.edu/projects/siberia/siberia.html>

Book of the Month:

"HARDYWARE: The Art of David A. Hardy" by Chris Morgan and David A. Hardy, forward by Stephen Baxter, Sterling Publishing Co.

Do you have an announcement you like to share with the IAAA? If so send it in to ramerj@worldnet.att.net or "Jon Ramer, 1112 Magnolia Bayou Blvd, Ocean Springs, MS, 32564, USA".

Remember: those IAAA members that attend conventions, we now have free flyers to hand out to interested people, with a brief history of the IAAA, what we stand for, and how to join. Contact Gary Harwood or Jackie Burns to obtain some for the convention you attend.

BOARD OF TRUSTEES

Kara Szathmáry
Dave Hardy
Jackie Burns
Dirk Terrell
Don Davis
Mark Garlick
BE Johnson
Ron Miller
Rick Sternbach

OFFICERS

PRESIDENT
Kara Szathmáry

VICE PRESIDENT

Dirk Terrell

V.P./MEMBERSHIP FOR UK/EUROPE

Jackie E. Burns

MEMBERSHIP

Kim Poor

TREASURER

Beth Avary

TREASURER UK/EUROPE

Dave Hardy

EDITOR, PULSAR / PR

Jon Ramer

DIRECTOR OF FELLOWS

Don Davis

DIRECTOR OF EXHIBITIONS

Gary Harwood

IAAA POINTS OF CONTACT

MEMBERSHIPS/US SUBSCRIPTIONS:

Kim Poor
IAAA c/o Novaspace Galleries
PO Box 37197
Tucson, AZ 85740

Annual rates by member type, \$40, \$45, or \$50, non-US members send payment in pounds sterling to DAH below.
Make all payments out to "IAAA".

NON-US SUBSCRIPTIONS:

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

VICE PRESIDENT UK/EUROPE :

Jackie E. Burns
No. 1 Park Side, Fort William Road
Vange, Basildon
Essex, SS16 5JX, England
Tel: (44) 1268 551308
e-mail: artist@jackieburns.co.uk



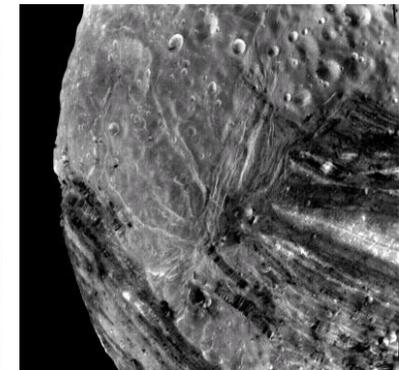
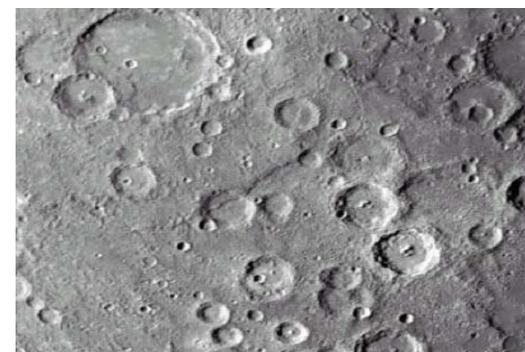
Aug / Sep 01

The Official Newsletter of the



**International Association of
Astronomical Artists**

CRASH! BANG! BOOM!



Craters, craters everywhere! The entire solar system shows evidence of impacts of objects from space, so it's only fitting to see that evidence in a Pulsar! Above NASA images are of the Moon, Mars, Mercury, and Miranda.

Editor: Jon Ramer

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

IN THIS PULSAR...

Profile: Elen Feinberg	
A Show In Tuscon	From Bill Hartmann
Profile: Gary Tonge	
ArtTip #1	From Bill Hartmann
ArtTip #2	From Bob Eggleton
ArtTip #3	From Don Davis
Cassini Imaging Team Needs OUR Help!	From Dan Durda
How the Heck Did They Do That!?!	Trivia
Kudos Korner	
Artists in the Heavens	Trivia
Astronomical 'Feature' of the Month - LUNAR CRATERS	From Jon Ramer
Announcements	

From the Editor-

Hi Gang! There were just too many "hints" that I should focus this issue on the leftovers from cosmic billiards for me to ignore. So, here it is! Lots of great art tips for painting craters. Be sure to check out the "Call For Help" article on page 8. Next time we're going "surrealistic." See you then!

Jon!

Caloris Basin Impact

By Rick Sterbach
 Cover of an old Analog magazine illustrating the article "Mercury's Missing Divot," theorizing that the impacting object which formed the Caloris Basin pretty well exploded outward and disappeared. Not sure if that's true or if I recall the premise correctly, but the craters were fun to do.

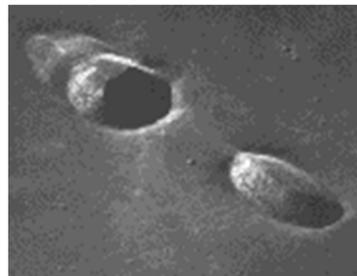


Astronomical Feature of the Month : -- LUNAR CRATERS --

Essentially all lunar craters, regardless of their size, were produced by the impact of cosmic objects or meteorite impact. These objects strike the surface at a very high speed (70,000 km/hour) and are shattered. Some of the material is vaporized, some is melted, and some is tossed out of the target area, piling up around the hole produced. A small amount of the fragmented material can be great thrown distances from the impact area along straight paths, creating an effect called "rays."

The surface of the moon is scarred by millions of impact craters. Since there is no atmosphere on the Moon to help protect it from bombardment, craters remain unchanged until a new impact happens. Craters range in size up to many hundreds of kilometers. The most enormous craters have been flooded by lava leaving only parts of the outline visible. The low elevation maria (seas) have fewer craters than other areas because these areas formed more recently, and have had less time to be hit.

The size, mass, speed, and angle of the falling object determine the size, shape, and complexity of the resulting crater. Small, slow objects have a low energy impact and cause small, simple craters. Large, fast objects release a lot of energy and form large, complex craters. Very large impacts can even cause secondary cratering, as ejected material falls back to the ground, forming new, smaller craters, or a series of craters.



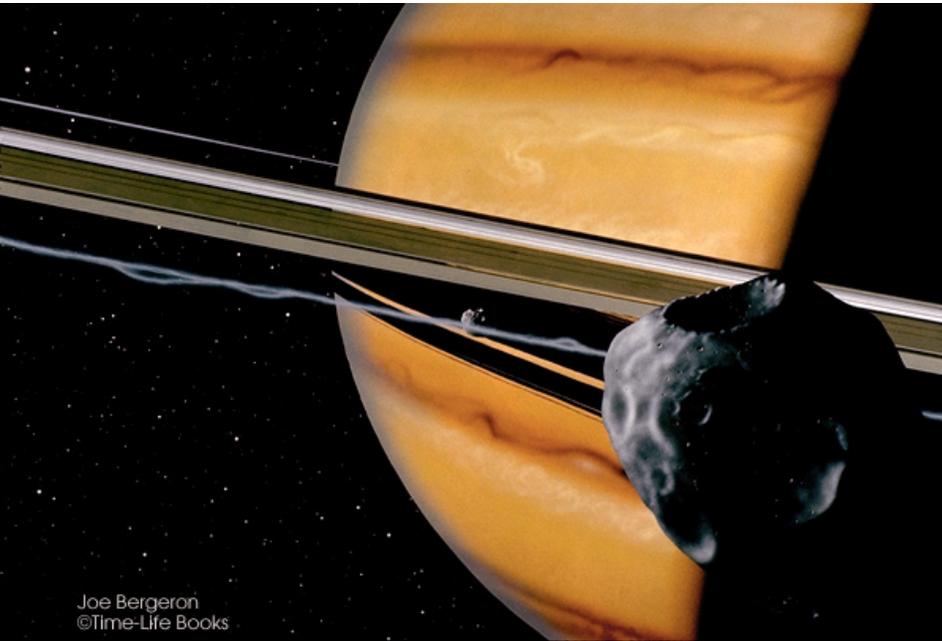
Most of the craters on the Moon are circular. The few craters that are not circular, like Messier and Messier A (pictured at the left) in the Mare Fecunditatis, are an enigma. Scientists have not yet determined how these oddly-shaped craters were formed.

Most craters on the Moon that have diameters less than about 15 kilometers have a simple, bowl-like form. Lunar craters with a diameter over about 15 kilometers have more complex forms, including shallow, flat floors made of solidified lava, central uplifting (a single peak, multiple peaks, or a ring), and terraces on the inner-rim walls.

Simple impact craters have bowl-shaped depressions, mostly with smooth walls. This type of crater generally has a diameter less than 9 miles (15 km). Their depth is about 20% of the diameter.

Complex impact craters have a single or multiple peaks in the middle of the crater. These craters have diameters between about 12 and 110 miles (20 and 175 km), and the central uplift is usually one or a few peaks. Craters with a diameter over 110 miles (175 km) can have more complex, ring-shaped uplifts within the crater.

An impact basin is an impact crater that has a rim diameter greater than 185 miles (300 km). There are over 40 impact basins on the Moon. These catastrophic impacts produce faulting and other crust deformations.



Joe Bergeron
©Time-Life Books

Sheperd Moons By Joe Bergeron

The weirdly braided F-ring of Saturn is confined by two tiny "shepherd" moons which orbit just on either side of it. Published by Time-Life Books in their *Voyage Through the Universe* series.

ARTISTS IN THE HEAVENS...

A couple of months ago, member Jim Scotti mentioned on the listserver that there are several space artists that have been honored with a name in the "heavens". Since the theme for this month is craters, I figured this would make an nice little story. Six space artists have had asteroids named for them, they are 3129 Bonestell (Chesley), 3341 Hartmann (William K.), 6584 Ludekpesek, 6446 Lomberg (Jon), 6141 Durda (Dan), and 3594 Scotti (Jim). Congrats to our four members! Now - any of you gentlemen care to paint a picture of "your" asteroid?....

Name	Number	Discovered	Painted yet?
Bonestell	3129	1979	No
Hartmann	3341	1980	Not yet
Scotti	3594	1983	Nein
Durda	6141	1992	Unh-uhn
Lomberg	6446	1990	Nada
Ludekpesek	6584	1984	Nope

Profile: Elen Feinberg Born in New York, Elen has been a professional painter for several years and has won numerous prestigious awards such as the James Cavalier Center for Creativity, Fellowship in Painting, Valletta, Malta, and Fulbright Scholar Award, Germany. A Bill Hartmann recruit, she has this to say about her art:

"The impetus for these paintings is derived primarily from images of the galaxy which have been flashed back to us from satellites and space missions. What is so provocative about these images are the ways in which their visual forms bind to their psychological content. My study of light, for example, is also a meditation on the nature of illumination. My interest in space is both hepatic and philosophical, that is to say, besides the felt response one may have to deep or shallow space, these spaces are also a meditation on infinity and finitude. And scale, physically and psychologically, is meant to extend from the most potent to the most cloistered, between the grand and the infinitesimal, the macrocosmic and the microcosmic.

These images and their varying visual and psychological components -- fragility and persistence, assuredness and doubt, the sublime and the gross -- are forced to contend with one another within a single world of chaos and structure, analogues for what is ultimately our destiny."

A SHOW IN TUSCON

From Bill Hartmann

I was asked, along with Kim Poor, to curate a show of space and astronomical art for the fledgling Museum of Contemporary Art in Tucson. I've just been spending the last few days putting this together, working with Novaspace Gallery and Kim to supply some paintings and also supplying a lot of my own and some pieces from my collection.

The result is shaping up to be a fairly major exhibit of space art, drawing fairly heavily from IAAA painters as well as others. Maybe 45-50 pieces hanging for around 6 weeks. I've written an introductory statement which I hope will go on big poster-sized panel at the entrance, about the background of this type of art, the Hudson River and frontier artists' connection, Rudaux, Bonestell, and the IAAA. I'm listing the IAAA web site.

The museum is a cavernous warehouse building downtown, not to far from the much more established Tucson Art Museum. MOCA tends to be a more happening place with the younger struggling artists, and is also visited by numbers of foreign tourists, so I think that being exhibited there will introduce our work on a whole new level and might bring some new people into contact with Kim's gallery. The exhibit space is good, well lit, well insured. We're dealing mostly with the biggest pieces we can find, to fill it up and give more impact. So I'm not taking everything from Kim's place, just what seems to fit in thematically and size wise. All the pieces for sale at Kim's will be marked for sale in the exhibit, at Kim's price, and the sale for those would be referred to Novaspace, as usual. I'm sure the show will be spectacular and think it will help in a small way to ramp up our astronomical art credibility in the more urban art community. Drop by and see it if you are in the Tucson area.

Profile: Gary Tonge

I work for a computer entertainment company in Derby, England as a Graphic Artist/Game Designer. I have been working in this industry for 14 years and have done a variety of different types of graphics in that time varying from TV Show graphics to full motion video for games and SGI rendering.

I became interested in art when I was still at school. I used to be very interested in math and physics too but my passion for drawing took over from my eagerness to learn the more complex parts to the other two skills. I became pretty much obsessed with painting. Ironically, my interest in physics and math has never gone away, which I guess is one of the reasons I like drawing space art.

While at school, I used to have a very antiquated computer (Atari 800) which, for it's time, had pretty good graphics. 256 colors on a 160X100 screen! Or I could go higher rez and have 4 colors on a 160X200 screen!! Anyway I used to struggle to create images of the quality I could on paper using this machine. When a new generation of machine came out in 1986 (Atari ST and Commodore AMIGA) things changes radically for affordable computer graphics and after buying one I was quickly hooked on using the electron to create. Twelve images and 6 months later I managed to land myself a job in a computer games company called "Elite Systems." I was 17 years old. From then to now I have seen every possible progression of computer graphics, right from the hot seat.

My love of Space goes back even further. I used to look into the sky and wonder, "What is going on?!" I couldn't believe that all that was just by chance or even created by a man in a white gown! I was very young, but space fascinated me. When I received my first books on space I couldn't believe the photos in them. "No way, is that really up there?"

In many ways I feel very fortunate to have been born when I was. The whole spatial realization process has been moving on at a massive speed since I was a young child. I have grow up with "Star Wars" (a VERY big influence on me when I was 7), the Space Shuttle, and the Hubble telescope. The latter has had me transfixed ever since they fixed it's optics. The images it transmits are astonishing.

Being very spiritual and having an absolute belief in a created and benevolent universe has also inspired me to try to express what may be out there in my own way. I found my belief in God from gazing upon creation. A lot of people I know think little of the bigger picture (life is hectic enough as it is!) and even fewer have any real interest in space and what may have created it. All I want to do is inspire people, just as I have been inspired by George Lucas, the HST, shooting stars, crescent moons and the incomprehensible magnitude of it all. I would dearly love to be able to make a living from Space Art, it is my passion.

My preferred medium is Digital, although I see a large distinction between the digital art I create and something that might be rendered. I used to use rendering very heavily at work and it has a lot of merits. I try to freehand draw my images to the greatest extent I can. I feel more accomplished when the image is done than if I had rendered it. Also, I am an incessant color tinkerer. I can't help myself! When an image is nearly done I will fiddle with the colors and tweak the contrast, most the time to only end up returning to the original afterwards!



HOW THE HECK DID THEY DO THAT?!

In honor of the year, I've located a great source with the secrets of how Stanley Kubrick filmed his masterpiece, "2001: A Space Odyssey." If you've ever wondered how some of those incredible shots were made, each issue this year will detail a little of the magic behind the camera.

How did Dave and Frank climb feet first through a rotating hatch?

Arguably, the single most intriguing effect of them all. We see the two of them making their way along a tubular tunnel to a rotating hatch. As if by magic, the moment Dave and Frank reach the hatch they start rotating with it and have the apparently near-impossible task of threading their way into the hatch, feet first. Of course, it is the rotating set effect again, but with the added intricacy of being in two parts. While in the tunnel part, Dave and Frank are simply clambering their way towards the hatch which is really rotating. But at the point where they move from one part to the other, the rotation is transferred from the hatch section to the tunnel. The camera starts moving, while Dave and Frank simply climb down into the now-stationary opening. Difficulty factor: achieving a stop-start rotation without a trace of jerkiness. Fiendish, Stanley, fiendish! ☺

Kudos Korner

- Dave Hardy has a full page illo of his painting of the eclipse in Zambia in the September issue of SPACEFLIGHT magazine. And for the record, member Richard Bizley bought the original (acrylics on canvas 30" x 20")
- Bob Eggleton has won the 2001 Locus Award for Best Artist. HOO-AH Bob!
- And speaking of Bob – our very own Bob E. was also interviewed by Locus magazine, the latest issue has a several thousand word article about Bob and art titled "BIG IDEAS, BIG TALENT, BIG HAIR". Check it out!
- Kudos to Dan Durda for his nice article in the August Astronomy magazine on asteroids and using them as "stepping stones" to Mars - then reusing the same spacecraft that was used for the asteroid missions for the Mars mission. Sounds like a great plan! Bill Hartmann has an manned asteroid mission painting featured in the article too.
- Michael Carroll has the cover painting on the August issue of "Asimov's"

Left - *100 Mile Scarp on Mercury* By Walt Myers

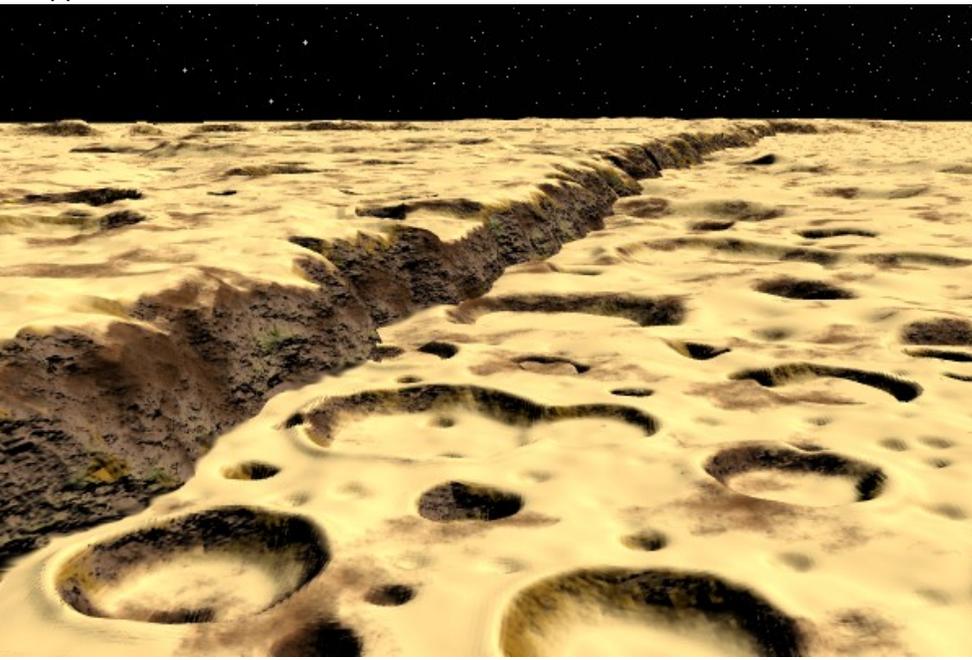
One feature that distinguishes Mercury from the other planets are the enormous scarps, or cliffs, that stretch for hundreds of miles across its coppery surface. They are believed to have been caused by massive blocks of Mercury's crust being thrust upward, probably while the planet was cooling and shrinking early in its development. The scarp pictured here is about two miles high (twice as high as the walls of Earth's Grand Canyon) and runs for about a hundred miles.

CASSINI IMAGING TEAM NEEDS OUR HELP!

Here's an urgent note from Dan Durda:

"I'm writing on behalf of Dr. Carolyn Porco, leader of the Cassini Imaging Team. There have apparently been some rumblings behind the scenes regarding Carolyn's wonderful efforts to produce and release true color images from Cassini's camera system. She needs our help! Carolyn is concerned that she and her team may no longer receive the financial and political support to continue to process the data and release imaging products to the public in the scientifically accurate and artistically aesthetic way they have been able to do to date. Carolyn is very proud (rightfully so!) of the great efforts she and her team have made to present images in as true a color as possible, rather than the contrasted and garish presentations from Voyager and sometimes Hubble releases. Carolyn believes that when image products are to be released purporting to show the planets as we would actually see them, every effort should be taken to present the data in as true a color as possible, and she has taken great care in doing so so far. I think this is an effort we in the IAAA resonate with and can support. However, she has met with increasing resistance from higher in the Cassini chain of command regarding her work. Carolyn is seeking the help of the IAAA in her continuing to be in charge of processing and public presentation of the images and their scientific content. The Board is considering a statement on official IAAA letterhead, addressed to the relevant people at JPL and NASA supporting her efforts at true color presentation of image data."

If you are interested in showing you support for Dr. Porco's efforts and would like to add you name to a list to be included with the letter, please send an e-mail or letter to our Public Relations Officer with your name, profession, place of work, and country of residence. E-mail address is "ramerj@worldnet.att.net", snail mail address is "Jon Ramer, 1112 Magnolia Bayou Blvd, Ocean Springs, MS, 32564, USA". Jon will compile the list of names for attachment to the Board's letter to demonstrate the wide-ranging support for Dr. Porco and her team's work.



Asteroid City

By Bryce Jacobs

Asteroids could be the perfect "vessels" for interstellar generation ships or deep space habitats.



ART TIP #1

Here's our first tip about painting craters, this one from Bill Hartmann: "I remember writing a note about this a few years ago, so maybe the following notes are helpful, here goes...."

1. Crater sizes: Besides the issue of randomly spacing the circles, there is the issue of the size of circles themselves. Asteroids, meteorites, and all broken fragments, and therefore the craters made by them, have a natural distribution of sizes. A rough rule of thumb, especially at sizes larger than 1 km (which is what you see from space) is that every time you go down by a factor of 2 in size, you must put in 4 times as many craters. Example: if you start with one 4 cm crater on your artwork, then at 2-cm size put in four craters, and at 1-cm size put in sixteen craters! If you take a small dirt clod or make a plaster ball or take any breakable object, and drop it or tap it and break it, you will see roughly this size distribution.

One reason many early paintings of the moon looked unnatural is that people put in too many of the same sized craters. Incidentally, below the size of 1 km, this size distribution steepens noticeably, and when you go down by a factor 2 in size, you must put in more like 8 times as many craters! This is why there is so much softening and sandblasting of the lunar mountains by small impactors.

2. Overlap: The craters really formed in random order, but we usually see only small ones on top of big ones, not the other way around. You could imagine part of a small circle sticking out from behind the rim of the big one, but in reality, the bigger one throws out so much ejecta that it covers small ones in the area, and that's why you see only small ones overlapped on big ones. It's not that sizes got smaller.

3. Erosion/degradation: The hardest thing for me in painting cratered terrain is that old, large craters exist on any surface that are rounded, eroded, softened in profile, and they contrast with the fresher craters with their sharp rims. Someone you need to start with old shallow features and then build up to sharper, younger features, at the same time applying items 1 and 2 above. I've never mastered it. In my opinion, Joe Tucciarone is the IAAA master at getting this right!

Bill Hartmann

ART TIP #2

Here is our second tip on painting craters, this one from Bob Eggleton: "Craters are actually fun to paint.

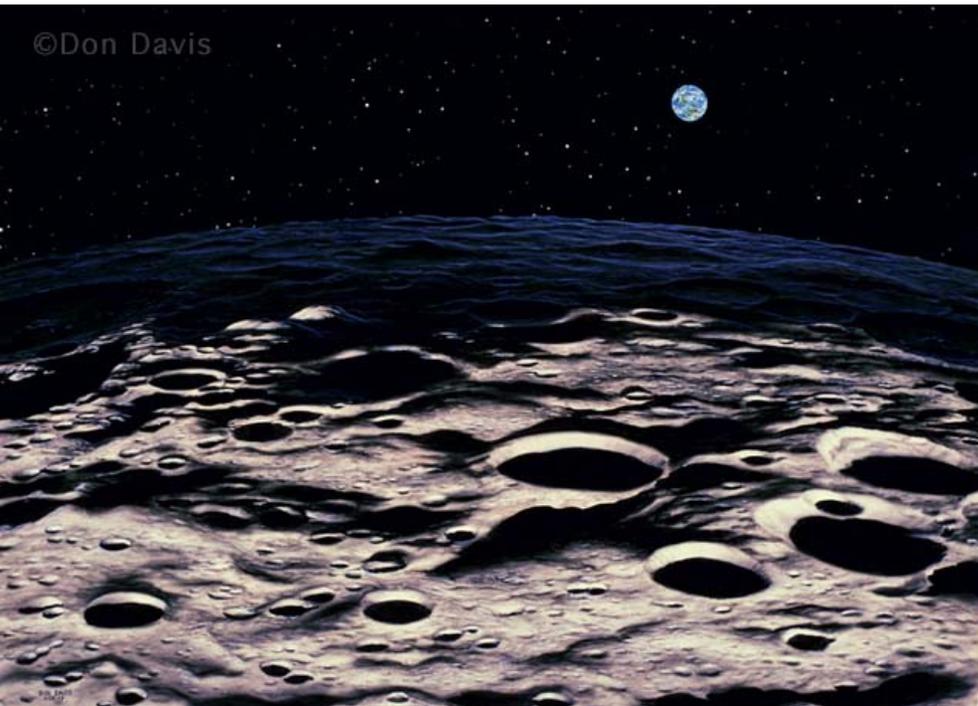
You have to keep in mind your light, where it's falling and sometimes how deep the crater is (they are all different) and, as I carry the cratering back from the light side of the planet/moon, I keep in mind only the receding rim will show as I move back, to the point of total darkness, beyond the terminator, where I will put in little ticks and bits of light, then darkness.

Often, only that receding edge will show because the crater can be an "innie" with very little sticking above ground, and as such, you don't get the nearer-to-the-light side showing at all. Some "outties" have puckered up so that both sides will be illuminated. Some craters are deep, deep bowls and others have filled up with lava and flattened out on the bottoms. It's all up to you, particularly if you are painting a world no one has so far mapped in depth, which I prefer to do. My thinking is, there are so many photos and CGI of "the moon", why bother painting that?

Hey, even Alan Bean paints his craters impressionistically and you'd still never doubt it was the Moon!!!

I try for a random effect, not at all deliberate, because, it's all a series of happy accidents anyhow when they were formed by natural forces in the first place. I break up the monotony of circles and put craters WITHIN craters, some smashed into the rims of others. You can have all kinds of fun all day long doing that.

Bob Eggleton



ART TIP #3

The lunar surface is largely a demonstration of 'steady state' saturation cratering, a situation emulated by Man principally on some World One battlefields and in small scale tests in laboratories. Newer craters disfigure older craters, and relative ages can be easily determined in cases where they overlap. There are many more small impacts than large ones. I recall Don Wilhelms, my supervisor at the U.S.G.S. during the Apollo era, saying there were roughly ten times more craters a tenth the size of any given crater assuming constant exposure over geologic time. This results in a kind of 'sandblasting' of the surface which softens the outlines of older craters, along with other factors.

These kinds of things should be known to guide one's hand in the painting of such scenes. The portrayals of the shadows cast by bowl shaped landscape elements can be aided by making clay models as Chesley was known to do. Close-up lunar soil textures can be approximated by dropping small handfuls of powdered plaster into a deep tray of the stuff under a strong directional light in a dark room.

When drawing an imaginary lunar scene from above I would generally paint in the small crescent shaped dark shadow areas first, working on larger such features, some more pronounced than others, until the larger contours 'beneath' the smaller detail were defined. Then I would go back and 'freshen up' the craters which were more recent, taking care not to make the 'rays' look too starburst-contrived. This is in the instance when I am not trying to show an actual area on the Moon. Then the opposite is generally the case, first the gross than fine details go in as I am making a portrait of a specific site.

Effort must be taken to convey the random nature of these events, as mentioned elsewhere. One can literally look into how the mind of an artist processes such things by seeing how they attempt to portray randomness. One of the last things I would do in such a painting is deliberately not look at it for a day or two and then look for spurious linier arrangements of craters and detail and erase them. It's almost a kind of Zen state to seek to dismiss one's instincts to impose patterns on the world of our senses.

The general 'look' of the scenery is provided by reference to surface photos taken by robots and people, a luxury for those hoping to 'show it like it is' on other worlds. Someday, more varieties of Martian landscapes will be imaged by robot landers, giving more of a feel for the variety of scenery to see there.

Don Davis

Left - *Lunar South Pole* By Don Davis, FIAAA

An image depicting the cratered fields of the Moon's south polar region where the floors of some craters are in perpetual darkness due to the angle of the Sun's light. There are many indications that water ice exists in these craters in fairly large quantities.