From the Editor:

Welcome to the PULSAR 2010. This issue takes us on a journey of discovering artists’ technique, whether digital, digital/traditional or straight traditional means? I’m sure many of us in the early days started off as strictly traditional artists, and as digital technology painstakingly evolved to a standard where it could support illustration, crossed over to the digital realm without looking back.

I know I fit into this category. Others of us have combined traditional/digital techniques and explored the opportunities that both mediums offer. Still others have retained, or even begun space art using strictly traditional methods, and I’m sure there are other members who gravitate between traditional/digital and back again. Is, however, the digital medium actually an art form? This question is addressed in this issue.

The voting for seats on the IAAA Board of Directors has taken place and the following members have been elected to serve the next two years:

Don Dixon
Dan Durda
Robin Hart
B.E. Johnson
Jon Ramer
Pat Rawlings

Congratulations, team!

I am also sad to report the passing of Sean Brady, IAAA Artist on 25th July. A special section paying tribute to him and his work is also in this issue. I hope his work continues to inspire those of us who remain to continue revealing the universe around us in our art. We will miss you, Sean.

Cover: Lord of the Rings (cassini) and working art(top), by John W. Clarke; Mars DEMs by Steven Hobbs and North Wall by Sean Brady
Ideas?
They can be found everywhere, from shadows on a wall; grease-stains on a drip-tray; often from magazine photographs when viewed upside-down and with spectacles off (to clarify the main features without being distracted by detail).

Technique?
Just the old-fashioned one of squeezing paint out of a tube and on to a tear-off palette, mixing it, then application on to the art-board's painting surface by one of a half-dozen variously-sized brushes.

Medium?
Acrylic paint, mixed with some water from the three jam-jars at the side of a slightly-sloped wooden boar propped on the flat top of a small, opened, gate-leg table in part of the Living Room.

Main outlines first sketched in with light pencil strokes, then gone over with fast, free, brushstrokes of watered Black paint that covers large areas. This can often suggest additional surface detail for the lunar or planetary surfaces before colour is added on top of it all.

The Black underpainting shows dimly through the colour as a guide, sometimes needing to be revived in parts so as to continue guidance through the planned picture. (At other times it can be left showing, to add distance should there be an atmosphere on the world.)

Eventually I find myself concentrating on detail, whilst being "tugged" to paint in a looser, more "impressionistic" style, which might emerge more in future paintings. We will see.

All extremely basic stuff, with even the central cut-out of the pic's mounting-board 'frame' forming the new painting-surface for another, smaller, painting in time to come: nothing gets wasted in this 'studio'!

Finished artwork is usually able to fit into a medium-sized suitcase for travel to SF Conventions, where hoped-for Sales will help pay my Con Membership, travel costs, etc. --- perhaps even my Hotel Bill!

"Hey, Diddle-dee! An Artist's life for me!"
Sean Brady - a Small Tribute

Sadly, we have to report the passing of IAAA Artist Sean Brady after a long battle with cancer.

Sean’s funeral took place today, Friday 31st July, 2010, while concerned IAAA Members were trying to establish contact with him.

He had been remarkably cheerful after receiving the news of the onset of his illness - much to his own surprise - but, in February, his condition began to decline.

Concern among his IAAA friends began to mount as no replies to their e-mails were received. Telephone enquiry resulted in the news of the funeral having been held today, following his death on Sunday, 25th July.

My own contact with him stemmed from purchase of one of his paintings at a Glasgow SF Convention, in 1979, which has hung on the wall directly over my worktable and has proved an inspiration to me ever since. We drifted apart for many years after that, only re-establishing contact at the 1995 WorldCon, also in Glasgow.

He introduced me to the world of the Internet, generously giving me a laptop computer from those being discarded by his local Education Department through damage, so letting me get initial experience with a computer.

Sometimes slow to answer his e-mails, Sean and I drifted apart again as a result, with the announcement of his condition then causing reluctance to “intrude” into what must have been a trying time for him and his family. It was only worries from fellow U.K. Members that prompted me to re-establish contact --- just too late!

His cheerfulness, enthusiasm, and generosity will be sadly missed by all who knew him.

Ed Buckley
*
*

I am very saddened to hear the news of Sean Brady’s passing. I also met him at the workshop in Utah, 2008. I remember one hot day we had all taken a climb up a trail and we got to know each other a little in the shade of a tiny tree. We decided it was time to walk back down and I tagged along with him. He turned to me and said something about not needing an escort down the hill, that he wasn’t THAT old. So I stayed a few feet behind as I was worried about him on that trail. Halfway down I was the one who slipped and fell on my keister! Then we walked the rest of the way together.

Erika McGinnis
Rope Walk by Sean Brady

Olympos Station by Sean Brady
"Satellite Quilt" was created as a result of the IAAA international art workshop based at Astrium UK Limited (now EADS Space) at Stevenage that I organized and ran in 2002. One of the most striking departments that I spent time in whilst at the Astrium manufacturing site, was where the satellite protective blankets were made. To protect the very sensitive and costly probes and satellites that are sent into space for decades (or even longer), thermal and radiation protective blankets are designed and hand made using the same traditional craft techniques used by quilters to create blankets that have protected their families and loved ones down through the generations.

Just as when a bespoke suit is made, paper patterns are designed and cut, and a dummy suit is then made and fitted to the satellite. Any adjustments are then made to the patterns before the layers of mylar were then cut out and sewn together to make the final blanket for the satellite. It is a very time-consuming and exact process, which is done with such care and dedication by each individual member of staff.

Jackie E. Burns (left) with the Assistant Head (right) of the Blanket Department, Astrium UK Limited
Quilts are made in a similar fashion: a paper pattern is used as both a template and a temporary backing to each piece cut, which is then placed into position until the quilter is satisfied with the lay-out of the pattern. Then each piece is sewn to another, removing the paper templates one by one, until the quilt is complete. It took me six months to make the Satellite Quilt.

I wanted to bring together these two very different, yet very similar, methods of individualized protection against the environments for which they were intended and so I have created a traditional item using modern, high-tech materials. Like the satellite blankets themselves, this quilt is unique. The first of its kind. To my knowledge no other quilt has been made like this before.
Traditional Techniques
Richard Bizley

I paint in the traditional method and the majority of my paintings are done in acrylics (Chromacolour). Although many artists experiment with other paints, I have found myself very comfortable using Chromacolour and the fact I use this medium all the time professionally enables me to concentrate on the wide variety of scientific subjects that I wish to explore.

The reason why I chose Chromacolour is that they are versatile and come either in tubes for brushwork or pots for airbrushing. Another advantage is that Chromacolour in tubes are formulated to stay reasonably thick on a painting palette if kept on a moist tissue (a membrane sitting on a sheet of damp sponge in a flat container). This is ideal to keep mixed paints etc wet and if kept refrigerated it can last for a week or so, saving paints in the long run.

I tend these days to paint either on wood or stretched canvas or canvas boards. Before I start on a painting, I always do a series of sketches and see which looks right (or I should say 'hear' as I have synaesthesia so I am able to 'hear' composition). I give the board a coat of background colours then draw the sketch on top and work my way through.

When painting rocks, grains of rocks eg sand I get a lot of pleasure trying to make it all look random by flicking, sponging paints with sponges, toothbrushes and so on. In my local shop I discovered great artificial sponges made to look like natural sponges with huge holes. All I had to do was tear the sponges up into bits and it made marvellous lava rock effects. Much cheaper than the real sponges. For the naturalistic effects of rock surfaces having differing colours or textures, I sometimes

Life Takes Hold by Richard Bizley
apply very diluted paints and let it run around the surface, either by tilting the surface or push it around with sponges or brushes and let it dry and repeat or paint around afterwards with brushes. Airbrushing is something that I try not to overuse, but it is a marvellous tool if used with care such as painting steam from volcanic vents, faint bands of nebulosity and so forth.

It is extremely hard to paint commercially in traditional methods these days due to the amazing quality of digital art that artists are able to achieve. As a result on the whole, I have not been doing much astronomical art lately. I feel I ought to rectify this as painting astronomical scenes using nice and messy traditional methods is part of me that I miss sorely and look forward doing more of.

Anyway there is I believe a (limited) niche within commercial art world that traditional art can sit comfortably next to digital art, I intend to explore this.
Out of This World - pt 1
by John W. Clark

If you have not seen images taken by the Cassini spacecraft of the planet Saturn and its moons, do so. They are fascinating and breath-taking.

Artists have always been intrigued by images that sparked their curiosity. A light goes on in your head prompting many questions, which in turn require solutions. As one inspired with the cosmos all of my life, each new image beamed back by Cassini has provided a wealth of ideas that can serve as inspirations for paintings.

Recently, I saw an image that intrigued me. It was a cropped view of Saturn showing only half of the planet with the rings being the prominent feature. In this scene part of the rings were falling into darkness from Saturn's shadow. My curiosity led me to wonder where Cassini was when it took that image. I began to analyze the NASA image and decided to try and recreate the view allowing me to observe the following features: The location and shape of the terminator around Saturn. How high above the rings one would have to be in order to observe them from a particular ellipse angle - 5, 10, 15 degrees, etc. The slant of the sun's rays striking the planet. The shape and location of the shadow cast by the rings onto the planet. The location and shape of the shadow cast by Saturn onto the rings. To solve these, I began a drawing that met the above requirements. It took two attempts to arrive at a close approximation of the view I saw in the NASA Cassini image.

The Planet's Terminator
Saturn's terminator in the top view is dictated by the sun angle in the side view. Once this was solved, I could draw the terminator orthographically in both the top and side views. This later became interesting when I plotted the terminator because Saturn is not a perfect circle. In fact, seen straight on in the side view it appears as a 65-degree ellipse because it is rotating so fast and bulges at the equator. Therefore, the terminator takes a rather peculiar shape as it transverses the planet starting at the North Pole down past the equator to the South Pole.

Cast Shadow from the Rings
To determine the location and shape of the shadow cast by the rings onto the planet, I searched for the angle necessary for this to happen. What I needed was to view the sun's rays striking the planet as they left the "D" ring, also checking to see where the sun's rays hit Saturn as they left the "F" ring. If both shadows fell where I saw them in the photo I knew I was close to the desired sun angle.

Lord of the Rings by John W. Clark
If one looks closely at pictures of Saturn under different sun angles, you can see the irregular shape of the cast shadows from the rings as they appear on one side of the planet versus the other. Again, this is because of Saturn’s shape - bulging at the equator.

**Saturn’s Shadow on the Rings**

Finally, I looked at the top view and positioned my viewing position so that I saw a sliver of the light on the far side of the rings, which indicated the edge of the furthest portion of Saturn’s shadow falling on the rings. Having completed the drawing I decided to begin a painting based on the NASA image, which I used as a “point of departure” as they say in Modernist art world lingo. I added the Saturnian moon Rhea, and compositionally positioned it in the painting to augment that interesting shape of the rings.

When painting Saturn, the goal is always try and make the planet appear as three-dimensional as possible (as a sphere as opposed to a disc). To accomplish this I had to subtly gradate the colors and modulate their intensity, color temperature, and values as I went into shadow. In Academic training, painting shadows transparently (as atmosphere) was a way of inducing a feeling of ambiance into them. (I know, I’m in outer space and there is no atmosphere.) Since we have never seen things with our own eyes at this location, as artists we must show the viewer what they are accustomed to seeing. The wonderful contrast of light going into complete darkness as the rings entered the shadow of Saturn had to be carefully handled. I glazed several layers of a transparent alizarin crimson and thalo green mixture for my dark color, being careful not to introduce any white into the concoction. That would have killed the “atmospheric” effect and made the shadow appear opaque and not transparent. My background had to resemble the “milky blackness” of outer space described by Barbara Morgan (the schoolteacher who recently flew on STS 118), which added to the excitement of the painting. Completing the work required the sprinkling of stars having different magnitudes, sizes and colors throughout the painting. All accomplished with a flick of a brush loaded with paint. The initial curiosity arising from an image of a far away and beautiful planet resulted in a journey of exploration into the worlds of orthographic projection, descriptive geometry, mediums and pigment. All a part of the wonderful experience known as art.

*Work in Progress by John W. Clark*
Some of you reading this may empathise with certain elements of this story – read on and see if this has happened to you!

Once upon a fine autumn Saturday our little tribe were walking along the river of our little town near Canberra. The local art gallery is situated along this river and I thought after driving past it over a hundred times in the past without stopping that I would pop in and see what my chances were of exhibiting there one day. I thought it would be a good idea to try my luck, thinking along the lines of a local venue supporting local talent – and also encouraging viewers to look into the sky above their heads and wonder at the distant stars and planets that make up our universe.

I went inside and, as could be predicted in a country town gallery, the walls were covered with paintings of flowers, historic buildings, farm scenes and of course varying renditions of eucalyptus trees. This latter subject is very popular with Australian artists, and most art galleries have paintings depicting eucalyptus trees in flower, in fields, next to houses...you get the idea. Despite the traditional nature of the subjects on display I decided to press on and saw one of the curators, a young lady of about 70. I told her about my art history and showed her one of my prints that I had proudly had hung in Paris the year before for the International Year of Astronomy. The curator seemed to show an interest and I proudly told her I used digital techniques, often utilizing actual returned spacecraft base datasets to enhance the space traveller look and feel to my work. At this she stated that this wasn’t the sort of thing the gallery would be interested in, and that many of her colleagues believed that digital art wasn’t art at all as the computer did all...
the work. I invited her and colleagues to watch me create a live piece and educate them on the time and effort goes into one my works but she wouldn’t be budged. So much for local community support.

Is digital art actually a form of art then? Way back when PULSAR was in black and white I wrote an article along similar lines, and approached it with the perspective that digital art was simply another medium and opened many new opportunities for art and visualisation, not least of which was to animate. Over a decade on I still hold this belief, and compare it to the introduction of the airbrush to the art world many years ago, and its subsequent denouncement by many (though not all) traditional brush artists. To me, using a computer is a natural extension of my art as I continue to create and visualise in the second decade of the new millennium. Dreams I have had of creating animations of spacecraft back in the 1980’s have finally come true as the technology required to create these things have finally evolved. This has coincided with a resurgence of space missions to the moon and planets that have deluged us with data that vastly increases our knowledge and understanding of the cosmos.

Yet with these advances, and the fact we are in the 21st century there is still a hesitance in certain quarters to accept digital art as a true art form and many, as my venerable art curator still believe it is the computer that does all the work. They don’t (and often can’t be bothered to) realize that the soul of art lies with the artist and not the medium they work with, and that digital artists face just as much hard work to get their piece just right.

The Rings of Uranus by Mark A. Garlick
A close Look at Gale Crater by Steven Hobbs

My artwork is still based on years of creative experience, and for my particular genre, scientific knowledge, and the digital medium allows me to explore moving images, or other avenues of visualisation not available to me by traditional means. Of course traditional art absolutely has, and should have a prominent place in art, space or landscape. It is good to see, even in this age of silicon many space artists, such as Richard Bizley, are still creating scenes with paint and canvas, or in the case of Michael C. Turner, a fusion of traditional and digital techniques to create a whole new form of art and open up more possibilities.

Whether it’s using the digital medium, traditional techniques, or a fusion of the two, I believe it is time that tolerance, the buzzword of the 21st century be practiced in the art world. We should all be allowed to get on with being creative with whatever method we choose to employ and enjoy making works that come from our souls. The simple fact remains, that even using digital techniques creating a good work of art involves hours and hours of hard work, researching the material, creating models and texture maps, lighting and rendering the scene, and then doing the endless tweaks to get it all just right. Who has tried to model a space probe from pictures on the NASA website or from books where three different layout and instrumentation versions of the one probe are shown? Our own David A. Hardy has shared his perspective on art techniques in the next article. Read on!
Digital Art: 2D or NOT 2D?
David A. Hardy

"An artist – me? I can’t even draw a straight line!" How often does one hear this said; and indeed, to many people one of the criteria for being an artist does seem to be an ability to draw a straight line, or a perfect circle, without mechanical aids. In the 19th century, John Ruskin certainly believed this, as his book The Elements of Drawing shows. But it surely depends upon the type of artist; an abstract painter whose work consists of broad strokes or squiggles of colour is unlikely to be concerned about such matters. (Having said that, Picasso proved himself to be a very fine draughtsman before he began to turn people inside out...)

The fact is that most artists will use whatever tools are necessary to produce the result they want. It starts with a ruler, a compass, a set square. Maybe an airbrush will make it easier to blend that sky, or produce that misty effect? Or would that be cheating? As soon as artists began to use linear perspective – which dates back to the early Renaissance (Filippo Di Ser Brunellesco, 1377-1446, is usually credited with its first use in art), various ‘aids’ began to come into use to assist in finding vanishing points and so on. Devices like

the camera obscura were also used to enable more accurate depictions, and it is known that Vermeer was fascinated by lenses and made use of them in his paintings, as did van Eyck. Of course, it was not until the invention of the telescope, first used astronomically by Galileo Galilei in 1609, that we had any concept of celestial bodies as other worlds, perhaps like the Earth.

This brings us rather neatly to astronomical art. Which for many years was really ‘astronomical illustration’, because the only use for a depiction of the surface of another world was to enhance a book, whether factual or fiction. Interestingly, much of this early ‘space art’ seems to have been three- rather than two-dimensional. The first instance of this was in The Moon, by Nasmyth and Carpenter, published in 1874. James Nasmyth made plaster models of the Moon’s surface – mountain peaks and craters – and photographed them against a black, starry background. Around 1920 Scriven Bolton used the same technique for illustrations in The Illustrated London News, while in France Lucien Rudaux was producing very realistic if quite painterly paintings, notably for his 1937 book Sur les autres mondes.

Nasmyth Moon supplied by David A. Hardy
But it was the work of the American artist Chesley Bonestell (1888-1986) that really made the public sit up and take notice. A series of paintings of Saturn from various moons in Life magazine in 1944 was followed in 1950 by a series in Colliers (and then various books) showing how humans could travel into and live in space – in Earth-orbit, then on to the Moon and Mars – was undoubtedly highly influential in sparking NASA’s eventual Apollo programme and all that led to it. Trained as an architect, it was Bonestell’s tight, ‘photographic’ technique which impressed all who saw it – even though his distinctive tall, craggy lunar mountains bear little resemblance to the rolling hills photographed by Apollo astronauts!

However, fellow space artist and writer Ron Miller has pointed out that Bonestell often made models, both of vehicles and of landscapes, to assist his work, and even painted over photographs of these in oils, which no doubt accounts for some of his highly photographic illustrations. (He was not averse to recycling his work, either. The landscape of Saturn’s moon Iapetus in his 1944 painting reappeared, now coloured in strong reds and greens, as a planet of the red supergiant star Antares in the 1964 Beyond the Solar System). Bonestell always insisted that he was an illustrator, and also that he did not paint science fiction pictures; this did not stop SF magazines such as Astounding, Galaxy and The Magazine of Fantasy & Science Fiction from regularly using his work as covers.

Would Bonestell, were he painting today, use digital techniques? It is difficult to say, but based on his use of models it seems likely that he might. On the other hand, he may well have preferred to stay with his very traditional techniques of painting in oils on Whatman paper, and used a computer (as some artists do) only as a guide to the early stages. The late Czech space artist Luděk Pesek (1919-1999), would almost certainly not have taken to working digitally, because he was primarily a painter. He had an impressionistic technique which made his paintings look as if he had set up his easel and painted en plein aire (or plein espace).

To return to that straight line, there is no doubt at all that the computer makes it easy to draw one. More important, it makes it easy to draw circles, and therefore ellipses; how much easier it is now to produce an image of the orbits of the Solar System, or of Saturn’s rings! Photoshop (from version CS2) even has the ability to scale objects in perspective. But an artist can still ‘draw and paint’ in Photoshop – it’s just a matter of pushing pixels around instead of paint – and other programs, like Painter, even make it possible to simulate traditional media, like watercolour, chalks or oils, if one feels so inclined. This is where I feel we get into dangerous waters. Some programs (eg. Artmatic and ArtMaster) do make it easy for almost anyone, even those with little or no artistic ability, to convert photographs or use other methods to produce what looks, to the untrained eye, like a piece of Art. Where, indeed, does one draw the line?

This trend is taken even further by 3D programs, which have essentially replaced the need to make physical models and photography. There are many of these, some (such as Strata 3D, Maya and ElectricImage) making it possible to ‘model’ any object, such as a spaceship or vehicle, and rotate it in any desired direction, giving it realistic textures, reflections, and lighting. Contrast this with an artist like Bonestell, who at the age of 18 studied under Frank Dempster Sherman at the Hopkins Art Institute in San Francisco, and left able to “draw the reflections of a chair at a specific angle against a mirror tipped from the wall at a different angle.” This was of value, along with his architectural training, when he began to do matte art for movies,
including Citizen Kane and Destination Moon.

Digital techniques are ideal for producing realistic yet fantastic images of other worlds (and naturally this extends to animation and movies). It does of course take skill to learn and use 3D programs, but the best results will always be produced by those who have a solid background in traditional art (and even photographic) techniques, and do not merely let the computer do all the work for them. Other 3D programs concentrate on landscapes (Bryce, Terragen, vue d’Esprit, MojoWorld), and again, these will allow even a novice to quickly produce a scene, be it on the Earth or another world, which looks very realistic and even spectacular. I made use of a beta version of Terragen when I worked on my 2004 book Futures: 50 Years in Space with Sir Patrick Moore, but I created my own ‘terrain maps’ in Photoshop first and did a lot of ‘post-production’ work in that program later, giving me a great deal more control and (I hope) making the result look like a ‘Hardy’ painting. Personally I enjoy using my Mac, and indeed without it should have had hardly any illustration work in the last ten years or so, but after working on a 27-inch monitor for weeks it is refreshing to pull out a large canvas and slap on some paint! But another big ‘plus’ for digital art is the ability to send quite large files by e-mail, via broadband, from one side of the world to the other.

Anyone who makes their living from art and illustration can only deprecate any development which threatens to take food from their mouth. And this one does: any illustrator will tell you horror stories of how artwork and covers are now produced ‘in-house’ by staff artists who actually have little or no specialist knowledge of subjects like astronomy, or indeed SF. By the same token, fees for illustrators have been kept low because of the availability of such ‘cheap’ methods. A ‘fine artist’ can be better placed, because although digital prints and giclées have found their place in a few galleries, most art buyers will still prefer an actual framed painting in acrylics or oils, to put on their wall.
Ringed Wonder
by Michael C. Turner

A massive, ringed, extra-solar planet in a distant galaxy is viewed from the surface of one of its multiple moons orbiting the ring axis. A mysterious atmosphere is created as a blue mist enshrouds silhouetted rock towers in the background and flows down the walls of a huge ancient volcanic caldera in the foreground. Further intrigue is created by the impact of comets with the ringed planet. The irregular rock/ice ring is the result of previous such collisions.

The original painting was created a quarter century ago in acrylic on a 36" x 36" stretched canvas using bristle
brushes. I was relatively happy with the painting then however, I decided to revisit this scene and make some digital modifications. Even though I still create most of my art using traditional materials and techniques, I find that digital enables me to go back to former works and try some of those “what if” ideas that I would never do to the original. The result is a gallery of digital variations on the original themes. Sometimes the modifications are very minute while more extensive modifications transform the original into an entirely different image. This frequently provides new inspiration to create similar works of art using traditional materials and methods. More recently I have been creating digital images from scratch. With these added to my image gallery, I have copious archives to energize me when I get those occasional feelings of not knowing what I want to paint. Modifying previous works of art digitally is one way to breathe new life into some old ideas without having to “recreate” the entire Universe...