Another apology. Although I thought I'd backed up all my files before swapping computers, I seem to have lost the promised software review of *Starry Night* by Anil Rao, plus profiles of Anil, Chris Butler, and Michael Bohme. I hope they can be resold. Also in the pipeline are profiles of new members Delroy van Ravenswaay and Sam Dietzo, plus Jon Borgeson, and some thoughts from Armand Cabrezn. (And YOU?)

I hope everyone takes a look at this back page from time to time. It contains all the information you need about the IAAA, in order to contact the Board, Editors, send in queries about Membership, etc. Still, occasionally we get letters saying "I didn't know how to contact so-and-so"...

Often, *Pulsar* is supported by a small number of regular contributors. Ask yourself: have you ever sent a contribution? If not, please do consider doing so. Are we doing a good job? If not (or if so), let us know!
The Process and Evolution of Machine Ridden Art (Part 2)

By Don Davis

Certain trends and changes in the methods of creating images come to mind that digital media has imposed on the process. The advent of the computer is at first totally alien to the traditional tactile nature of creating art. The mark produced is in a totally different place than where the pen touches the drawing surface. In a way, when I learned the use of the Paasche AB airbrush, I had to conquer a similar disturbance at seeing a mark appear that is hard to change once it is there. Part of the effectiveness of computer airbrush effects lies in the number of brightness levels available in the picture. The current standard for home computer graphics is 24 bit, meaning 16,777,216 colors can be shown at any one time on the screen.

In the human eye is capable of distinguishing some 50 million colors or so, crowded in sensitivity along the yellow to green transition of the spectrum. Thus 24 bit color (and some even higher color numbers used in high end digital color work) approaches the abilities of the eyes to perceive colors.

Imageson is an important caveat to this, the limitations of the medium are not accurately conveyed all the colors in the spectrum.
The color phosphors hit some parts of the spectrum nicely and others badly, a particular example being the green to blue portion of the spectrum.

In order for the full color potential to be realized, the high quality of print, transparency must be prepared from the picture. Most monitors are tuned way too bright, ideally areas of black in a picture should emit no light at all.

For visual relief the computer should be in a room where at least one incontinent light falls across the walls, not on the screen. This supplies continuous light, that is non flickering illumination which will cover much of the visual field and reduce the screen's fatigue effects on many people due to its own subtle flickering.

With the advent of multilayer in painting programs new techniques of painting suggest themselves. A set of highlights on a rocky hill can be painted atop another layer, then that layer separately dimmed to see how a softer lighting would look. The entire project can be saved at critical points so that a detailed exploration that the traditional medium of no longer restraints.

It seems that indeed the process of creating an image is mutating beyond all bounds.

The use of the computer to do the perspective and part of the lighting setup for certain projects offers advantages that no amount of traditional media can restrict.

A recent painting of the Galileo probe separating from the orbiter was created using images from the Voyager and Galileo orbiter and probe, taking care to show the thermal coverings over the instruments, etc. spending the better part of a week on it. I then assembled the model with the Electric Image software with appropriate color values assigned to the various surfaces. No texture maps were applied, the idea was to compose the picture and determine the lighting scheme.

Once I liked an angle, a simple wireframe render was done of the spacecraft, black lines on white paper. This was then faxed to NASA for approval. As things turned out, they didn't like that or the second composition, but eventually after a number of good and one bad angle views the third try faxed in that day did the job.

Let the Computer take the strain

Already the work of building the 3D model had been justified. Next a large (4050 pixels wide) image of the nicely lit model was rendered in Electric Image, and the next day were spent painting on top of that render all the extra details specific to that view using the spacecraft as reference.

I thus let the computer do the work up to a point, then took over where the human touch mattered the most, what is normally the last ten percent of the model.

I think that even without significant painted embellishment, most hardware art could not be done by machine, saving the inspired painted images of that genre to people like Paul Hudson who continue to display the inherent superiority of talented artists over imagery created by people working in the realm of technology more than techniques.

Despite my absolute embrace of digital painting, there are still pangs of regret in the demise of physical physical paints as my primary technique, and I hope that traditional media won't be soon forgotten. So much of
Welcome to the IAA!
Over the last month or two (and largely as a result of our e-mail operations, and especially the efforts of Kim Poor) we have been joined, or in some cases re-joined, by several eminent space artists. A hearty (or hardly, as Dale sometimes puts it) welcome, therefore, to Paul Hudson, Pat Rawlings, and our most recent member, Alan Gutierrez (probably best known for his SF work). Below is an example of Pat's work, and I hope to include examples by other famous and less-well-known artists in this or subsequent issues of Pulsar.

Other IAA News
(incorporating EuroReport)

Our Membership Man, Dale Darby, is also an artist and has a piece upcoming in the German magazine UFO Kurier. And speaking of Germany, Michael Bömme has had several successful recent exhibitions at planetaria over there, including Stuttgart.

Lukáč Pešek, who lives in Switzerland, has a new CD due out about now containing about 80 of his space images, with a commentary in English and German. This should be worth getting by all of us.

There is an article about one David A Hardy in the July issue of the UK magazine Artists' & Illustrators, telling about how he's turned to computer graphics, with a short story to do it. A specially commissioned piece showing an Earth-like moon of one of the newly-discovered jovian planets accompanies Carl Sagan's article in Parade (with the Washington Post) for 9 June.

In the August issue of Astronomy Now (the UK equivalent of Astronomy) there will be an article by DAH on space art, featuring the IAA, and graphics from Novagrafics, together with a new UK outlet called the Kanoa Gallery. Also in July, the 'lifestyle' mag Arena (available in the USA) should be including an article about DAH. Look out for the cover of Ad Astra shortly, too... OK, so I've been busy. Tell me about your recent successes and I'll include them.

New (or about to join) member Erik Viktorn (based in France) is about to go on the road with his revamped SPACE WORLD, which includes a 12-meter towed Space Shuttle and 28 other exhibits, mostly large. It visits shopping malls as well as museums, and he plans to take it to the USA. Meanwhile, following a suggestion by Bill Hartmann, IAA members are planning to produce for it a large 'mosaic', made of tiles about 12 x 10 inches. Interested? Let me know.

THE CYBER SPACE ARTIST
by Kim Poor

KPT Bryce
OK folks, here it is, the long-awaited piece on KPT Bryce. Many of you have heard of it, tried it, loved it, or wondered what all the hoopla was about.

The KPT stands for "Kai's Power Tools", a suite of powerful graphics applications put together by a team headed by the legendary Kai Krause, a super, high-energy genius who has developed Bryce, a program MADE for space artists. Bryce is named for Bryce National Park, and can easily generate that very same sort of landscape.

Several IAA artists, like Don Dixon, have expressed fear that even an idiot can now generate the kind of space scene it takes an expert artist like himself to turn out, well, that's not quite true, but like most computer programs, it's "garbage in, garbage out". A real artist can easily surpass the efforts of a novice when using Bryce. The problem comes when the novice is using Bryce and the artist isn't.

This is why it's imperative that we all keep up with these new applications, and take them to new heights.

IAAA member David Palermo is an Apple employee, a friend of Kai's and a beta tester for Bryce. He is our resident Brycemaster. His story:

Back in 1986 a magical thing happened to me. I found computer-generated art! I was hooked totally on a nice program called Studio/8. . . it was a major program for painting on a computer back then.

Well, times have changed. Oh sure there are many paint programs to choose from. But I am trained as a photographer and do not really want to paint...so all the paint programs in the world are not much interest to me.

So I was happy enhancing my photos in Photoshop (an image manipulation program). Then something came along to put the magic back into computing. A little program called KPT Bryce.

Well, life has not been the same for the past two years! (Just ask my wife: I don't sleep anymore! Just ask my wife: I don't sleep anymore!)

Bryce is a program for creating VERY realistic looking places on a computer (it runs on a Macintosh only - not when a Windows version is due out). To realize what I am saying you really have to see an image. Now I am not going to debate on whether computer-generated art is indeed art... to me it is not really any different than using a camera to produce art... it is just another tool or painting brush... the imagery is still inside of the head of the artist.

Anyway, Bryce has a series of palettes, one for creating things like infinite planes, mountains, lighting, character, geometric shapes, clouds, planes, etc... Another palette for creating objects. And another for the atmospheric setting - i.e., sky color, haze color and amount, fog color, fog height and depth... etc.

When you have placed all the elements such as planes, terrains, etc into place you can assign various textures to them. Now the textures are the real power behind Bryce. They are multi-procedural textures... I won't go into it now - just let us say they are practically intelligent!

After the scene is set up the next step is to render the scene. Rendering can take anywhere from a few minutes to a few days depending on the scene.

For those of us who do not use a paintbrush Bryce might very well be THE tool for creating space art.

David Palermo, 1996

Bryce excels at creating skies, with clouds of varying types and densities, and colors. It also does water, indistinguishable from the real thing, which can have clarity, reflection, and varying degrees of waviness. The water is so amazing, it is easily becoming overused in Bryce, and one way you can spot a Brycebased scene is to look at the water.

What's really cool about Bryce are the procedural textures. These are "smart" textures. Unlike normal textures which just wrap a picture around a 3D object, procedural textures respond to different parameters, such as size and elevation, so a "snow" texture will collect on a surface the same way it would in real life.

The new version, Bryce 2, also has "boolean modeling". Boolean refers to the basics computer logic states - AND, OR, and NOT. Basically, Bryce has a pallet of 3D "primitives", cube, sphere, cone, pyramid, ellipsoid, cylinder, torus, disc, and even a random generated "rock". By using boolean modeling, a primitive can be sculpted with another primitive. If you
How to Get into The Magazine Industry by Michael Carroll (reprinted)

For those of you just getting started in the art field, I wanted to offer a few helpful hints on getting published in magazines. There is some luck involved, but most of it is persistence and organization (the latter not being my strong point, so have heart!). A funny thing happened to me on the way to my art school. In school, I was told that illustrators usually don't practice until they have been in the business for ten or fifteen years. Consequently, I decided to try my hand at freelance art. I began to search for a "real" job with an advertising or design agency.

Unemployment here in the U.S. was topping ten percent at the time, and I spent over five months interviewing. I became good at applying for jobs, but not at graphic design, which had been my major. During that time, a very important thing happened: I painted things I wanted to paint. And at the end of five months, I had a pretty extensive portfolio of paintings. It turns out that this is just what a magazine art editor is looking for. I submitted slides to various magazines, and was soon published in Science Digest and Astronomy. To this day, I get requests from my former clients and a great supporter of the astronomical arts. (The art director, until very recently, was Tom Hunt, who is the IAA's Vice President for the U.S., and over the years has become a good friend as well.)

This little story illustrates several points which are important to breaking into the publishing industry:

1) Develop a collection of paintings, similar in style and subject matter (editors look for consistency in style and technical proficiency). I suggest at least twelve pieces to start with.

2) Get professional quality slides of each painting, and develop a master file. In this way, you will have a good image from which to make duplicates in the future. Keep your file of slides stocked at least two copies of each painting, so that you can make slides on multiple occasions when news breaks.

3) Make a list of magazines which publish your kind of art or cover the kind of subject matter which pertains to your art. This can be obtained from such printed sources as the Writer's Market or by simply going to a good magazine shop or newsstand.

4) Call the magazines that you are interested in and find out the name of the art director or appropriate person to send images to. The Art Director or "To Whom It May Concern" frequently has a quick trip to the bottom of the pile.

5) Mail out letters addressed to the specific art directors, along with slides of your work. Tell them to keep the slides for their files. In most cases, they will. Art directors tend to be good at checking their files periodically for needed new material.

6) It never hurts to follow up with a phone call to confirm that they received your images. Be sure to ask about their needs, so that in the future you can send them appropriate art. Also, send the magazines updates of your work each year, so that they continue to remember you.

In this way, you can make good contacts within the publishing industry. As you make friends there, they will help you with tips on where other work might be found. Perhaps the most rewarding aspect of working with the publishing industry is not the paycheck, but rather the friends and long-lasting relationships that you make. Good luck, and keep trying (the only way you don't have to be in the business for ten years to be successful at freelancing!)

A Few Thoughts on Space Art by Gatsby Smith

As a relatively new member of the IAA, I'd like to express my appreciation for this terrific organization, and offer a few thoughts on space art.

My first workshop was in Hawaii in 1991, and I was delighted to meet so many wonderful creative people. I've always enjoyed painting on location, and what could be more fun than hiking around on fantastic "other-worldly" landscapes with a backpack full of art supplies? I must admit to feeling some trepidation about the "rock & ball" versus "swirly" debate. I greatly admire the representational style that dominates space art, but my own style tends towards impressionism, partly because I love the spontaneous and unpredictable nature of watercolor. I was relieved to learn that the IAA is open to all styles of art.

I can appreciate the concerns of those other IAA members who may be a bit leery of styles other than tight realism, perhaps suspecting that the subject matter might stray too far from the IAA's scientific roots. While there is bound to be some overlap into areas like "cosmological art" as described by Bet Averay, this need not always be the case, and such accuracy need not be sacrificed.

Like an infra-red camera, a different stylistic approach may serve to reveal a different perspective. The artist may choose to manipulate such things as color or composition in order to create an "experience" of a place that is as valid as an exact rendering of physical detail. Perhaps emphasizing the quality of light, the density of the atmosphere, or the overwhelming scale of the terrain.

I had always assumed that Georgia O'Keeffe's desert paintings were fanciful interpretations of her surroundings. At the Ghost Ranch Workshop I was delighted to discover that, by gosh, those colorful chilies look pretty much as she painted them. Through her unique style, she shared her personal experience of being there. I often wonder how other watercolorists like Winslow Homer and John Singer Sargent might have interpreted what they saw if they could have suited up and walked across a Martian landscape, or looked back at Earth from orbit. This impressionistic approach to space art is one I'd like to pursue.

A painting's context may dictate the style that an artist uses. Thus, while artists should not feel limited in exploring various interpretations, for example, while an abstract painting of a nude would be out of place in an anatomy textbook, it certainly might contribute to our understanding of what it means to be human, as well as being aesthetically wonderful.

My deepest interest lies in the cosmological realm, exploring the underlying nature of the universe and our relationship to it. I particularly enjoy artwork that attempts to depict concepts that seem to defy representation in the traditional sense of our usual frame of reference. For example, I do a visual convey the mind-boggling possibilities suggested by the HST's recent discoveries, or ideas like space-time, or the holistic view of the universe. Imagery can be quite powerful. As artists we can sometimes tap into profound insights that may even transcended our conscious understandings. These artworks are among my favorites, because they continue to unfold themselves long after they are "completed."

This exploration of "inner" as well as outer space can add another fascinating dimension to the artwork of the IAA members, who are traditionally known for their dedication to the more traditional astronomical art. It can span many different styles and include subject matter that is scientifically accurate. It's exciting to think that our creative adventure into space is as limitless as our own imaginations.