Astronomical Feature of the Month :

-- GAS GIANTS --

Gas giants are the biggest thing in a solar system besides a star itself. Despite that, the glare of a star makes them all but impossible to see. Unless you get lucky...

This is a Hubble telescope near-infrared image of a pair of newborn binary stars in the Taurus system, 450 light years distant.

It shows a long thin nebula pointing toward a faint companion object (bottom left) which could be the first extrasolar planet to be imaged directly. The brightest objects in the image are binary protostars, which illuminate an extended cloud of gas and dust from which the stars formed. So much dust surrounds these protostars that they are virtually invisible at optical wavelengths. However, near-infrared light penetrates dust, revealing the newborn stars within.

At lower left there is a point of light many times fainter than the binary pair. Current models predict that very young giant planets are warm from gravitational contraction and formation processes with temperatures as high as a few thousand degrees Fahrenheit. This is consistent with the observed brightness of the companion. The candidate protoplanet appears to be 130 billion miles from the binary (1400 times the Earth's distance from the Sun). The bright streak of nebulosity may indicate that it was ejected from the system.

A young planet ejected from a binary system would represent a unique opportunity to study an extrasolar planet - and could be the subject matter for a nice painting or two.... Data source: NASA.

INTERNATIONAL ASSOCIATION OF ASTRONOMICAL ARTISTS

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Sagan's Moon by Dave Hardy. There is no reason a moon cannot be terrestrial in size. Here we see an Earth like moon orbiting a colorful gas giant. The night sky on this planet must be very interesting.... Painted for an article written by Carl Sagan.

Editor: Jon Ramer

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

IN THIS *PULSAR*...

From the Editor-

Hi Gang. Tons of kudos this month! In this issue we're checking out the "big boys" of a solar system - gas giants. Results from the Parallax contest are in as are some big awards for our members. Next issue we're going to do something a little... different. See ya.....

Jon!

under it's own battery power. The announcement "Cleared" was made as the final buildup of thrust allowed the 13.5-ton machine to overcome gravity. Slowly, magnificently, the pointed tip of the A-4 rose above the smoke and into view.

Dornberger saw it emerge from the treetops, gleaming in the sun against the distant green scenery and then the blue sky, unleashing a column of bright flame nearly as long as the rocket itself. It rose steadily, straight and true with no spinning.

Five seconds after ignition, the thunder of the launch reached the buildings, the waves felt as well as heard while rippling through everything. The roar filled the skies and rolled over the forest and across the oceans beyond.

Higher and faster the rocket climbed, becoming lighter as fuel was spent, the continuing engine thrust acting against less weight every moment. Slowly the missile began its programmed tilt to a 45-degree angle to assure maximum range.

The seconds elapsed since the flight began were counted out continuously on the loudspeaker. Another speaker gave off a 'measuring tone' of a slowly changing pitch broadcast from the rocket. This gave an audible indication of the speed the vehicle was travelling due to the sensitivity of the receiver to the 'Doppler' shift of the rocket's transmitter. The tone changed from a low hum to a piercing trill as the speed built up.

During the otherwise monotonous counting, occasional flight milestones were announced, such as "sonic velocity." Now a liquid fuel rocket had surpassed supersonic speed, and so far nothing had gone wrong! Through the binoculars the rocket, shortened by perspective, spouted its orange flame brightly against the dark blue heavens. A half-minute had passed, and twice the speed of sound was reached. The rocket now flew higher than any mountain on Earth.

At forty seconds a trail of vapor appeared, and an announcer reassured everyone it was simply the oxygen vent opening. Now this rocket had lasted longer than its predecessor, blazing into unexplored territory. At the 54-second mark, engine cut off was announced, only the glowing vanes along the inner edges of the rear fins were seen as a tiny white speck at the end of the faint dark mass of the still climbing rocket.

As Dornberger at last put down his binoculars, he drew breath slowly, the excitement catching up to him. It had worked! Turning to Zanssen, who was tearfully laughing, they shook hands, yelled, and embraced like victorious schoolboys. Atop and between buildings people were shaking hands, clapping, and even dancing. Dornberger descended from his vantage point and grabbed a vehicle, weaving his way through the jubilant confusion. Spying Von Braun, he pulled him into the car and careened to the launch site to join the personnel gathering there.

By now the rocket was in it's fourth minute of flight, falling with great speed. Dornberger hushed everyone up to hear the end of the flight take place. The tone broadcast from the rocket still sounded, but the 3000 mile per hour speed of the missile was about to be quickly slowed by one third as it re-entered the dense atmosphere, and the danger of overheating and breakup haunted him. This was a moment of truth no less than the actual launch. Then a few seconds short of 5 minutes of flight, the measuring tone abruptly began lowering as the speed dropped during the atmospheric descent, with the word "Impact" cutting off the tone. Now it was an unqualified success!

A dye capsule in the rocket would reveal its location to a search plane. The impact point was some 124 miles distant, reaching an altitude nearly half that.

At the foot of the building Dornberger witnessed the launch from, an engineer placed a large boulder with the words "A great weight has fallen from my shoulders" painted on it.

That evening a small celebration was held in the officer's club with many key workers on the project addressed by Dornberger, at the triumphant gathering. "The history of technology will record that for the first time a machine of human construction, a 5.5 ton missile, covered a distance of 120 miles with a deflection of only two and a half miles from the target. ... Our self-steering rocket has reached heights never touched by any man-made machine ... nearly 60 miles. We have thus broken the world height record of 25 miles previously held by the shell fired from the now almost legendary Paris Gun. ... We have invaded space with our rocket and for the first time - mark this well - have used space as a bridge between two points on the Earth: we have proved rocket propulsion practicable for space travel. To land, sea, and air may now be added infinite space as a medium of future intercontinental traffic. This third day of October, 1942, is the first of a new era in transportation, that of space travel...."

OCTOBER 3, 1942 By Don Davis

While attending the Apollo 17 launch cruise, Krafft Eriche shared a vivid memory with me about the first successful V-2 launch. I felt inspired to learn what I could of that great day. Here is what I learned, with accounts of the participants used whenever possible, particularly the vivid recollections of Walter Dornberger, which appeared in Arthur C. Clarke's 'The Coming Of The Space Age.'

The year 1942 was an especially crucial year of World War Two. Hitler's conquests had made him the momentary master of Europe. Germany's penetration of Russia was reaching its peak, with Stalingrad becoming the focus of unlimited resources for devastating attacks by the Germans, and for unrelenting defense by the Soviets. The armored colossi of Western and Eastern Europe grappled in a savage combat to the death, as massive a struggle as the entire rest of the War put together. In the Pacific the battles of Coral Sea and Midway began to check the military might of Japan, but most of the Pacific was still within their vast empire.

Big news was being made not just on the battlefields but in the scientific fronts, some of which took time for their significance to be generally realized.

On June 13, 1942 the first full-scale test flight of an A-4 was attempted. After rising for one second, the thrust petered out, causing the great projectile to settle back to Earth. The rocket's fins crumpled as it tumbled on its side. Smacking into the concrete, the fuel filled body burst like a water balloon, then flashed violently into a billowing inferno. Number 2 was launched August 16, and rose majestically until it spun out of control and exploded about 45 seconds into the flight, about 8 miles high. Numerous VIPs were on hand to witness that failure. The pressure was on.

The midsection of the missile was strengthened, and ongoing design improvements were incorporated into the next flight vehicle. By this time a do-or-die sentiment made everyone especially careful, they knew the hazards of being an expensive exotic government program unable to produce results in Nazi Germany. The turning point came on the third try.

The morning of October 3, 1942 was clear and beautiful at the Peenemunde complex. Atop one of the camouflage draped buildings Captain Walter Dornberger stood with a microphone in one hand and powerful binoculars in the other. A small television apparatus provided a picture of the tall A-4, which was hidden from direct view by a tree covered hill. The benevolence written into his features was starkly highlighted in the bright sun with lines of worry. This was going to be the critical demonstration of the worthiness of the idea he and his gathered talent had long slaved for.

Next to Dornberger stood his lifelong friend, Colonel Leo Zanssen. Both men had no love for the Nazis, and as military commander of Peenemunde, Zanssen had assisted Dornberger in keeping the Party types at arm's length.

The paved facilities around them gave way to green marshlands and coastal forests. A red brick cathedral stood above the green hills, clear in the noontime sun. On the isolated launch pad stood the results of everyone's best work, eagerly watched through periscopes by engineers in the nearby concrete buildings. The rocket showed graceful torpedo like contours dictated by the extremes of conditions it would experience.

Tinny voices on loudspeakers barked out the status of the various systems, and engineers were queried on how their part of the process was going. A voice over the loudspeaker called out "X minus three, counting off". White vapor poured from the oxygen tank valve near the base of the rocket, with a band of frost encircling the location of the tank itself well above the middle. The access platforms were moved away and the massive projectile stood alone as Man's newest challenge to the sky.

"X minus one" barked the announcer.

The 'Pennemunde Minute', legendary for it's subjectively great length, had begun. The preparations were over, and the situation was in the hands of the kind of fate people have prayed about in hopes of influencing it as they stand helplessly by. Dornberger forced himself to stare at the rocket and not at his watch. A green smoke trail appeared as a flare signaling 10 seconds left was released.

"Ignition" was loudly announced as sparks sprayed from the engine nozzle and quickly turned into a violent column of flame roaring against the concrete. Cables fell away from the rocket as smoke billowed around it. Now the missile was operating

Ancient Encounter by Michael C. Turner

This is a view from within a ring of debris that was created by the ancient collision of a comet and one of the moons of a gas giant. Another large moon orbits within the ring debris and brandishes an impact crater similar to that of Mimas.

Colors in the Sky...

Well it's all over with now - art work for the Parallax has been selected. After all is said and done, 74 pieces of artwork were submitted for the IAAA's first color production. Each piece was assigned a number as it came in so artists names were not considered in the selection process. Each image was evaluated for astronomical content, composition, use of color, and overall aesthetic value (in no particular order), then given a score. Two artists actually had two submissions in the top ten, to be fair and show as many artists as possible, the lower scoring piece was eliminated. That opened up room for two more images. The top ten were then "jigsaw-puzzled" into the available color printing space of the Parallax with nine of them being able to fit. Those nine artists are (again, in no particular order) Andrew Stewart, Bob Eglleton, David Hardy, Lynette Cook, Jon Ramer, Richard Bizley, Sam Dietze, Steve Munsinger, and Mark Garlick. Congrats to all! Look out for Parallax 98 in early November - and thanks to all for all the submissions! Maybe we can do it again next year.....

left: *Cassini's Division* by Don Dixon

High in the atmosphere of Saturn, cloud tops frame the rings as the sun passes through the famed divide.

Profile: Brian Smallwood

One of identical twins, I was born in Coventry, England, 38 years ago. For as long as I can remember, I have always been interested in astronomy. My interest in space art began when I was 13 years old. The greatest influence on me was the book "Challenge of the Stars" by Patrick Moore and David A. Hardy. Suitably inspired, my first painting was on the back of a telescope box and was based on David's paintings - I still have both book and painting.

Since then, my career has seesawed between art and science. I earned a degree in science at Portsmouth in 1982 after which I bizarrely wanted to become an illustrator. For 5 years, I was an acrylic illustrator/artist working on a variety of projects, from book covers to board games. Computers looked more and more attractive and I spent the next seven years in a pharmaceutical industry as a PC Support Analyst/multimedia developer. My twin brother is a computer programmer/writer with similar interests and we have combined our skills to create a multimedia company called 'Twins Interactive Ltd'.

I recently became the space artist for the BBC astronomy program 'The Sky At Night' which is the longest running series on television anywhere in the world. The brilliant Patrick Moore, a long time hero of mine, has always presented the program.

I use a variety of PC software including Lightwave, Bryce, and of course Photoshop. I like to finish off all my paintings in PhotoShop using the freehand paint tools - feels almost like traditional painting - with the added security of the 'undo' button for those inevitable slips!

Kudos Korner

- Fantastic kudos to Bob Eggleton for winning his 8th "Chesley" award for Best Hardcover Book (The Howling Stones, by Alan Dean Foster)
- Big congratulations to Andy Chaikin whose name was the first acknowledged for thanks by Tom Hanks when they won the Emmy for Best Miniseries for "From the Earth to the Moon"
- Lynette Cook has a great image in this month's Astronomy magazine
- On Sunday, 27 Sep 98 Sci-Fi Channel showed an episode of "Inside Space" featuring space art by Bill Hartmann, Jim Scotti, Cathie Yankovich, Kim Poor, and Dan Durda. Great exposure gang!
- Kudos to Dana Berry on his image in this issue of Sky and Telescope
- Sam Dietze had two images accepted into two juried shows, one in the Southern Alleghenies Museum of Art, in Altoona, from 11 Sep to 7 Nov, and the other in the University Museum Indiana University from 10 Sep to 25 Oct
- Michael Boheme has opened a show in the Lipsett Gallery of the National Institutes of Health near Washington DC that runs from 11 Sep to 2 Nov called "Saving Earth and Exploring the Universe, stop by if you are in the area
- Peter Goodwin has had a busy couple of months. He's had an illustrated article on Europa in Quest magazine, 4 images in UK Astronomy Now, the cover and another illustrated article on Mars Astronomy & Space (Ireland)
- Well done to Michael Carroll, Ed Faughn and Don Davis for their images in the Planetary Report! WAY TO GO GUYS! Also, Don's image was from his book "The New Solar System." Extra kudos Don!
- The Learning Channel will feature five new drawings by Kelly Freas on their show called "Legends of the Werewolves" on October 26th at 8:00 p.m. eastern standard time. Tune it in!

Profile: Clive Burrows

I have always been interested in painting, having grown up with the subject. My father was a member of the Guild of Railway Artists, until his death in 1990. He was a well respected national and international artist, known particularly for his depiction of steam engines and seascapes, having served with the Royal Navy for 22 years, prior to becoming a full time freelance artist. I followed in his footsteps and started painting seriously in the late 70's and early 80's. I have held several exhibitions locally and earned several good revues in the press.

In the beginning I concentrated mainly on painting local scenes, animal portraiture, landscape, and architectural studies, until terminal boredom took over. I then quickly gravitated to painting space art, having avidly followed all things 'space' (being born in the year of the first space flight, 1961.)

I work in all mediums however, preferring acrylics for their vibrancy of color and durability. Most of my art work appears on canvas boards or panels primarily because I like the texture and grain of these surfaces.

I am at present compiling an exhibition for the "Millennium" - the theme of course is SPACE! At present I have over a dozen completed works, and aim to have a minimum of 30 ready for display.

In my outlook towards space art I try to capture the picture as though one is present, I also try to depict accurately scenes of manned exploration, based on all available technological information at the time of painting.

I am extremely pleased to have been accepted as a member of the IAAA, and would like to thank David Hardy, in particular, for his kind words regarding the photographs I sent of a few of my paintings for his approval. For me becoming a member of the IAAA is particularly pleasing as I feel that Space Art is truly my niche.

ART TIPS

This month's tips are about mediums - from the list server.

Mediums are liquids you mix with paint to change the way it acts when you use with it. They can extend the time it takes paint to dry, speed the drying time up, or thin the paint out, yet leave the color full.

The most popular oil paint medium is the traditional linseed oil. Liquin and linseed drying oil speed up the drying so that within hours you can start working again, though the surface may be a bit sticky. Copal oil does the same. All three are organic based in origin, coming from crushed seeds. Other drying mediums are Japan drier and cobalt drier. They can reduce the drying time for oil paints to mere hours, but can be a dangerous to use, being made of toxic chemicals.

Sun-dried linseed oil is much thicker than regular linseed oil and works wonders when used to thin a paint out for shading or washing.

Alcohol in acrylic paint can give you some really interesting effects as it evaporates, but only try it in a well ventilated area.

Although most people prefer to accelerate the drying rate of oils there are circumstances when it might be necessary to retard or delay the initial drying. If you have to work on a painting over a lengthy period or your style of painting requires extensive blending or grading of colors then you might try the addition of a few drops of oil of cloves to the oil colors. Pine oil also works well when added to paints, glazes or retouch varnish, but oil of cloves has yet to be improved upon for this purpose. A word of warning though. Oil of cloves and pine oil both retard the drying rate of oils by virtue of their slow evaporation rates ('neat' clove oil will take over a month to dry), so you need to exercise some caution regarding the amount of oil added to the paint. This depends on several variables, such as the thickness of the wet film, the dilution or thinning of the paint, and the climate - so recommendations are not easy, but once mastered it can be a very useful addition to your arsenal.

Profile: Chris Vancil

I was born in Washington State and have spend the majority of my life here. I graduated from The Evergreen State College in 1981 with a BA in visual arts. Though I've never made my living doing art, I have worked as a tech at COCA (Center On Contemporary Art) in Seattle for one season. Construction and remodeling homes is how I make my living. However, I'm a child of the second half of the 20th century, born in 1956. Like most of my contemporaries, I sat wide-eyed as Armstrong and Aldrin first stepped on another world. Unlike many, I have never lost that wonder of youth. The stars and the planets still hold a great excitement for me. My first memories are wanting to express my wonder at this amazing universe in a visual way. At first, this lead to problems, 'till I quit using crayons on walls and moved on to paper and cardboard! I moved from those early media to oils and acrylics, and now I have discovered CGI and POV-Ray. We live in interesting and exciting times. Ad Astra!

right: *Storms on Jupiter* by Andrew Stewart.
In Jupiter's atmosphere, clouds formations create canyons and chasms the size of continents and moons.

above: *Pegasi 51* by Steve Munsinger
Scientists have discovered a small wobble in the orbit of a G-class star in Pegasus. In all likelihood this wobble is caused by a large gas giant in close orbit. Viewed from a hypothetical moon of that gas giant we see the star Pegasi 51. Rising up from below the horizon on the right is a small potato shaped moon that orbits this moon.

below: *Mushroom Clouds* by Michael Carroll
A fragment of comet Shoemaker-Levy 9 meets a violent end as it explodes in the upper atmosphere of Jupiter forming a giant "mushroom cloud."

Painting In Oils: A Rediscovery

By Bob Eggleton

I haven't worked in oils since around l980. I did use them in college painting classes but that was about it. I really was taken in with acrylics for the most part due to the fact I would invariably get oils all over myself and the drying time was a factor, as was the fact I hadn't had much experience painting!

Well, 18 year later I worked up the courage to work again in oils. I began to grow tired of the general flatness of acrylics. Having for the most part given up airbrushing, I found the acrylics getting a bit cakey as I worked, I started playing around with alcohol in the paint so as to get interesting effects. Also, many of my contemporaries in the SF field have gone back to oils or started and never left using them. So I figured, why not just jump right in.

There are no "rules" to painting. I don't care what anyone tells you. Working in oils you just have to make it up as you go along. Usually, for something like a landscape, I "see" what I want to paint and I just start working out a rough charcoal sketch on the canvas. I use either stretched canvas or gessoed masonite as a support. I then lay in an acrylic "rough" painting-all done in Quinicridrone Gold-the warm underpainting serves two purposes: 1) violate the clean,frightening white surface and 2) get your shadows and lights going.

At this point, I let this "cure" for the night. Then, attacking it from the background forward I simply start layering in paint. I use mainly mediums - drying linseed oil, liquin and Winsor & Newton painting medium, all mixed in a small cup. I use very little turpentine - the smell gives me a headache for one thing. I lay in with large brushes, covering large areas with paint and just sort of play with it, letting my underpainting show. I use a little turpentine to wipe off some areas and rework or simply leave them alone. I use also a palette knife to poke, swipe and stab the painting with dashes of paint and removing layers of others. I also use fan brushes and smaller brushes to bring up my details and lights, and to darken the darks. I use sable oil brushes and bristle brushes. In one week I completed a 30x40 painting this way. My working in oils is a very very different method than with acrylics.

My advice - and these ain't rules - when oil painting:

* Stand BACK a lot. Remind yourself of this. This is what long handled brushes were made for! Stab at the painting. It's great for creating rocks.
* Be careful and read labels to colors and mediums as to their handling. I know people who have poisoned themselves mixing up "white lead" painting surfaces, or sinister stuff as "Jelly of Rubins" which is, made with walnut oil and...boiled LEAD. Even Japan Dryer and Cobalt Dryers are horribly poisonous-to-the-touch stuff! I knew a teacher who was hospitalized with blood poisoning because he washed his brushes in a big barrel of noxious substances such as xylene, acetone and even too much turpentine. I use only drops of turp and I never leave the can uncapped to vaporize into air.
* Always wash your hands when finished! Scrub them really good.
* You can get as loose as you want or tight as you want with oils. Usually, my "miniatures" tend to be tighter and my big pieces tend to loosen up.
* I use only two or three brushes at a time. I rarely clean a brush in the middle of a painting. I simply add a new color to it.
* Don't worry about whether or not your oils (or your work in general) rates up with the "old masters". Most of them never thought their own work rated up with each other when they were alive. Just paint.
* Don't worry about those who suggest you make "statements" with your brushes. Just paint.

Oils are the original medium to paint in. Acrylics have their own properties but it is oil that really makes the painting look "deep".

Remember - JUST PAINT!

And the Award Goes To.....

Our very own BOB EGGLETON! Bob was honored at the 1998 World Science Fiction Convention with the 1998 Hugo for "Best Professional Artist" in the field of science fiction & fantasy. The Hugo Award was named in honor of Hugo Gernsback, "The Father of Magazine Science Fiction," as he was described in a special award given to him in 1960.

The Hugo Award, also known as the Science Fiction Achievement Award, is given annually by the World Science Fiction Society (WSFS). The distinguishing characteristics of the Hugo Award are that it is sponsored by WSFS, administered by the committee of the World Science Fiction Convention (Worldcon) held that year, and determined by nominations from and a popular vote of the membership of WSFS.

Bob received a Hugo for his overall presence and body of work in science fiction and fantasy. Congrats and "Well Done" Bob!

Profile: Bob Eggleton

At 38 years young, Bob is one of the hottest and most prolific artists today. Bob is praised not only for his finely detailed space art, but he is equally lauded doing science fiction, fantasy and horror art. He has won the prestigious Hugo award no less than four times and the Chesley award eight times.

He has done countless book covers for authors such as Gregory Benford, Greg Bear, Hal Clement, Arthur C. Clarke, and Isaac Asimov. His magazine credits include Astronomy, Sky & Telescope, Science Fiction Age, and Fantasy & Science Fiction.

Bob's work is popular because of his dramatic and colorful compositions. His technique is easily identifiable as his own, striving for an interesting angle and dazzling colors. He combines these elements to create a scene which is glowingly dreamlike, yet starkly realistic. An artist since childhood, Bob paints furiously with trance-like concentration, equally at home in multiple mediums and capable of producing breathtaking images in mere hours.

Recently married to the lovely Marianne, Bob says - "Marriage feels great!"