

ANNOUNCEMENTS!



The IAAA touring Art Exhibit is now gone from Rutgers College and looking for a new display site. Do you know a good venue? If so, contact Dave Hardy (address below) as soon as possible!

Web Surfin' Sites to check out :

- <http://www.frii.com/~dboll/mars2.htm>
- <http://www.space.com/news/chaikin.html>
- <http://www.markmercury.com/recent/recentclips.html>
- <http://www.marssociety.org/content/researchstation.asp>
- http://mpfwww.arc.nasa.gov/mgs/msss/camera/images/8_25_99ms98site/index.htm
- <http://photojournal.jpl.nasa.gov>
- <http://www.jpl.nasa.gov/galileo/sepo>
- http://pluto.njcc.com/~paulsam/IAAA/IAAA_Gal.html
- <http://www.atmosfire.com>
- <http://www.spacer.com/spacecast/news/mars-water-99b.html>
- <http://www.allposters.com/gallery.asp?search=hubble>

BOARD ELECTIONS....

Are you interested in guiding the actions of the IAAA into the next millennium? Board elections are coming soon. Enthusiastic volunteers are always needed.

HEY! ALL YOU NON-LIST SERVER TYPES! Yes - YOU! You know who you are. Every issue of the Pulsar I like to print a profile of new members, but some new folks don't have internet access. If you happen to be one of those people, don't keep the rest of us in the dark! Send me a one page bio about yourself so we can all learn a little about T|YOU! Address is JON RAMER, 5007 RHINE WAY, DAYTON, OH, 45458, USA.

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IAAA POINTS OF CONTACT

MEMBERSHIPS:
Dale Darby
6001 Moon St. N.E. # 932
Albuquerque, NM 87111-1451
Tel: (1) 505-797-9192
e-mail: Darby0147@aol.com
Annual Subscr: US \$40.00 (or UK
L26.00 to DAH below)
Life membership: \$350/L230

PRESIDENT and UK SUBS:
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

EUROPE VICE PRESIDENT:
Jackie E. Burns
21 Rose Valley Crescent
Stanford le Hope
Essex, SS17 8EH, England
Tel: (44) 01375 403 252
Fax:: (44) 01375 404 775
e-mail: 101641.1113@compuserve.com



Oct / Nov 99

The Official Newsletter of the

International Association of
Astronomical Artists



MUNCHI MUNCHI

WARM COOKIES!!! Aren't they great?
The Moon takes a bite out of the Sun during the August 99 eclipse. More inside....

Editor: Jon Ramer

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

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ECLIPSES

By Jon Ramer



From the Editor-

Hi Gang. Okay, this month we were supposed to “go galactic,” but I had forgotten about the upcoming eclipse. So many members saw the eclipse that I of course had to devote an issue to it! Next time we’re going galactic - promise! *Jon!*

Eclipse at Altarnun: A Prediction by Dave Hardy

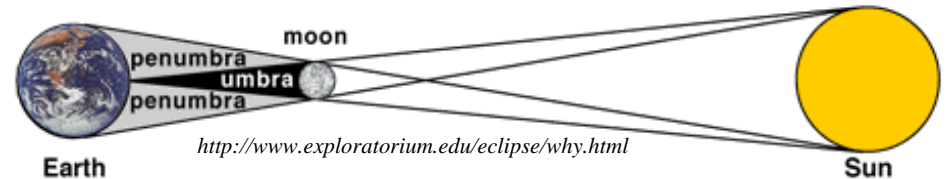
This painting shows three of the “Nine Stones” at Altarnun, Cornwall, UK. Painted a year before the eclipse, the bright “star” is Venus, with Regulus above to the left and Procyon to upper right.

Astronomical Feature of the Month : -- ECLIPSES --

Eclipse! Just saying the word seems to invoke feelings of mystery and magic in everyone’s mind. Indeed, seeing one is a rare and special treat. Any one spot on Earth will experience a total solar eclipse on the average of only once every 350 years (which makes the next two totalities even more amazing - in just 18 months TWO total solar eclipses will cross the heart of Africa and Madagascar and end in the Indian Ocean!) So to see a “totality”, you have to be in just the right spot on the earth. And “just” is the right word! When you look up at the Sun and Moon, they appear to be about the same size. The Sun is actually 400 times larger than the Moon, but by an amazing coincidence, it is also 400 times further away, reducing its apparent size to the same as the Moon’s.



NASA image of corona at totality.



<http://www.exploratorium.edu/eclipse/why.html>

The match is so good that the “path of totality” is never more than 167 miles in diameter, and is usually less. Sometimes the Moon is too far away to block the entire Sun out and a “ring” of Sun surrounds it. This is called a “annular” eclipse. An eclipse proceeds in what is called “contacts.” First contact is when the disk of the moon touches the outer edge of the Sun for the first time. Second contact occurs when the Moon’s disk touches the inner edge of the Sun, completely blocking it off and commencing the “totality” portion of the eclipse. Third contact happens when the Sun comes back out from behind the edge of the Moon, and fourth contact occurs when the disk of the Moon completely uncovers the Sun. Often just before second contact and just after third contact, a beautiful phenomenon called a “diamond ring” happens. The Moon is not perfectly round, nor is the Sun. A diamond ring forms as small portions of the Sun peek out from behind the Moon. During totality, the sky darkens and many stars and planets become visible in the sky, as do solar prominences and the solar corona. The view is often described as ethereal, mystical, and even divine. No one who sees a totality ever forgets it.



NASA image of annular eclipse.



Far Left: Solar prominence,
Left: Diamond rings



Hale-Bopp 97 by Dale Darby

A view of comet Hale-Bopp as seen from Siberia during a total solar eclipse. Mercury, Venus, Jupiter and Saturn are also seen during totality.

EATING THE SUN....

IAAA Memories of the Eclipse of '99

Many members of the IAAA had the great fortune and pleasure of witnessing the Eclipse of '99 first hand. Several have shared their memories and impressions....

From Gary Harwood

Although I was clouded out as well this time around I agree that this was a unique and extraordinary experience. Despite the poor weather prospects here in the UK, I decided to stay on my home turf and observe the eclipse from Mullion, a small village roughly seven miles north of the Lizard peninsula on the Atlantic-facing west Cornish coast. It was pretty obvious on eclipse morning that the previous weather forecaster's dire predictions would be borne out as a large weather front had pushed in overnight with patchy high cirrus, a dense layer of alto-cumulus at about 7,000 feet and scattered low level cumulus from horizon to horizon.

No one here saw first contact or the early partial phases as the Sun was obscured by an impenetrable overcast but the cloud distribution began to change as the eclipse progressed, and perversely, the sky lightened. Inland,
(Cont'd on page 4...)

Total Eclipse by Dirk Terrell

A total eclipse of a star by a moon as seen from a second moon.

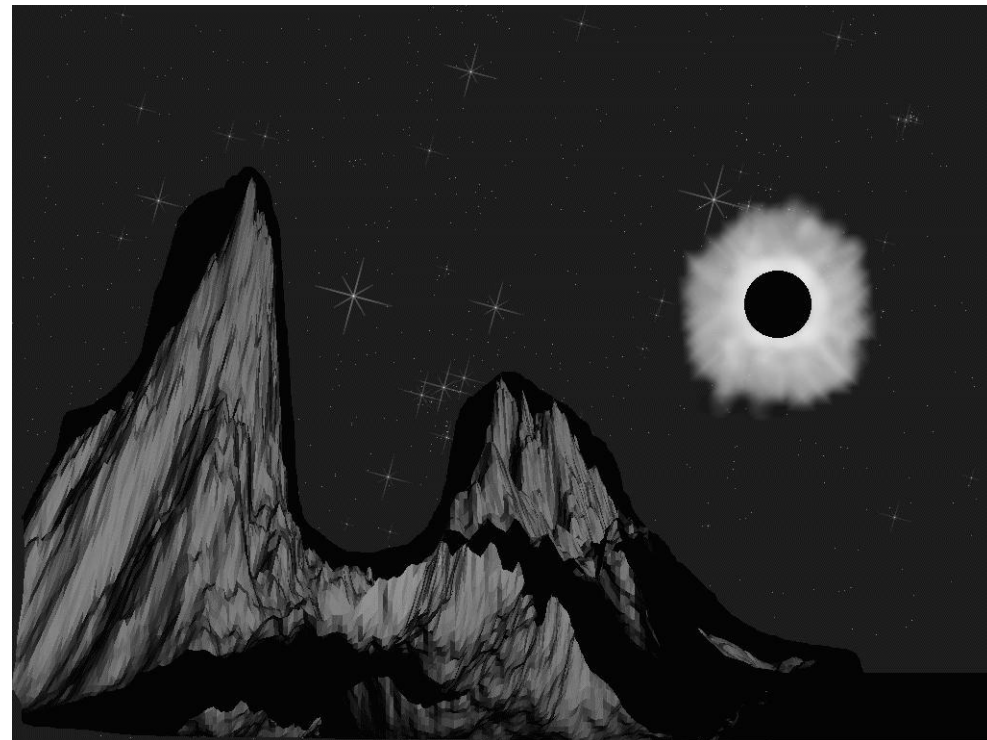


Table of Upcoming Eclipses

Type	Date	Start Location	End Location
Partial	5 Feb 2000	South Pacific	South Indian
Partial	1 Jul 2000	South Pacific	Argentina
Partial	31 Jul 2000	Ukraine	California
Partial	25 Dec 2000	West Canada	North Atlantic
Total	21 Jun 2001	Uruguay	Madagascar
Annular	14 Dec 2001	North Pacific	Honduras
Annular	10 Jun 2002	Indonesia	Mexico
Total	4 Dec 2002	Angola	Australia
Annular	31 May 2003	North Europe	North America
Total	23 Nov 2003	Australia (*)	Argentina
Partial	19 Apr 2004	Antarctica	South Africa

* Crosses Antarctica (what a workshop that could be!)



© 1995 Jon Lomberg

The Great 1991 Eclipse

by John Lomberg

The great solar eclipse of 1991 was visible from the Big Island of Hawaii, where artist Jon Lomberg lives and works. Jon painted this image in honor of that event. The image shows Earth during totality, seen against the background of the actual stars and planets that were in the sky behind the eclipse. The night side of Earth - the side that did not see the eclipse - is visible, from the Persian Gulf at the left to Japan at the right.

LUNAR MUNCHING... cont'd

while Druids performed their rites of rebirth and renewal at ancient stone circles, greeting the coming of a new age heralded by the eclipse, a seething mass of restless humanity had gathered on the coast in the rainsqualls. From the Lizard and all along the coast past St. Michael's Mount and Marazion through to Penzance and on towards Land's End tens of thousands of people waited, the air electric with anticipation and apprehension.

As I had decided earlier to abandon any eclipse photography this was a great opportunity to relax and observe how the lighting conditions changed as the zone of totality approached. This part of Cornwall is remarkably free of trees due partly to the geology of the region -- apparently trees can't grow well on the huge outcrop of serpentinite which forms the bedrock here -- and to the once prolific tin mining industry which used the wood as fuel for smelting tin ore, destroying the already limited resources. From a vantage point high on a cliff top hill far away from any crowds, I had an unobstructed 360 degree view inland across a nearly treeless, gently rolling plateau, and out over the ocean, where, with roughly fifteen minutes to go until totality, the western sky had darkened to a portentous gun metal black.

Meanwhile, the main cloud deck had thinned sufficiently in places to allow glimpses of the partially eclipsed Sun surrounded by a beautiful semi-circular opalescent pale blue and pink halo waxing and waning as the denser cloud edges, now starting to take on a very pale sienna or ochre-ish hue, passed overhead.

(More on page 6...)

of the holy Fathers, If I am not mistaken, they would extend such authorities until even in purely physical matters - where faith is not involved - they would have us altogether abandon reason and the evidence of our senses in favor of some biblical passage, though under the surface meaning of its words this passage may contain a different sense.

I hope to show that I proceed with much greater piety than they do, when I argue not against condemning this book, but against condemning it in the way they suggest - that is, without understanding it, weighing it, or so much as reading it. For Copernicus never discusses matters of religion or faith, nor does he use argument that depend in any way upon the authority of sacred writings which he might have interpreted erroneously. He stands always upon physical conclusions pertaining to the celestial motions, and deals with them by astronomical and geometrical demonstrations, founded primarily upon sense experiments and very exact observations."

ART TIPS

This month: Bag'o'tips - from Gary, Don, and Armand.

- To mix a particular color in, say, a still life, it can help to isolate it from its surroundings by viewing it through a hole either cut in a piece of card or made by your fingers. To ensure the color is accurately mixed, try holding the paint on the brush up to the subject and see if the colors coincide.

- To extend the life of your brushes (particularly if they are made of synthetic fibers) try using a painting knife to mix your colors - the constant rotary action on a brush can quickly and irreversibly twist the fibers out of shape

- Here's a tip on doing planetary rings. Back in the 'old days' I would draw an ellipse (you need rulers, triangles, compasses, etc.) but today you can get a good printout from your computer of one. Next, get some sheets of acetate and tape one to the ellipse. Using an X-acto knife, inscribe the acetate within the thickness of the line... you don't need to actually cut through the acetate, once you are done you can carefully 'work' the cut seam and snap off the area inside the circle. Save it in case you need to make rings and things disappear BEHIND that planet. Acetate will take a lot of paint without curling

- For people who want airbrush effects with a little more style in them, try using a badger brush or makeup application brush (its the same thing). You've all seen them - they're about an inch thick and round and very soft. Apply a thin wash of paint on the area you will be brushing, then take a dry badger brush and lightly brush the surface rapidly as if you were shaking a thermometer, so that the tip of the brush is barely in contact with the board. This will do two things, remove the streaky strokes so common with acrylics and give it a soft focus that has direction (the direction of the badger strokes) which keeps it from getting too sterile. By going back and forth between regular painting and a badger brush, beautiful "soft focus effects" and varied edges can be achieved while retaining detail. This also is a good way not to breathe pigment particulate that an airbrush is good at producing. To help speed drying time a small hairdryer applied to the area will work just fine. No more mixing for your airbrush and cleaning the damn thing. This technique does take some practice, so try it first before using it on that expensive commission

celestial revolutions. . .

A note from Gary Harwood

The following is an extract from a rather lengthy letter sent by Galileo to the Grand Duchess Christina of Tuscany in 1615 in which he talks about the machinations of those who oppose his views on astronomy and philosophy.

He writes:

"In order to facilitate their designs, they seek so far as is possible (at least among the common people) to make this opinion seem new and to belong to me alone. They pretend not to know that its author, or rather its restorer and confirmer, was Nicholas Copernicus; and that he was not only a Catholic, but a priest and a canon. He was in fact so esteemed by the church that when the Lateran Council under Leo X took up the correction of the church calendar, Copernicus was called to Rome from the most remote parts of Germany to undertake its reform. At that time the calendar was defective because the true measures of the year and the lunar month were not exactly known. The Bishop of Culm, then superintendent of this matter, assigned Copernicus to seek more light and greater certainty concerning the celestial motions by means of constant study and labor. With Herculean toil he set his admirable mind to this task, and he made such great progress in this science and brought our knowledge of the heavenly motions to such precision that he became celebrated as an astronomer. Since that time not only has the calendar been regulated by his teachings, but tables of all the motions of the planets have been calculated as well.

Having reduced his system into six books, he published these at the insistence of the Cardinal of Capua and the Bishop of Culm. And since he had assumed his laborious enterprise by order of the supreme pontiff, he dedicated this book 'On the celestial revolutions' to Pope Paul III. When printed, the book was accepted by the holy Church, and it has been read and studied by everyone without the faintest hint of any objection ever being conceived against its doctrines. Yet now that manifest experiences and necessary proofs have shown them to be well grounded, persons exist who would strip the author of his reward without so much as looking at his book, and add the shame of having him pronounced a heretic. All this they would do merely to satisfy their personal displeasure conceived without any cause against another man, who has no interest in Copernicus beyond approving his teachings.

Now as to the false aspersions which they unjustly seek to cast upon me, I have thought it necessary to justify myself in the eyes of all men, whose judgement in matter of religion and of reputation I must hold in great esteem. I shall therefore discourse of the particulars which these men produce to make this opinion detested and to have it condemned not merely as false but as heretical. To this end they make a shield of their hypocritical zeal for religion. They go about invoking the Bible, which they would have minister to their deceitful purposes. Contrary to the sense of the Bible and the intention

Kudos Korner

- Mike Carroll gave a great "space art" talk at the '99 Mars Society convention
- Kudos to Dr. William Hartmann. Our very own Dr. Bill was on a TV program about the Apollo missions explaining his widely accepted lunar origin theory
- Congrats to Andy Chaikin - he's now working for Lou Dobbs' company Space.com as executive editor for space and science. It's an exciting opportunity for him to use his experiences in very creative ways
- Bob Eggleton has picked up another two "Chesley's" from the ASFA for "Artistic Achievement" and "Best Cover Illustration, Magazine." Oh, yeah, he's also picked up his fifth Hugo....
- Mark Mercury has composed the theme for a new radio program called "Access-LA," which airs the last Saturday of every month between 7:00 and 8:00 PM on KRLA 1110 AM in Los Angeles
- The latest National Geographic has some nice artwork by Michael Carroll
- The July/Aug 99 issue of The Planetary Report has artwork by 3 members:
 - Bill Hartmann, showing a piece depicting his Lunar origin theory
 - Dave Hardy with a Galileo over lo piece
 - And Alan Bean with one of his Apollo mission series
- Skywatch 2000 has two images by Lynette Cook, one of the star Cygnus, and another of her radio telescope series, plus an image of the Chandra observatory satellite by BJ Johnson
- The November 99 issue of Sky & Telescope has several Don Davis images showing a meteor impacting plus hypothetical Martian oceans
- Astronomy's Nov 99 issue features work by John Whatamough (a nice brown dwarf image) and a piece by Joe Tucciarone about cosmic disasters

Profile: Jeff Danelek

I'm a graduate of Rocky Mountain College of Art (1986) with an AA degree in

Commercial Art/Illustration. Unfortunately, I haven't had much luck working as an illustrator, so I've been working as a Graphic Artist since. My only adventures in space art have been what's on my walls here in my study and a brief stint at Lockheed Martin, where I got the opportunity to do a couple pieces over a 12 month period (not much illustration available and I was low man on the totem pole - pretty fierce competition there...). I'm a big fan of Syd Mead and Robert McCall (the latter of whom was kind enough to look at some sketches I'd sent and write a very nice letter).

Other tidbits... I enjoy doing concept drawings of futuristic spacecraft and military machines - especially ships (I'm into hydrofoils) and aircraft. I work largely in pen and ink, use acrylics and marker & pencil when I want something done in color. I can do a little airbrush, but oh what a mess...

Hobbies include coin collecting (numismatics), history, and writing (theology and science horror, mostly). Favorite authors: C.S. Lewis, M. Scott Peck, Peter Benchley, Dean Koontz, et al.

Incidentals: Christian (yeah, one of them!), 41, married, two vicious sons (14 and 12), two vicious dogs, no cats (wife and dogs don't like 'em), work at MediaOne (recently bought out by AT&T). Navy veteran (1976-1984). Love to work in the aerospace industry as an illustrator (anybody interested?).

MORE LUNAR MUNCHING...

The sky to the west continued to grow darker still, forming a dramatic backdrop to the dimly lit, scattered cumulus which were slowly disintegrating, tearing themselves apart into constantly evolving, fantastically contorted ephemeral shapes -- Goofy mutating into the Four Horsemen of the Apocalypse while you watched. The Moon continued its relentless march. By the time the Sun was reduced to a crescent about equal to a two day old Moon a few isolated gaps had appeared in the clouds and what little blue sky was visible had acquired a dull gray metallic hue. Sunlight passing through the transient cloud gaps began to produce strange interference effects; rays of light appearing a muted blue-white through the gaps where they reinforced each other or pale lemon where they cancelled each other out at right angles to the now rapidly diminishing crescent.

Barely a minute to totality and the light level was now dropping at an accelerated rate -- the color bleeding from the Earth. Towards the south the alto-cumulus had thinned somewhat, while overhead, the color rapidly drained from the sky. Simultaneously, and with equal rapidity the light on the southern horizon, filtered through miles of water vapor, changed from a pale grayish lemon yellow through a dull green as the Moon's shadow approached. As the 'horns' of the vanishing solar crescent began to close thicker cloud covered the dying Sun blocking it from view at my location. What sounded like a distant murmur rose up as the massed thousands in the crowds below me and along the coast began to go wild. Looking out over a sea as still and black as molasses I just had time to collect my wits as the shadow came from the west.

In a heartbeat, and to my complete surprise, the entire cloud covered vault of the sky shifted in quick succession through a barely discernable ultramarine, rose-magenta, and a deep violet-mauve before everything plunged into darkness. Around the horizon the dull green present just before totality had now changed to a beautiful luminous warm cadmium yellow-orange quite different from the colors that one associates with a good sunset. Against this the stupendous cloud formations mentioned earlier were silhouetted -- titans guarding the path of enveloping darkness, banishing daylight. Looking overhead a feeble light paler than moonlight gave just a hint of the Sun's position. The detonation of countless flashbulbs punctuated the near darkness, a glittering constellation dancing arrhythmically along the coastline.

Totality ended just as quickly as it began. God turned up the celestial dimmer switch as the second dawn of the day came in from the west. Although my eyes were now accustomed to the dark, I didn't notice the same astonishing light effects as the Moon's shadow departed, but the glorious colors on the horizon did play back in reverse. Almost immediately the growing solar crescent became visible once again for a brief interval but everything was now anticlimax and essentially that was that. While I was deprived of the "cherry on the cake" at this eclipse I thought I'd take a somewhat Romantic viewpoint in that for me this eclipse was all the more 'magical' or 'mystical' for being partially obscured. To imagine that, like a divine manifestation, its beauty was too terrible for the unshielded eye.

Still, I imagine that no one who experienced this eclipse cloudy or not remained unmoved -- these are moments when instinct takes over from science and its explanations.

This wasn't the first eclipse for Dave Hardy....

I would say that this eclipse was almost exactly like the one in Hawaii in 1991 (site of an IAAA Workshop!), weather-wise. You could see it in one place, and a mile away, nothing.

We took a cruise around the Scilly Isles and Channel Islands, and although our ship positioned itself right on the centerline, in the 'best possible' position, we didn't get a sniff of the Sun all morning! Even so, totality was a magical experience, as a wave of darkness engulfed us. There was a golden glow around the horizon, with weirdly-lit clouds. I wouldn't have swapped that two minutes for seeing the partial phase, as some people did even in my home town of Birmingham! Having seen three eclipses in good conditions, I always wondered what a cloudy one would be like. Now I know, and it's still worth it. Still the most awesome experience in nature, and the nearest thing to being on another world for a few minutes.

Clive Barrows caught it on film too....

I watched the Eclipse at Fort Victoria near Freshwater on the Isle of Wight. I reached there at 09:35 and with all the cloud we had the first glimpse we caught of the sun was at 10:05. However by 10:20 the cloud was patchy enough to watch it continually from then on mostly without special glasses until 10:50. Here on the Island we had something like 98% view of the event and I managed to take 10 shots with my camera. When 'totality' occurred the effects on the clouds were what can only be described as "eerie" - producing a slight ray effect radiating from the eclipse. Much as though I would like to have seen the event at 100%, I still found it all worthwhile.

Jez Thomas gave it a go near Gary....

I did a spot of eclipse chasing in Cornwall, England. Unfortunately, it was my first eclipse and remained totally cloudy throughout. It was certainly interesting to see the darkness and the beautifully lit horizon, but I can't help feeling a little disappointed - I suppose it's like having a pedigree dog but only ever finding its collar. It had some very interesting effects on the wildlife, especially the birds, who who seemed to be in a blind panic.

Another interesting observation was to see the street lights turning on one by one as the darkness approached (I found this particularly amusing because they are normally such a headache when using the telescope.)

All in all it was a wonderful experience - see you all in Africa for the next one!

Maybe we could do an eclipse workshop in Adelaide, Australia in 2002..... ;-) 7