

The Refractor

The Bulletin of the Eastbay Astronomical Society
 Founded in 1924 at Chabot Observatory, Oakland, California

Volume 80
 Number 14
 October 2004

October 2004's talk:

Dragon Skies: Special Tour

Saturday, October 2, 2004, 7:30 pm
 Speaker: Carl Trost

Chabot Space & Science Center
 Physics Lab, 2nd Floor, Spees Building

Come see a special program that will give you a remarkable insight into two thousand years of ancient Chinese astronomy at our next, "very unusual," meeting. We will have a special, walk-through tour of the *Dragon Skies Exhibit*, hosted by our very own Carl Trost. Instead of the usual docent-led tour, Carl will get into the specifics of how these instruments actually worked and how they were used. The EAS is very lucky in this regard because Carl is one of the world's great experts on sundials and ancient astronomical instruments. Carl will precede his talk with a short slide show that explains how these instruments work and how they compare to other ancient astronomical instruments. We will also take a look at the transit telescope; western analogues of the Chinese instruments.

Carl Trost was born in San Francisco and is a product of the SF school system. He received his degree in electrical engineering at UC Berkeley in 1950. The return of Halley's Comet kindled an interest in astronomy and led to a trip to New Zealand and Australia. It also caused him to join S.F.A.A. and then E.A.S. He then joined NCHALDA, the Northern California History of Astronomy Luncheon And Discussion Association. This started an interest in sundials and then led to a broader interest in archeoastronomy. Carl traveled to India 1995 with Tinka Ross there and became fascinated by the various Jai Singh Observatories in Jodhpur.

He has visited archeoastronomy sites all over the world, including Stonehenge, Chaco Canyon, Carnac, France and recently Karnak, Egypt. Carl tells me that "There are alignments all over the world, especially cardinal, solstitial and equinoctial points but whether they're all real or not is a good question!" Carl loves science museums and has visited them all over the world. Perhaps the best indication of what type of guy Carl is, is that he once spent five straight days in the German Technology Museum in Munich! ★



It is time to renew your EAS membership again

Yes it is, but get this: as of right now, the EAS has implemented online membership applications. *If you've got web access and a credit card*, you can not only apply for or renew your membership, you can also order magazines, membership lapel pins, and/or make other donations from the comfort of your web browser, because we now have **PayPal!**

Check your address label—if it says "1004" to the right of your name, you have not yet renewed for 2005. (If you get the newsletter from the web via email notice, the email message will state whether or not you have renewed, yet.) Read more about this in the *News 'n Views* column. ★

DINNER WITH THE SPEAKER

5:30 pm
 Saturday, October 2
HUNAN YUAN
 4100 Redwood Rd., #11
 (next to Safeway)
 Oakland
 (510) 531-1415
 Contact Dave Rodrigues
 at 510/483-9191 or
 davevrod@aol.com by
 Friday, October 1, to
 confirm, or just show up!

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An Eclipse on the Night of Lincoln's Assassination?

By Mark Gingrich

At various times a journalist and folk singer, novelist and poet, Carl Sandburg is best known for his four-volume biographical narrative on the sixteenth U.S. President, *Abraham Lincoln: The War Years*. This epic, published in 1939, earned widespread acclaim for its rich weave of detail and for the artful way it vivifies, as Sandburg might say, "the breath of the man."

Especially notable is its 73rd chapter. Here Sandburg recounts the scene of Lincoln's mortal wounding at Ford's Theatre in Washington, D.C. And it would appear that the chapter's title, *Blood on the Moon*, was motivated by a surreal, unsettling apparition mentioned in one paragraph therein:

Some said the lights went out in the theatre, others adding the detail that the assassin had stabbed the gasman and pulled the lever, throwing the house into darkness. Others a thousand miles from the theatre said they saw the moon come out from behind clouds blood-red. It is a night of many eyewitnesses, shaken and moaning eyewitnesses.

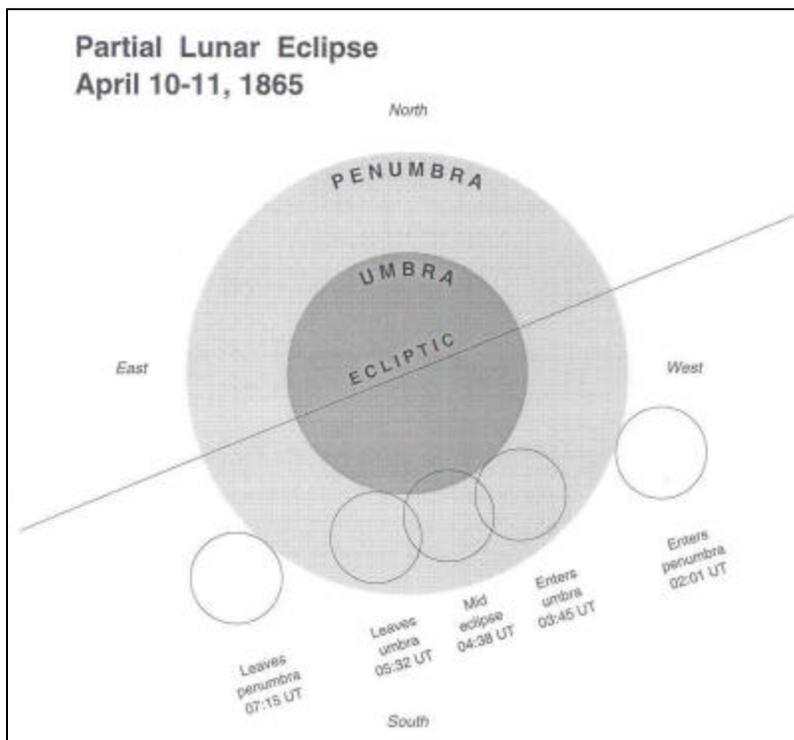
But save for the last sentence, each claim in this passage is fallacious. And such was Sandburg's intent; he employs this device to illustrate the emotion-stoked confusion in the immediate aftermath of a sudden, unforeseen tragedy. The incident overhead -- a purported lunar eclipse that very night -- adds to the intrigue. Yet it too is false, and demonstrably so.

Nowadays anyone with a computer and sky-simulation software can reproduce the astronomical circumstances. (The crime took place night 10:20 p.m., Washington time, on Friday, April 14, 1865.) How could an eclipse have been possible? The moon, it turns out, was four days past full -- rising, waning gibbous, 86-percent illuminated.

Without question Sandburg knew this. Further into the

chapter the record is set straight, albeit in a subtle way. He describes the moon's "blazing white light" beaming through a rift in the clouds. And later still he tells of a "vagrant white moon" blanketed over again in gray as Lincoln lay dying. No hint of an eclipse here. Nonetheless the previous notion of a dread crimson orb looming on that fateful night lingers in the reader's mind, the desired mood achieved.

So was this allusion to a spurious lunar happening simply a literary ruse on the part of Sandburg? Perhaps it was, in part. Yet there is reason to believe the reported occurrence seen a thousand miles away -- but only if we allow it to be skewed a bit in time.



The nation seems delirious with joy, penned Gideon Welles, Abraham Lincoln's Secretary of the Navy, in his diary on April 10, 1865. Guns are firing, bell ringing, flags flying, men laughing, children cheering -- all are jubilant. For earlier that day Northern newspapers heralded the figurative end of the American Civil War. And by coincidence on that same night the moon dipped partly into Earth's shadow. Though the Union celebration of a red-letter day was not overseen by a red-tinted moon; glare from the bright, whitish portion beyond the umbra would have washed out any tinge of scarlet. Such can be proved during this upcoming eclipse on October 27, 2004, when at both 6:27 and 9:41 p.m. PDT the lunar orb straddles the umbral edge akin to mid eclipse diagrammed here.

For on the Monday prior to the assassination, April 10, a lunar eclipse indeed transpired. Visible easily as far as one-thousand miles from Ford's Theatre. Visible also at a reasonable hour of night. Though we're certain, too, of one discrepancy: The moon did not appear bloody, as this was but a shallow plunge into Earth's umbra -- a mere partial eclipse. Despite its lack of visual majesty, however, spectators above the Mason-Dixon Line had ample reason to find the event memorable, coinciding as it did with a raucous, spur-of-the-moment national celebration, a day when newspapers proclaimed in stout headlines the surrender at Appomattox of Confederate General Robert E. Lee's army. The U.S. Civil War had all but ended.

Could the assassination eclipse on Friday, then, simply have been an erroneous recollection of Monday's? To answer this question requires a thorough examination of the claim of those "shaken and moaning eyewitnesses." Alas, Sandburg doesn't tell us their identities nor the source from which he received their hearsay. (The biography's lack of footnotes has long vexed scholars and professional historians.)

It's a well-known fact that Sandburg was an ardent collector of personal reminiscences. As a boy in my Illinois home town, Sandburg writes in his Foreword, *I learned about 'the late war' (having to unlearn some of it later) from veterans of later*

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Editor's News 'n Views



Howdy Astro Fans!

It's that favorite time of the year, again - **membership renewal time!**

Well, okay - maybe not a *favorite* time, but it's definitely a time, nonetheless. I'm a little more excited about it this year, because we've implemented the **PayPal**

online payment system on our website, which means that anyone with web access and a credit card can apply and pay for their membership, instantly. It's the wave of the future, I'm tellin' ya! You can also order discounted astronomy magazines and 2005 Astronomical Calendar, make donations to a favorite cause, and even purchase membership pins (sales on these are already up!) We've also set up a partnership with the venerable Amazon.com online store, so if you buy items from them through us, we get a small percentage of the proceeds. How nice!

For the first weekend in September, several EASers (me, **Carter Roberts, Paul Hoy, Dave Rodrigues, Phil Crabbe, Conrad**, worked Chabot's booth at Oakland's Chinatown StreetFest, showing the public truly fabulous views of the Sun through **Carter's** Coronado Max Scope 90 whilst handing out promotional material for Chabot and the EAS. This annual event is always a lot of fun to do - for breaks, we get to wander around and see all manner of Asian chatchka, eat great food, and watch martial arts displays, or Taiko drummers, or whatever else is going on.

We held our **Members' Only View Night** on Sunday, Sept 19, but only three members showed up! Honestly, this is one of the truly unique features of our club which sets us apart from the vast majority of astro clubs - private access to large telescopes - and nobody seems to be much interested in taking advantage of it. It's a shame, too, because all five of us (me, **Paul Hoy, M, Roberta, and Mitch**) had a blast using Leah and Rachel to look at the Moon (you felt like bracing for impact, it looked so close), the Hercules Cluster, Dumbell Nebula, Uranus, Ring Nebula, double-cluster in Perseus; we even did a special request for M: the variable star Delta Cepheii, which was surprisingly cool to look at. I wasn't expecting much, but it was a brilliant optical double with a yellowish tinge that was really quite lovely. (That's a really *really* nice thing about MOVN - we do requests [unless it's a star that you "bought" from the *International Star Rip-Offery*].) I even recruited Mitch and Roberta to help me operate Rachel (he helped turn the scope in RA, she read out the RA and Dec settings), and they had a ton o' fun doing that! Paul suggested I re-



The 8" Alvan Clark refractor, Leah

announce View Night via email a few days

before, to remind people it's happening. Maybe that will help get your lazy butts off the couch and into the observatory, where all truly good and enlightened butts belong! (Did I really print that?). Anyways, **our next MOVN is Sunday, October 17**. Please be sure to **NOT COME**, so the rest of us can hog all the fun and have more time at the eyepiece! Please also be sure to not bring warm clothes when you don't come, so you don't freeze your...well, *enough* with the anatomical references, already.

In other news: We are lucky that **Terry Galloway** is lucky (and that he's a generous EAS member, to boot.) He won a nice h-alpha filter as a door prize (donated by **Lumicon** for AstroCon 2004), and he promptly donated it to the EAS and Chabot! It can not only be used to look at solar prominences during the day, it will help out with viewing certain nebulae (such as the Horsehead in Orion) and exo-planets, too. Thanks, Terry!

Here's a quickie little submission I got from Michael Robinson the other day: *Say, I was in Michael's Art Mart (no relation) a few days ago and glanced at the Christmas Village house, figures, etc. and what did I see but a Christmas*

Observatory!!! It looks so much like the old Chabot on Mountain Blvd. that I had to get it! Regular price was \$24.99 but Michael's is having a 40% off sale, so I got it for \$14.99. Attached is a photo of the side of the box, showing what the little building looks like (it's about 6" tall). Pretty cool! I wonder if they have any others...?

Here's a pretty big item: We've got a **total lunar eclipse** this month! On **October 27th**, right at dusk, the full moon will have already begun to darken just before it rises above the eastern horizon at 6:11 pm. It reaches total darkness by 7:25 pm, and begins getting light again by about 8:47 pm. It returns to full brightness by 10:58 pm.

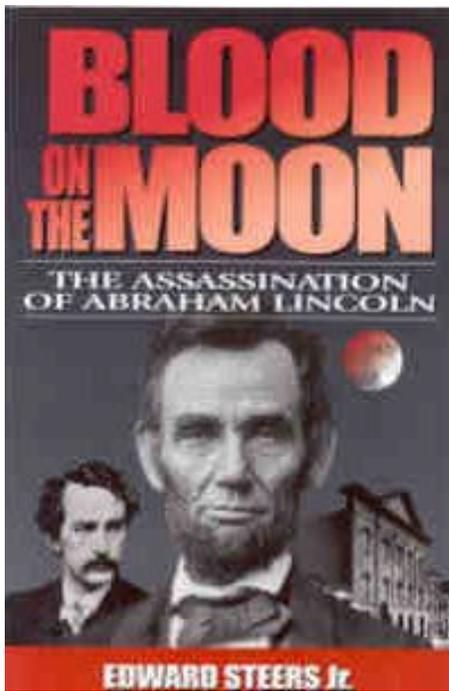
And finally, a note of thanks from **Conrad**: *I just wanted to express my gratitude on behalf of the staff at Chabot and thank the following individuals for donating accessories and materials to the Observatories. These contributions help to improve the functionality of the telescopes.*

Ken Swagerty on the new cover for Nellie, **Debbie Dyke** for new 1-1/4" 2" eyepiece adapters for Leah, Rachel, and Nellie, **Sam Sweiss of Scope City** for the donation of a new Astro-Physics focuser for use on Nellie, and **Paul Hoy** for seeing that focuser at Scope City.

This is just some of the many ways that EAS is contributing to help make the CSSC Public Observing program successful (not to mention that Ken, Debbie, and Paul are also very active as volunteers at Chabot). Thank you!

Conrad Jung
Observatory/Astronomy Instructor
Chabot Space & Science Center

That's it for now. See you - IN THE FUTURE! ☆



With the selfsame title as the vivid 73rd chapter in Carl Sandburg's grand Lincoln biography, this recent (2001) book seemingly abets the eclipse fable by its cover depiction of a ruddy moon. Inside the cover, however, an eclipse is never mentioned. Rather, in a thorough review of the evidence and circumstances of the crime, author Steers notes briefly how bright moonlight may have aided the assassin, John Wilkes Booth, and a co-conspirator during their subsequent flight into the Maryland countryside.

ling. There is a natural association between lunar eclipses and the color red, deep umbral eclipses not being uncommon spectacles. (Interestingly, a reddish total lunar eclipse took place on March 31, 1866, just shy of a year after Lincoln's death, and at nearly the same hour as the April 10, 1865 partial eclipse -- hence it hovered in the same region of sky. Could this event have added to the eyewitnesses's confusion as to the moon's appearance?) That Carl Sandburg, for whom the stars and the moon were recurring themes in his free-verse poetry, would ply the evocative notion of a bloody moon for dramatic effect seems no less natural.

Nor do I think it implausible that the Friday eclipse may have been a mistaken remembrance or a garbled retelling of an incident from four days previous. The passing of decades could easily distort one's memory of an event, especially an event that came to pass in the blur of one of the most epochal weeks in U.S. history. But until more details come to light, such will remain a speculation. ★

hard service under Grant and Sherman.... Here was the spark of Sandburg's lifelong interest in Lincoln and his era. Much later in adulthood, crisscrossing the country to speak and perform, and concurrent with his research on Lincoln, he met, in his words, *sons and daughters of many of the leading players in the terrific drama of the 1860's*. Here was a new, untapped fount of tales and anecdotes for his growing opus -- though they were second-hand gleanings voiced many years after the fact, with the inevitable risk of having been altered or embellished. A tempting speculation can be made that the dubious eclipse story reached Sandburg's ear via this sidelong path.

Eclipses portend the death of kings is an ancient superstition in world literature. The visage of a scarlet moon, symbolic of gore, is always compelling.

Tycho and Clavius: A Tale of Two Craters

By Jim Scala

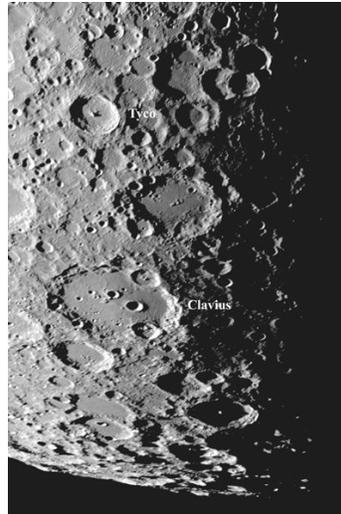


Image 1 - Photo by J Scala

Hardly a month passes that I don't at least take a look at the two very different craters Clavius and Tycho. For instance, I see Tycho when the moon is near full when its ray system dominates the entire moon and it stands out as if somehow painted on. At that time, Clavius can't be easily seen. In contrast, just before last quarter, or shortly after first quarter Clavius dominates. Clavius, at 225km in diameter, is classed as a walled plain containing detail that tests telescope resolution, seeing quality and observers skill. In contrast, Tycho is 85 km, has a central peak, but is otherwise unremarkable when seen at the same time.

Image one taken on September 6th just before the last quarter moon has both craters in the same field and they are labeled. Your eye is easily drawn to Clavius with its myriad detail.

While Tycho with its central peak is interesting, it doesn't catch your eye like Clavius and the other craters in the field of view.

Image two was taken on August 30th just before full moon. In contrast to Image one, the eye is drawn to Tycho with both its magnificent ray system and its brightness. Indeed, it's difficult to even find Clavius even though it's almost three times the size of Tycho. That's the difference youth and a few rays make. Tycho seems to stand out, almost artificially in stark contrast to other lunar detail including Clavius.



Image 2 - Photo by J Scala

Is it all about maturity?

Lunar experts tell us it's about the age of the two craters. Clavius was apparently formed during the intense bombardment of the inner solar system shortly after Planet-V was ejected. Then, as Uranus and Neptune migrated into their approximate current positions, the inner solar system took an intense pounding with asteroids. Then millions of years after that bombardment, when things had settled down, a meteor crashed into the moon creating Tycho. In that context, Tycho is a young crater and Clavius is mature if not old.

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EASTBAY ASTRONOMICAL SOCIETY

2005 Membership Application Form

Name: _____

Address: _____

City/State/Zip: _____

Phone: _____ Email: _____

I prefer to receive a mailed, paper newsletter*

Membership Type (check one):

\$24 Regular

\$36 Family

\$10 Student (PDF newsletter option only)

\$40 Contributing

\$60+ Sustaining

sub-total \$ _____

Donations:

Betty Neall Award of Merit

Burns Library Fund

Extra Solar Search Fund

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Magazines & Merchandise:

\$29 1-year Astronomy Magazine subscription

\$32.95 1-year Sky & Telescope Magazine subscription

\$25 2005 Astronomical Calendar

\$4 each per EAS Membership Lapel Pin(s) # _____

sub-total \$ _____

Total \$ _____

Please make your check or money order out to: **Eastbay Astronomical Society** and mail it and this form to:

Treasurer, Eastbay Astronomical Society

19047 Robinson Road

Sonoma, CA 95476-5517

* By default, newsletter is sent via email notification of the web-published version (in PDF format) and can be viewed with a free Adobe Acrobat Reader. We highly recommend getting the newsletter in this fashion as it is in full color, has faster delivery, helps the environment (no wasted paper), and saves the club time and money.



◀The moon setting over the San Bruno Mtn radio towers as seen from Wightman Plaza



▲Conrad Jung and Debbie Dyke inspect actual photographic plates of galaxy clusters on display in the new exhibit, Destination Universe

▶Dragon Skies exhibit - a BIG bas relief celestial sphere



Tycho and Clavius
Continued from Page 4



◀Volunteers manning the Chinatown StreetFest

Tycho Brahe (1546-1601), an outstanding astronomer
This Danish astronomer improved instruments of the time so he could acquire precise positions of the stars, planets, sun and moon from his Danish observatory. At that time, astrometry was the most important work an astronomer could do and Tycho was the best. His precise planetary positions provided the data from which Kepler worked out the laws of planetary motion. As a keen observer, Tycho also identified Nova 1572 in Cassiopeia. His lunar observations were sufficiently precise that he accurately determined the inclination of the lunar orbit to the plane of Earth's orbit. In 1597, after losing his financial support, Tycho left Denmark for Prague where Rudolf II, the German emperor, supported his work until his death in 1601.

2001 Space Odyssey, Haywood Floyd and the Lunar Monolith.

Arthur C. Clarke's famous short story, *The Sentinel*, led finally to the classic (now cult) movie by Stanley Kubrick, **2001; A Space Odyssey**, in which Clarke's philosophy was captured for all of us to see, ponder and enjoy. Clavius Base (in the crater) on the moon was where Haywood Floyd traveled via an earth-lunar shuttle to board a lunar rover that took him to view the newly discovered monolith. When you look at Clavius, let your mind's eye return to that incredible scene and perhaps you can hear the Danube Waltz which Kubrick used to impart the synchronization necessary to get Floyd's spaceship on the landing pad.

About the images.

The CCD images were taken with a 228mm refractor; image one was taken at F/27 and image two at F/9 through a ND 3.8 filter. The CCD camera is an SBIG STL-11000. ☆

▶The Astro-Wizard (Dave Rodrigues) works his magic at the StreetFest



◀New Ansari X Prize display in Chabot's lower theatre lobby



Eastbay Astronomical Society

At Chabot Space & Science Center
10000 Skyline Boulevard • Oakland, CA 94619

October 2004
RETURN SERVICE REQUESTED

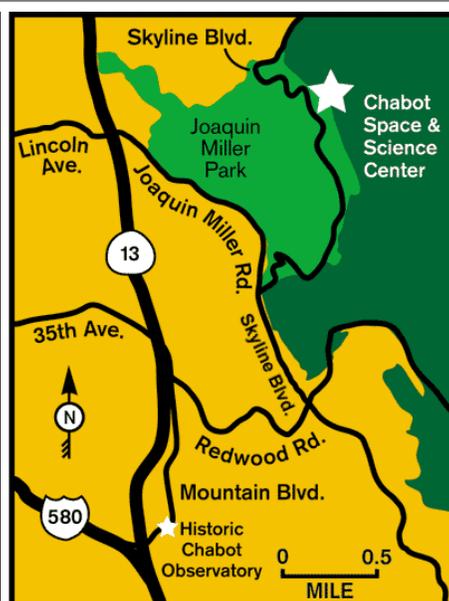
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Events Coord: Dave Rodrigues (510) 483-9191

Articles and photos for *The Refractor* are encouraged. Deadline for the November 2004 issue is October 15, 2004. Items may be submitted by mail to:
Editor - 3514 Randolph Avenue, Oakland, CA 94602-1228. Internet email address: donsaito@comcast.net Hm: (510) 482-2913.



FUTURE CONJUNCTIONS

- | | |
|-------|---|
| Oct 2 | EAS General Meeting at Chabot, 7:30pm Physics Lab |
| 16 | EAS Board Meeting, Chabot, Soda Board Rm, 7:30pm |
| 17 | EAS Members Only View Night at Chabot |
| Nov 6 | EAS General Meeting at Chabot, 7:30pm Physics Lab |
| 11 | EAS Board Meeting, Chabot, Soda Board Rm, 7:30pm |
| 14 | EAS Members Only View Night at Chabot |

Join the Eastbay Astronomical Society

- Regular, \$24/year Family, \$36/year
 - Contributing, \$40/year Student, \$15/year (digital news-
 - Sustaining, \$60/year or more letter, only)
- Contact: Don Stone, EAS Membership Registrar, Telephone: (707) 938-1667 Email: ddcstone@earthlink.net
Mail: 19047 Robinson Road, Sonoma, CA 95476-5517
- ☞ New memberships sent in from August—October will receive free newsletter(s) (Sept & Oct) before the start of the next membership year in November, when the regular 12-month subscription actually starts.