

“To The Unmounted Lens”

By “A.V.G.,” from *Hand-book of the Lick Observatory* : conclusion

Transcribed by Liz Calhoun

James Lick dies the year of the nation’s centennial, 1876, the richest man in California, and quite possibly also the most eccentric. Having begun his working life a wandering carpenter and builder of pianos and organs, he ends a San Francisco real estate baron. Nearly every bequest in his name is philanthropic in nature, from old women’s homes to public baths, and ultimately the masterpiece on Mount Hamilton.

Lick’s quirkiness expresses itself in his desire for a fitting funerary monument. He contemplates building a pyramid in downtown SF to rival the great pyramid at Giza. (Lick was apparently influenced by the late 19th century traditions of Spiritualism and, possibly, Theosophy.) Instead he instructs that his remains will rest at the base of the great pier that supports the largest telescope then known, in the biggest mountain-top observatory in the world: the 36-inch refractor, the setting of “To the Unmounted Lens.”

(Lowbrow Jack Brisbin recently gave us some examples of how amateurs might emulate Lick’s example, since so many hire concrete contractors for bases and piers for backyard observatories. PLEASE check with the funerary ordinances of your local communities before attempting to write such an instruction in your own trust or will.)

In January of 1887 Lick’s remains are conveyed in solemn procession from San Francisco to Mount Hamilton. The *Hand-book* notes that “... after a simple and impressive ceremony the coffin was opened, the remains identified, and the casket sealed within a leaden case and cemented beneath the massive blocks of stone which form the foundation of the great telescope which MR. LICK has given to his fellow citizens.”

The *Hand-book* then states: “The base of the great pier bears a simple bronze tablet with the inscription

HERE LIES THE BODY OF JAMES LICK.

His true monument is the Observatory which he reared and his lasting memorial will be the results of those astronomical observations which his generosity has instituted and endowed.”

IV

Through thee will Holy Science, putting off
Earth’s dusty sandals from her radiant feet,
Survey God’s beauteous firmament unrolled
Like to a book new-write in golden words
And turn to the azure scroll with reverent hand,
And read to men the wonders God hath wrought.
Gazing thro’ thee, her eye will wander o’er
Infinity’s illimitable fields
Where bloom the worlds like flowers about God’s feet;



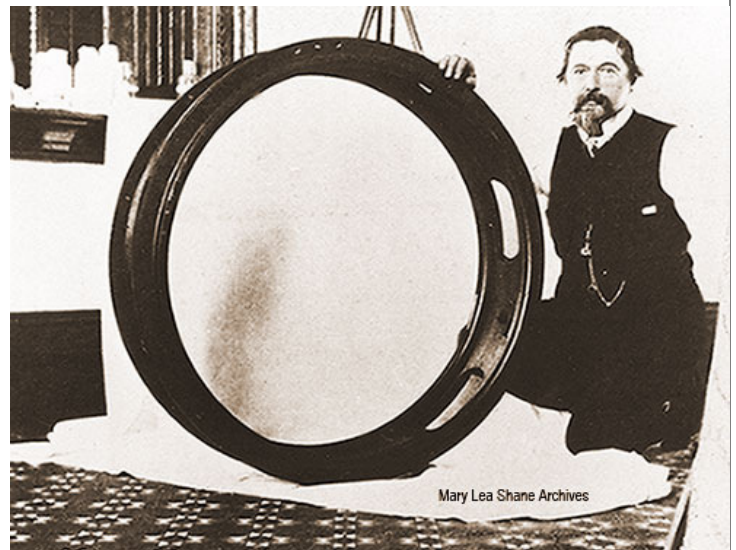
Rose worlds and purple suns, and seas on seas
 Of lily stars that make a way of light,
 And golden orbs that border all the way,
 And meadows fair of greenest emerald,
 And billowy seas that palpitate and flash
 Now seen, now lost beyond all vision's ken;
 Where, cradled on the glowing ether, swings
 As 'twere our Lord Christ's blue forget-me-not,
 The planet-petaled blossom of our sun,
 That mystic flower, whose filaments of flame,
 From burning anthers fling life manifold,
 And bloom and beauty on its crown of worlds;
 Where striving o'er the dim ethereal plain,
 Orion brandishes his flaming sword
 And shakes ajar the awful vestibule
 Of heaven's stupendous treasury of suns
 Set for a jewel in the mighty hilt.



Mary Lea Shane Archives

V (This stanza seems to indicate Alvan Clark, of Alvan Clark & Sons, the firm which finished the French-cast objective blanks. Alvan Clark dies in August of 1887, but the Hand-book is not published until 1888.)

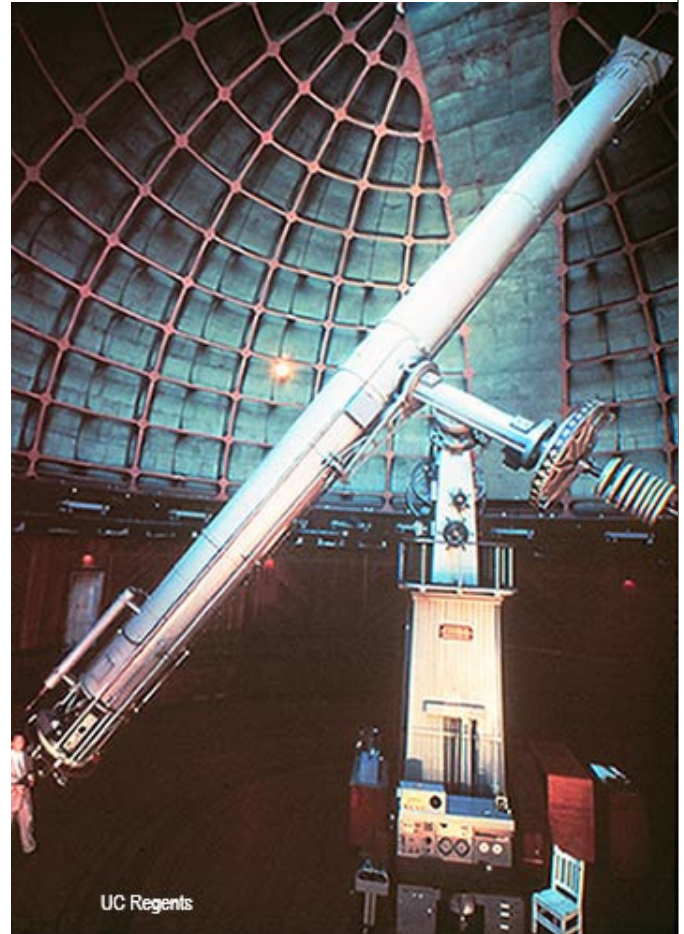
Oh patient hands that wrought this crystal pure,
 Rest now, 'tis meet that ye should rest, O touch
 More soft than down that swathes the eider's breast,
 More delicate than the Virgin's threads that float
 Athwart the sunshine on a summer's morn.
 No grosser toil shall henceforth thee engage—
 No grander task remaineth—therefore rest.
 O patient hands! We bless you, seeing how
 Ye bridged for us the fair and starry way;
 O quiet hands! We kiss you where ye lie
 Enfolden in a calm and perfect rest;
 For death hath touched you lightly, lovingly,
 And clothed you with a beauty unbeheld,
 Even as ye touched, so light, so lovingly,
 This lucent sphere and made it clear and pure—
 The world's one matchless gem. Rest gentle hands!



Mary Lea Shane Archives

VI (*Here the poet refers to James Lick himself, whose final resting place towers over the “obelisk of old” and “sculptured pile,” entombed as he is in a living “legacy of Light” quite literally.*)

And thou who didst conceive the mighty thought—
 This marvelous window of the world’s vast soul—
 Who walked the ways of dull and sordid men
 Nor asked the world for love, nor sought its praise;
 Who, scorning ease, wrought early and wrought late
 That thou might’st leave a legacy of Light
 To all the generations yet to come;
 While dull of heart and brain, men did not know
 How with them walked a messenger of God,
 Until Death clove the mortal husk and showed
 The Soul magnificent within—until
 The toil-worn hands relaxed and showed them Heaven.
 Thou art more grandly sepulchered than kings.
 No obelisk of old, nor sculptured pile,
 Nor oriel stained, in dim Cathedral Fane,
 So fair as this Memorial Window set
 In God’s vast Temple, builded not with hands;
 Across its disk the armies of the skies
 Will pass with jeweled feet slow moving to
 The solemn Miserere of the night;
 Above thee, mirrored fair, the Morning Star,
 Will lead the Halleluiahs of the dawn;
 Earth’s wise and good will gather at thy shrine
 And link thy name forever with the stars.



VII (*This last stanza appeals to the Astronomer, the man who will don the robes of his holy office, interpreting to the world the great mysteries that only he is worthy to encounter by right of his courage, intellect, and knowledge.*)

Priest-ministrant within this mighty Fane,
 Whereon thou standest now is holy ground;
 Divinest gift is thine—the gaze the first
 On glories yet unseen by mortal eyes.
 Gird up thy loins, clothe thee with righteousness,
 Cast the world’s glamour from thee and its cares;

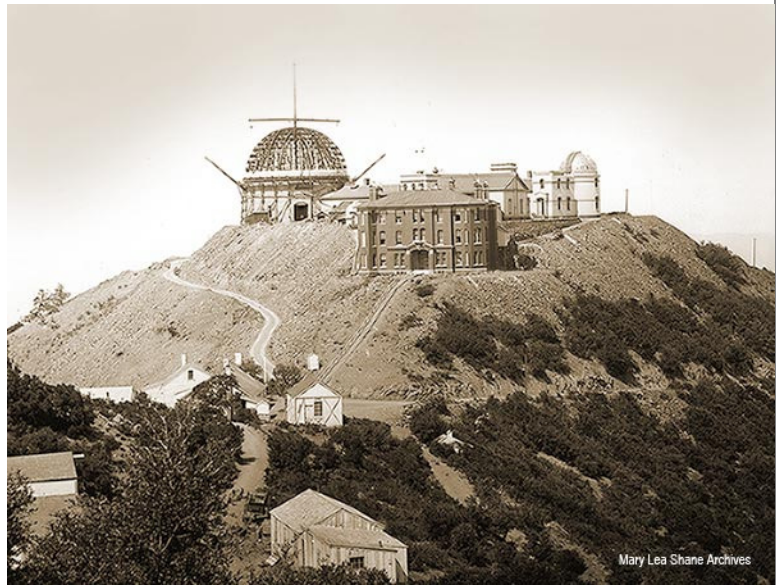


And if thine eye be single, thy heart pure,
 Perchance in the still watches of the night
 When slumber lieth on the eyes of men,
 Thou'lt catch the effulgent shadow of His feet,
 As walking in His garden in the cool,
 He plucks some world that bursts to sudden bloom
 Of beatific life beneath His hand.



(The poet concludes the poem with an extended analogy between mortal life on earth and the immortality of the soul, to the immortality of astronomical processes as they were understood in the late 19th century. We are comforted, though we survey our imperfect bodies, by the examples of worlds in space that model our ultimate fate, the life everlasting of orbits around the "Central Glory.")

Not death, as men do say—naught dies—the soul
 Looks from the windows of her falling house
 Calm with the reflex of some fairer sphere;
 So worlds die not: sublimed by touch divine,
 Their beauty and magnificence depart
 To brighter realms; or viewless grown to eyes
 Too weak to bear the excess of light which veils
 The Throne-place of the glory of the Lord,
 In far invisible orbits softly sweep
 To unimagined harmonies of sound
 Around the Central Glory, whither tend
 Suns, moons and stars and all the hosts of heaven,
 Things seen and things invisible and past,
 All beauty and all truth, all harmony—
 All things that be and all that are to be,
 Life beyond Life, Time and Eternity.



THE END

[I would again like to thank the University of California Observatories, especially Robin Horn in the Publications Permission office who long ago gave me permission on behalf of the Regents to transcribe exclusively for Lowbrow-use "To the Unmounted Lens" from Holden's Hand-book.]

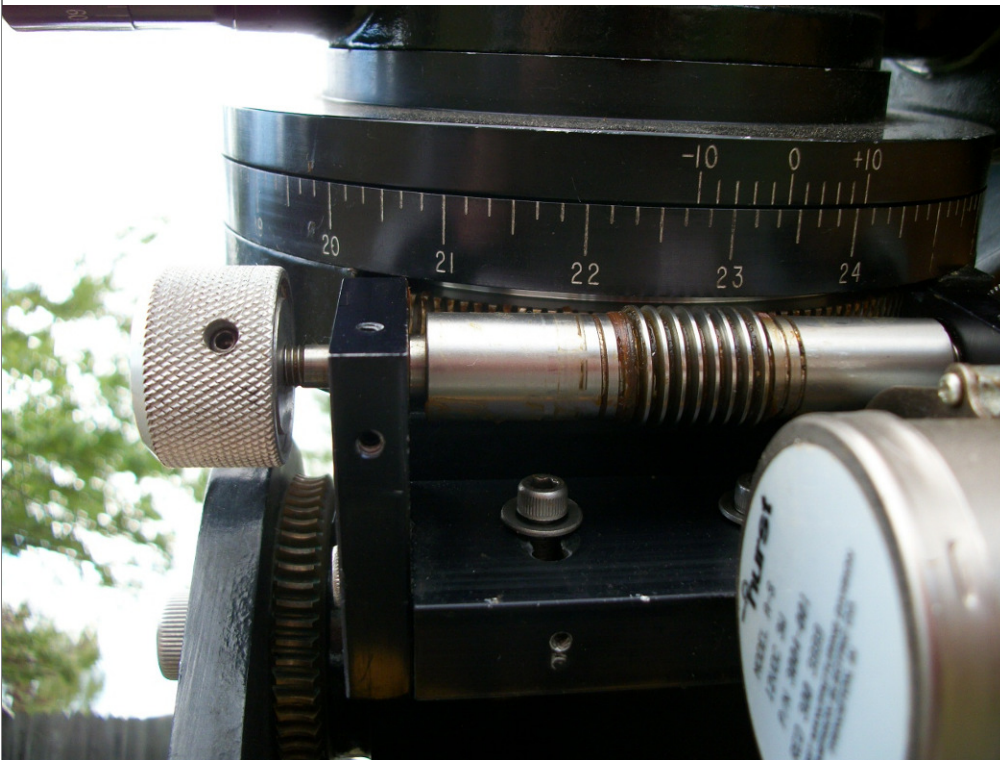
Ancient Gods and Super Heroes

By Tom Ryan

Lowbrow and T.N. Brian Close emailed me and said that the Astro-Physics 800 telescope mount that I had worked on (as described in these pages) didn't bind, but was not tracking properly. He was trying to take short exposures of the planets with a new CCD camera, and found that the imaged stars all had short trails. I asked him what the tracking error looked like, and he said the drive would track fairly well, then would let the stars trail, then would catch up, and the cycle would repeat. He said that the only way he could get fairly good tracking out of the mount was to move the worm slightly away from the worm gear and then, since this introduced backlash, hang a weight off the Declination axis to preload the mount against one side of the gear teeth. He didn't think this was a permanent solution.

This depressed me, but didn't particularly surprise me. I had worked on the mount and had specifically altered the gear (not worm) mounting to prevent binding of the worm as the gear went around. It takes some experience to design a worm and worm gear interface that doesn't have backlash and doesn't bind, and Brian's mount had enough of what I considered to be simple design errors that I didn't expect it to track well, either. The difference between a drive that tracks correctly and one that doesn't is very, very small. Nevertheless, when I sent him the modified gear, I had high hopes.

He sent me some pictures of the worm mounting block, and it had every degree of adjustment freedom available. This is actually bad in a design, because if something can be adjusted, you can be sure it will get out of adjustment, and even a slightly tilted or offset worm will not track correctly.



While thinking about this problem, someone in the club told me that the repairs to the 24" telescope's drive were complete and the drive was tracking very well. I went out to the observatory to see for myself how well it was tracking. You may or may not recall that the original worm was corroded, and the then observatory director, D. C. Moons, decided that the worm needed to be replaced. At the time, he took a lot of flak for proposing to replace something that worked badly with some-

thing that was of an unknown quality, but D. C. insisted, and the worm was replaced. No one talked about the possibility that the worm, once removed, might not be aligned correctly, ever again.

Earlier, I had looked over the photos I had of D. C. in the observatory, prior to his taking apart the drive system. Here is one of them.



Now, this is a fairly interesting picture, especially when set next to this publicity photo of a popular actor:

I say it's interesting because, not only is there a similarity in pose, clothes color, insignia, parting line and facial hair, there are the following additional similarities:

	<u>D.C. Moons</u>	<u>Robert Downey Jr. aka Tony Stark</u>
1) Involved in acting	Yes	Yes
2) Hangs out with the military	Yes	Yes
3) Makes frequent wisecracks	Yes	Yes
4) Has a machine shop in his basement	Yes	Yes
5) Has been seen driving fast cars	Yes	Yes
6) Charming, fond of women, but not married	Yes	Yes
7) Has been known to drink an occasional beer	Yes	Yes
8) Not given to false modesty	Yes	Yes
9) Can make an IronMan suit while locked in a cave	Yes	Not really.

I used to think the ancient Greeks were really stupid for believing in gods. They had gods of the sea, gods of the wind, gods of war, of wisdom, of anything you might think of, and I always wondered why. Why did they believe in gods this way, and why did they make up such complicated stories about their personal lives? In today's science and technology-dominated societies, we certainly don't have gods of the wind.

But then I realized that what we have today instead are super heroes. We have supermen and dark knights, spacemen and mutants, robots and vampires. And the purpose these characters serve is to give us a short hand method of understanding the world and the people around us, in a way we can easily understand, in the form of short stories. In a world where unprotected sex can lead to Aids and death, it is perfectly natural to expect there to be stories about vampires, in which one bite, just one, will turn a young girl into the undead for all time. It may be hard to understand Aids, or HIV, or to remember to take precautions because your crazy mother warned you about it, but it is easy to remember a story about vampires.

When Russia became communist at the beginning of the 20th century, the State tried to usher in an era of purely scientific thought. It discouraged all religions for decades. But when the USSR fell apart, people were back in the churches the very next day. There is something in us that needs gods, that needs these stories.

So if D.C. resembles, in some vague and, I'm sure, slightly embarrassing way, Tony Stark, it is only fair to ask

whom it is that I resemble. To which super hero would I lay claim? Because we all resemble some super hero in some way or another, and that includes you, the reader.

When I was ten or eleven years old, I would have said I wanted to be Superman or Batman. Superman, because he couldn't be hurt, Batman, because he was a very smart detective. (He has since been transformed into a dark, humorless man driven by revenge. His enemies are the people who laugh at him, and so they must die.) But I'm no longer the person I was when I was ten years old. I'm a little further down the road, with all the baggage and thinning shoe leather that implies. Today, I live in a world of what I would call super-science (as do we all, really), and I travel to places all over the world on rescue missions. One of my customers compared me to the 82nd Airborne. He said "Tom, you drop into some place, you fix the problem, and then you leave." and it's true. I always fix the problem, and I always leave, even though companies have repeatedly offered me permanent positions.

If I resemble any super hero, I think it would be Adam Strange, as he was portrayed by Carmine Infantino in *Mystery in Space*, issues #53-91. (But I am self-selecting. D. C. might say I more closely resemble Howard the Duck.) Adam Strange traveled to the planet Rann by Zeta beam, always arriving just in time to save the planet from some threat, and to see to his love, Alanna, before returning to Earth as the effects of the Zeta beam wore off.



Did I have any inkling that this would be my life when I decided that this story line was the best comic in the world back in 1960? No. But the coincidence is startling, and I did briefly think the name of the comic was "My Story in Space". Physics says that everything is connected, that anti-particles are normal particles streaming backwards in time. Certainly, stranger things have happened.

When I got to the observatory, the drive was, indeed, tracking perfectly. D. C. had put it back together, and it was working better than it ever had before. As I drove home, I knew that at that moment, Brian was wondering why he had bought a supposedly top-of-the-line telescope mount that didn't work very well. If Brian could ask the engineer at Astro-Physics why he couldn't have made a better mount, their conversation might have followed the dialog from the first Ironman movie:

"TONY STARK WAS ABLE TO BUILD THIS IN A CAVE! WITH A BOX OF SCRAPS!"

"Well, I'm sorry. I'm not Tony Stark".



M-27 The Dumbbell Nebula

By Mike Radwick

Here is some info about the picture which folks may be interested in:

The object you are looking at is popularly called the Dumbbell Nebula. It was discovered in 1764 by french astronomer Charles Messier. The cloud is actually gas from a star which evolved very much like our own sun. In this case, the star has died (no longer fusing elements to make energy). In the process, the star's core collapsed to become what is called a white dwarf (visible in the very center of the cloud), and the rest was blown away by the heat of the core to make a very large cloud (the field you are seeing is much, much larger than the size of our solar system). The cloud itself is not glowing on it own however. Instead, the (dead) star at the center is still generating a lot of light, much of it is ultraviolet. The light then heats the gas, causing it to fluoresce just like a fluorescent light bulb, but on a huge scale. Dust and other matter in the cloud absorbs some of the light, causing some of the color and dark areas.

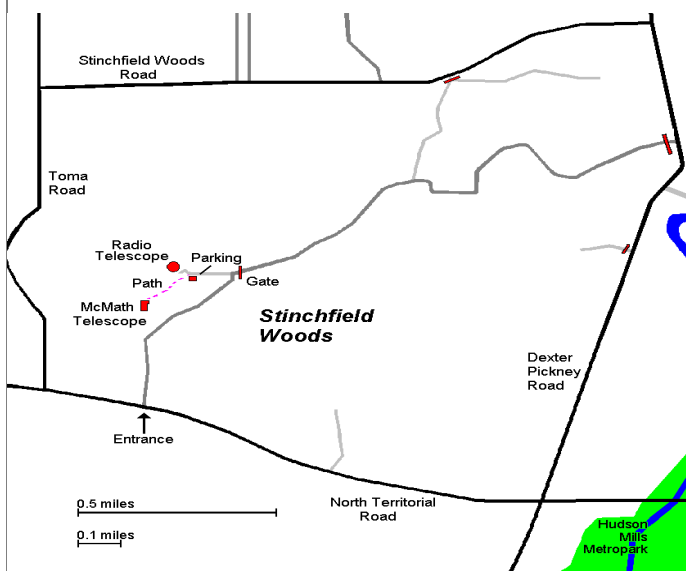
The images were taken over two nights (July 29 and Aug 5) at John Causland's house. I used my 14.5 inch StarMaster telescope as the "lens", which was guided with a 66mm William Optics telescope using a Meade DSI camera (one night) and a Orion Starshoot guider the second night. The free software PHD-Guiding in combination with my own control software used used for guiding.

The final photo was obtained by combining 56 40-second images taken with an unmodified Canon 30D camera (at ISO 800). I used software called Deep-Sky-Stacker to combine the images, and finished the processing with Photoshop.

Places & Times

Dennison Hall, also known as The University of Michigan's Physics & Astronomy building, is the site of the monthly meeting of the University Lowbrow Astronomers. Dennison Hall can be found on Church Street about one block north of South University Avenue in Ann Arbor, MI. The meetings are usually held in room 130, and on the 3rd Friday of each month at 7:30 pm. During the summer months and when weather permits, a club observing session at the Peach Mountain Observatory will follow the meeting.

Peach Mountain Observatory is the home of the University of Michigan's 25 meter radio telescope as well as the University's McMath 24" telescope which is maintained and operated by the Lowbrows. The observatory is located northwest of Dexter, MI; the entrance is on North Territorial Rd. 1.1 miles west of Dexter-Pinckney Rd. A small maize & blue sign on the north side of the road marks the gate. Follow the gravel road to the top of the hill and a parking area near the radio telescopes, then walk along the path between the two fenced in areas (about 300 feet) to reach the McMath telescope building.



Public Open House / Star Parties

Public Open Houses / Star Parties are generally held on the Saturdays before and after the New Moon at the Peach Mountain observatory, but are usually cancelled if the sky is cloudy at sunset or the temperature is below 10 degrees F. For the most up to date info on the Open House / Star Party status call: (734)332-9132. Many members bring their telescope to share with the public and visitors are welcome to do the same. Peach Mountain is home to millions of hungry mosquitoes, so apply bug repellent, and it can get rather cold at night, please dress accordingly.

Membership

Membership dues in the University Lowbrow Astronomers are \$20 per year for individuals or families, \$12 per year for students and seniors (age 55+) and \$5 if you live outside of the Lower Peninsula of Michigan.

This entitles you to the access to our monthly Newsletters on-line at our website and use of the 24" McMath telescope (after some training).

A hard copy of the Newsletter can be obtained with an additional \$12 annual fee to cover printing and postage. Dues can be paid at the monthly meetings or by check made out to University Lowbrow Astronomers and mailed to:

The University Lowbrow Astronomers

c/o Liz Calhoun

P.O. 4465

Ann Arbor, MI 48106

Membership in the Lowbrows can also get you a discount on these magazine subscriptions:

Sky & Telescope - \$32.95 / year

Astronomy - \$34.00 / year or \$60.00 for 2 years

For more information contact the club Treasurer. Members renewing their subscriptions are reminded to provide the renewal notice along with your check to the club Treasurer. Please make your check out to: "University Lowbrow Astronomers"

Newsletter Contributions

Members and (non-members) are encouraged to write about any astronomy related topic of interest.

Call or Email the Newsletter Editor: **Mark S Deprest (734)223-0262 or msdeprest@comcast.net** to discuss length and format. Announcements, articles and images are due by the 1st day of the month as publication is the 7th.

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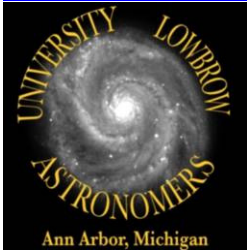


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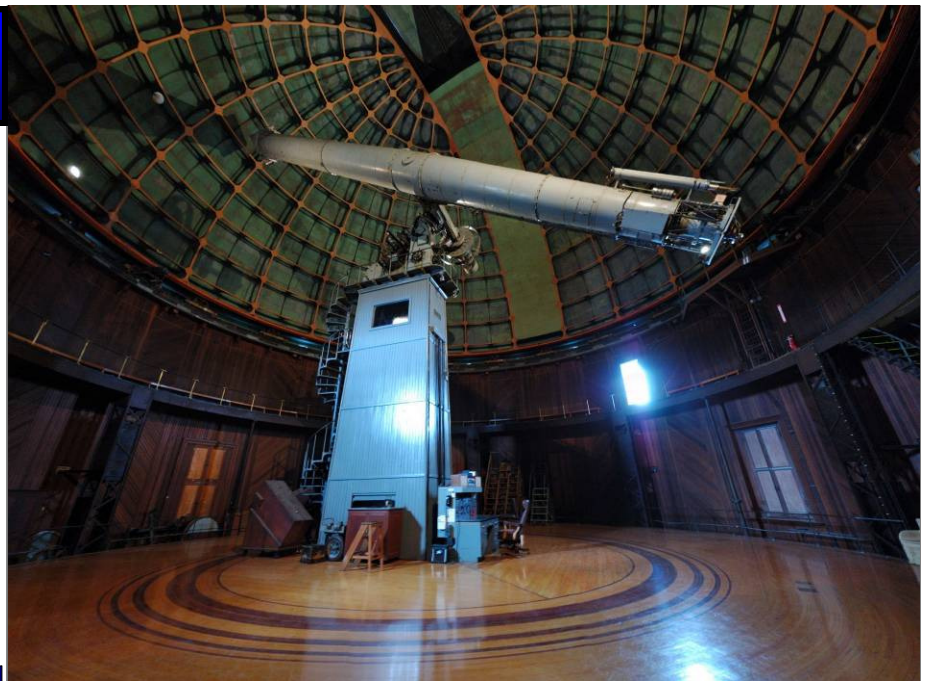
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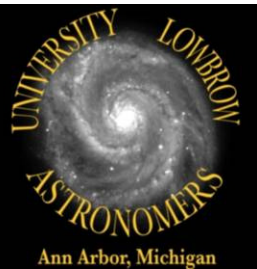


Website

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The Lick Observatory Dome, Scope, And Floor ... A work of art, architecture, form and function.



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