



The Fremont Peak

# Observer

Bringing Astronomy to the Public

Vol 34 No. 2

Summer 2017

*Renew now for 2017. Don't let your membership expire. See page 5 for details.*

## President's Message

*By John Parker*

Welcome to the summer Observer. Our programs have been taking place as scheduled - we have had twelve public programs and five solar programs so far this year that have been well attended by the public. Our intern program is up and running and these enthusiastic and intelligent students have participated in presentations and helping the public to view through our different telescopes. There was a new addition to the telescope inventory at the peak - a 8" Celestron NexStar SCT was donated to us and we are very grateful. This will be a good addition to our current inventory and very useful for our public programs. With Ron Dammann's expert help, the digital setting circles on the Challenger telescope have been repaired and computer assisted location is available again. The large radio tower that sits to the south-west of the observatory had a bit of an equipment failure and the white strobe lights have been staying on during the evening. The owner of the tower has indicated that this will be fixed shortly and the red lights will be working again.

The big event this summer is, of course, the solar eclipse this month. Several of our board members will be travelling north to be in the path of complete eclipse - some of you may have plans to travel to an ideal viewing location as well. The observatory will not be having a special program that morning - there isn't a real advantage of being at the peak except for being above the marine layer should it be foggy. There are a number of events happening around the area and if you get an opportunity to view the eclipse from our area, there will still be between 70% and 80% coverage. Please make sure that you have proper eye protection and wear that at all times when viewing the sun.

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## 2017 FPOA Program Dates

### Saturday Evening Programs

Apr 1, 22, 29    May 20, 27  
Jun 3, 17, 24    Jul 1, 15, 22, 29  
Aug 12, 19, 26    Sept 16, 23  
Oct 14, 21, 28

### Solar Programs

Apr 1, 29    May 20    Jun 17  
Jul 15    Aug 26    Sept 16    Oct 14

### Board Meetings

Jan 28    Feb 25    Mar 25    Apr 22  
May 27    Jun 24    Jul 22    Aug 12  
Sept 23    Oct 21    Nov 11

### Special Events

Annual Meeting / BBQ    Sept 23

Please check <http://www.fpoa.net/schedule.html> for changes or updates to this schedule.

## Bad Astronomy

*By Rob Hawley*

*This is based on one of the lectures I give in our evening programs.*

The reader of this article is likely not going to be a victim of any of the silly notions contained herein. Rather regard this as a quick source of arguments should any of your science challenged friends start repeating this nonsense.

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## Science vs Pseudoscience

Science is a technique of looking at the world whose origins stretch back to the time of the Greek Philosophers. Much of the progress was put on hold in Western Europe during the Dark Ages due to the domination of the church, but continued to flourish in Moorish Spain. The Renaissance re introduced the Scientific Method to Europe. The Method relies on several points:

- Science makes specific **Testable Predictions** (Theories)
- Theories **apply to both the past and the future**
- Theories can be proven false if they are incorrect (**Falsifiable**)
- Theories are accepted when **verified by multiple groups**

Scientists do not properly "Believe" in a Theory. A "Belief" implies a strong (possibly inflexible) bond to an idea. We say "Accept". The difference is important. Any theory can be overturned by future work as either incomplete or incorrect.

An example of the latter is the Ptolemy theory of the solar system. This worked and made satisfactory predictions for nearly 2000 years. The Renaissance work of Tycho, Kepler, and Copernicus showed there was a simpler explanation that gave a more accurate model.

The case of an incomplete theory is subtler. A simple example is Newton's laws of motion. We still build cars and launch rockets using Newton's laws; however, in 1905 Einstein showed that at high speeds Newton's laws need revision. That revision, called "Special Relativity", adds terms to Newton's equations that can be safely ignored in everyday life. Thus Newton was not "wrong", he was incomplete. Similarly our current understanding of the large ("General Relativity") and the small ("Quantum Mechanics") are approximations that, while extremely good at predictions in their own domains present pictures of reality that are fundamentally at odds. Many scientists today feel that there must be a model that includes both.

By contrast Pseudoscience

Makes predictions only of past events (but not future)

-or-

Makes vague predictions that cannot be tested

"Evidence" is at best Anecdotal

## Myths and Just Dumb Stuff

Here are some of the examples I give in my talk of the Pseudoscience we have to cope with.

### Dangerous Comets

Halley's comet made a close pass to the earth in 1910. While the comets of the 90's were spectacular, the 1910 pass exceeded even those. As earth passed through the tail, reports of the contents of the tail made their way to the general public. Crooks began selling medication to "Escape the Wrath of the Comet". Sadly such behavior continues today. How many quack remedies have you heard of? As a scientist one needs to keep an open mind since say chewing willow bark might actually have some medicinal value; however, we do have a process to sort out what is real from what is not.

### Fake Moon Landing

This is one that I am amazed persists today and may be more serious in the future as people with direct contact with the events leave us. The "Evidence" rests on a number of points that sound plausible if not examined too closely or if one is unaware of the context.

### No Stars in the Photograph

The most common argument is that the moon landings were created on a sound stage. The evidence for this is all of the photographs lack stars. This argument rests in a fundamental lack of understanding on how cameras work. As those of you who will be attending the eclipse will discover, cameras are a very imperfect tool to capture reality. They do not handle wide differences in brightness. Since there was no scientific value capturing the stars while the astronauts were working, the exposures were set to image the vastly brighter astronauts lit by an unfiltered sun. Hence the stars are grossly underexposed. The original photos from Apollo are in a library at U of A Tucson. I have seen them.

### The Flag

"Why is the flag fluttering" argues another line of argument. Of course there is no wind. NASA engineers had the choice for a flag that lay limp, one held rigidly out, or one that looked like it was moving in the wind. Considering the latter was no more complicated than a bent coat hanger which do you think they chose?

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## President's Message

*from Page 1*

Even though a number of us will be travelling for this event, the observatory will have its regularly scheduled programs during August.

Deck project – We dismantled the old west ramp in July with the help of boy scouts. Zachary Loos of Troop 455 is working towards an eagle badge which requires him to manage a project. With the help and guidance of Loren Dynneson and the assistance of some other troop members, the west ramp was removed and we began prepping the new wood that will be installed. We discovered some damage to part of the structure below the west door and we needed to remove some rotted wood. We put in a new section of timber and it is looking great and is structurally sound. This did set us back a little bit and we hope to get back on track quickly. We plan to continue construction in August and complete the project in time for the upcoming annual members meeting and barbeque. Our entrance design is a little different in that the ramp will be replaced with stairs and the new deck will act as a presentation platform as well.

The Annual Members meeting is scheduled to be held on September 23rd and we hope that all of our members will be able to attend. We will be sending out invitations with an opportunity to RSVP later this month. Our trustworthy barbeques were damaged during last winter's storms and they will need to be replaced. We plan on serving the traditional burgers, dogs and chicken and ask that our members bring a side dish. We will have our Astro-Gastro contest so start thinking about celestial inspired dishes that you can enter into the contest. Orion Telescopes and Binoculars and Celestron will be providing raffle and contest prizes and their contributions are always appreciated. We expect to have kids games and there will be the annual elections. If you or someone you know may be interested in serving as a FPOA board member, please let us know and we can get them on the ballot.

Finally I would like to say thanks to all of you who have renewed your membership this year. Your continued support of the organization is appreciated and we look forward to sharing the fascination of the night sky with all who visit the observatory this year. If you have a chance to attend one of our programs, please make sure you say hello to the FPOA members and interns running the telescopes - we would love to know that you attended one of our programs.

## Images from West deck work party



Deconstruction



Dried replacement wood (above) and painting (below)



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## **The Conspiracy**

The argument here is that a vast government conspiracy kept the failure of Apollo from the public. OK let's see how plausible that is:

- Almost 400,000 people worked on Apollo. Press was available at both the launch and landings. So the scope would have to be truly vast. And yet no one has made a deathbed confession of malice
- The government is extremely poor at even keeping legitimate secrets. Imagine how helpful the Russians feel we have been in telling them we were tapping the phones of their most senior officials in the US (regardless of the serious US domestic issues this surveillance revealed).
- The Astronauts left reflectors on the surface that operate to this day.
- I have previously mentioned my own personal experience with the photo library (although I suppose I could be the 400,001st conspirator)
- This was all happened in full view of the Russians at the height of the Cold War. This means that the Russians were part of the conspiracy even though they were fighting a proxy war against the US. They retained this secret in the 80's when the reverse happened and after the fall of the Soviet Union in the 90's.

Given the above how plausible is the conspiracy?

## **Little Green Men**

While a long time supporter of SETI, this is one I have to sadly consign to Pseudoscience. There has never been substantiated evidence that landings have occurred. Given the engineering challenge of sending a party even 4 light years from the nearest known planet, why have these incidents occurred at such random times and places?

Yes, there are some cases that we do not fully understand; however, it is a fallacy to conclude that lack of a satisfactory scientific explanation to a particular event is proof of an alternative theory. As I stated in this article, theories can only be validated by their making predictions that can be tested. No such prediction nor test has been made.

However, Enrico Fermi postulated a test for falseness. His test was "If extraterrestrials are commonplace where are they"?

## **Checks and Balances**

Why is science able to purge itself of bad ideas? The answer is that science is competitive. New work is vetted in refereed journals and conferences. Those ideas that are unconvincing are identified. That does not mean science does not make mistakes. But ideas such as Cold Fusion were mostly birthed in premature press conferences and not the journals. That still does not mean that errors do not remain in the body of work. Also Nature still has the ability to surprise (think Dark Energy). It is the ability of science to admit it is wrong and be open to new ideas that ultimately is the biggest difference between real science and hokum.

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## **Images from work party**

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New framing (above and below)



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Repair of water damage under West door

**Fremont Peak Observatory Association**

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**Officers and Directors—2017**

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**2017 Membership Renewal**

Renewals are easy. You can use the forms on the membership page <http://www.fpoa.net/membership.html> to pay with either PayPal or via a credit card. For those preferring paper you can just send a check (that has your current correct address) to : FPOA Membership, c/o Rob Hawley, 1233 Hillcrest Dr., San Jose CA 95120

If your email has changed, then please be sure to include that in either the PayPal payment as a comment or a note with your check.

**FPOA on the Internet**

**Phone Number:** 831-623-2465  
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**Facebook:** [www.facebook.com/fpoa.observatory/](http://www.facebook.com/fpoa.observatory/)  
**Twitter:** [twitter.com/fpoa\\_info](https://twitter.com/fpoa_info).

**EMAIL DELIVERY OF THE OBSERVER**

Dear FPOA Members,

We have been delivering the Observer via email for the past several years. This obviously saves the Association postal expenses, and assures the quickest delivery to you. However, several of you no longer have valid email addresses, due to ISP changes, moves, etc. If you would like to continue to receive, or begin to receive, notification of the Observer via email, please send your current email address to membership at fpoa.net

The *Fremont Peak Observer* is published four times a year (Winter, Spring, Summer, Fall). Articles from members are encouraged and should be emailed to <schedule at fpoa.net > Articles should be in plain text or MS Word format. Deadlines are Feb. 1, May 1, Aug. 1 and Nov 1, respectively.