

THE OBSERVER

BATTLE POINT ASTRONOMICAL ASSOCIATION

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DID YOU KNOW?

THERE ARE MOONS MADE OF DIAMOND? REALLY! SPECTROSCOPY ALLOWS US TO DETERMINE THE COMPOSITION OF DISTANT ASTEROIDS AND MOONS. THOSE WE CALL C-TYPE CARBONACEOUS FORMS, THROUGH GRAVITATIONAL WARPING COMBINED WITH EXTREME HEAT, HAVE BURNED OFF ALL ELEMENTS EXCEPT CARBON SO THAT ONLY DIAMOND REMAINS.

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A Brief History of the Ritchie Telescope

by Nels Johansen

The Ritchie Telescope is a 27.5 inch Newtonian Design scope made by Ed Ritchie, one of BPAA's founders, in the basement of his house. Grinding and polishing of the mirror and construction of the telescope body took him approximately a year. The mirror is truly "first class". Unfortunately, Mr. Ritchie was never able to look 'through' what he had made before he died in 1997.

The telescope was still in final construction with mechanical gearing being built in the late 1990's, and the computer drive system design in the early 2000's. Sidereal Technology was in its infancy at that time and I believe BPAA got one of the Sitech Company's very first installations on the Ritchie. We used the system from 2005 until just last year.

So what is the reason the telescope has not been operating recently? Although it *was* working, it only worked with great difficulty, and after lots of analysis we found several problems. One problem was that the declination gear wasn't round, that is, not centered on the declination shaft, and the clearances between the gear and the drive-worm were extreme.

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The telescope would literally bounce from one side to the other, like "bumper cars at the fair". We also discovered the telescope support brackets were too small to properly hold the 500 pound scope without distorting the telescope body, and the declination bearings were found to be "sloppy". All these factors prevented the telescope from pointing properly, and the computer drive system was not able to correct the non-repeatable errors. We decided to completely rebuild the control system, a difficult technical task.

We are very now close to having the Ritchie Telescope in full operation again. The new pillow blocks, which hold the declination bearings, are installed. By the time you read this the special steel epoxy which will "lock the blocks" in place will have been poured and set. The new 20 inch diameter gear will be mounted on the declination shaft west end, with counter-weights on the east. The new and much larger telescope brackets we call the "Arms of Love" will hug the scope and support the weight much better as it moves through all angles and directions in the sky. The club has a new computer to run the scope, and we are waiting for all mechanical aspects to be completed before electronics are installed.

Most parts have been completed by members of BPAA and BARN with funding from COBI, BPAA, and with materials from BARN. With the technical know-how of some really smart people and lots of volunteer labor this is really going to happen.

Editor's note: We can now report that the Ritchie scope mechanical control parts will be finished by early March. After minor deck alteration to accommodate larger gears, the computer system will be installed and adjusted. We're close!

IN THE APRIL ISSUE we'll have an article about **Steve Ruhl**, BPAA's Chief Scientist and former President, and his excellent astrophotography. There will be several beautiful examples of his art in the April issue. We'll also talk about the Lyrid Meteor Shower on April 22nd and 23rd.

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Calendar of Events

(unless otherwise noted, all events are at the Edwin Ritchie Observatory, Battle Point Park)

Mar. 1 - 1st qtr. moon - evening sky

Mar. 8 - BP Astro Kids - Citizen Sci

4 pm with Dr. Erica Saint Clair

Mar. 9 - Full Moon

Mar. 15 - Last qtr. moon

Mar. 20 - New Moon - barely visible in early morning sky, with Saturn to the upper right (10:00 position) followed in-line by Jupiter and Mars close together. If it is a clear night binoculars or low-power telescope will give a good view.

WHAT'S UP!

On March 7th look for **Regulus**, meaning "The Little King", positioned at "5:30" from the full moon, if the moon were the center of a clock. Regulus is the brightest 'star' in the **Leo Constellation**, but as was said in last month's newsletter, Regulus is actually two stars circling each other. You can see it about two hours after sunset in the eastern sky.

March will see at least ten space launches, almost all communications and geo-location satellites, but in 2020 four missions to Mars are planned, including three unmanned rovers, two orbiters, and one lander - involving efforts from the U.S., China, The United Arab Emirates, Japan, The European Space Agency, and other countries. It will be a very busy space year.

The Daniel K. Inouye Solar Telescope (DKIST) captured its first image of the sun late last month. It will commence a 50-year study of our own star to enable better understanding of the origins of solar storms that cause increasing trouble for communications, guidance, and other earthly systems.



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