nightwatch
Newsletter of the Pomona Valley Amateur Astronomers

Volume 32 Number 11 ***nightwatch*** **November 2012**

President's Message

I am not a dedicated comet-chaser. Every year, several short-period comets brighten to the point that they can be seen with binoculars or a small telescope, but I almost never track them down. In fact, I've only seen three comets in my time in amateur astronomy, but each one has left a big impression. And curiously, all three have been October arrivals.

The first was comet 17P/Holmes, which brightened to naked-eye visibility in late October, 2007. It was extremely good timing for me: I had just gotten my first telescope three weeks earlier. For months I watched Holmes shift against the background stars of Perseus. I tracked with the naked eye and binoculars, and watched the coma expand and dissipate in my telescope. It was mesmerizing.

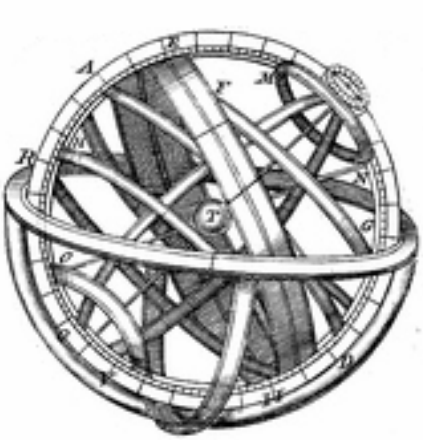
The second was 103P/Hartley, which I observed with fellow PVAA member Steve Sittig at the observatory on the Webb campus in October, 2010. The sky was not particularly clear that night and we had a devil of a time finding the comet, even in the observatory's pier-mounted GoTo C14. Eventually we found a fuzzy spot that moved against the background stars in a matter of minutes. That was a novel experience for me. With Holmes I only looked from night to night, not hour to hour or minute to minute, so I never got that little thrill of going to the eyepiece and noticing that something had moved.

My most recent comet was 168P/Hergenrother, which brightened by a factor of about 100 in early October, bringing this normally challenging object within reach of backyard telescopes. I tracked it down for the first time at the All-Arizona Star Party, then from Mount Baldy a week later, then from the Salton Sea a week after that. Each time I sketched the position of the comet at different times so I could record its progress against the background stars.

Next year may be a big year for comets, with two that will hopefully reach naked-eye visibility. The first is 2011 L4 PANSTARRS, which was first detected by the Air Force's automated PANoramic Survey Telescope And Rapid Response System. It should max out in March of 2013. Possibly even brighter will be 2012 S1 ISON, a sun-grazer newly arrived from the Oort Cloud. If it survives its extremely close pass by the sun—less than a million miles—it could possibly become bright enough to be seen during the day. Oddly enough, ISON is supposed to become bright enough to see in amateur telescopes in, you guessed it, October.

Fittingly, our speaker this month will take us beyond the planets and into the realm of the comets. JPL's Dave Doody will talk about the Voyager spacecraft—both now early in their 36th year of operation—as they exit the solar system and head into interstellar space.

Matt Wedel



How Does It Work?

As was discussed in the previous article, Barlows and focal reducers work in the same way but have the opposite effect. They both affect the "effective" focal length of the telescope. The Barlow makes it longer and the focal reducer makes it shorter.

A lens placed before the image will bring the image closer to the scope if it is a focal reducer. It will move the image further out if it is a Barlow. The diameter at the lens doesn't change so the effect is to change the apparent F/no and the "effective" focal length.

The most common use for a focal reducer is for cameras. It is a positive lens and because it shortens the effective focal length, it gives a larger field of view and a smaller but brighter image. This shortens the exposure time required for the faint fuzzies.

However, a shorter focal length causes more curvature of the focal surface. We say "focal plane" but the image is always on a curved surface unless it has been corrected. Even when used on an F/10 scope the edge is somewhat out of focus and is noticeable when a single lens focal reducer is used. So more complex designs offer a field flattener as a part of the assembly.

A related device is TeleVue's ParaCor (short for parabolic corrector.) It is a lens assembly designed to reduce coma (flatten the field). It is quite helpful in astrophotography and may also be desirable when using the wide field of view eye pieces available today.

A 0.5x, single lens, focal reducer produces an F/5 cone on an F/10 scope. When inserted into the beam it cuts the remaining focal distance in half. For that reason it is often attached to a nose piece on the camera.

When I use a focal reducer with my video camera the nose piece slides into the diagonal and then I focus. Often I want to look at an object with a wide field of view eye piece in order to center it for the narrow field of view camera. But I don't want to change the scope focus to do so.

To swap out with an eye piece I use an extender on the eye piece and a "collar" to hold the eye piece in place. I place the extender in the diagonal and then slide the eye piece out to get a decent focus. Then I tighten the collar, I don't change the scope focus. That allows me to swap back and forth with the camera.

On some scopes it's a bother to go back and forth between 1.25 inch and 2 inch barrels. If you enjoy the available very wide FOV eye pieces available today and want low magnification, you will not find an eye piece much longer than about 20 mm with a 1.25 inch barrel. One trick is to use a focal reducer to get an effective 40 mm eye piece with the same nice wide field of view.

Ken Crowder

Pay club dues at the General Meeting or by mail. $30 individual / $40 family.

Club Events Calendar

November 2 - General Meeting
November 10 - Star Party - Anza-Borrego Desert State Park
November 30 - Board Meeting, 6:15

December 7 – PVAA Holiday Party
December 14 – Evergreen Elementary School Star Party
December 27 – Board Meeting, 6:15

January 12 - Star Party – Cottonwood Springs, Joshua Tree
January 17 - Board Meeting, 6:15
January 25 - General Meeting

February 9 - Star Party – Mecca Beach, Salton Sea
February 21 - Board Meeting, 6:15
March 1 - General Meeting

March 9 - Star Party
March 14 - Board Meeting, 6:15
March 22 - General Meeting

April 6 - Star Party
April 18 - Board Meeting, 6:15
April 26 - General Meeting

May 9 - Board Meeting, 6:15
May 14 – Ontario Library Main Branch 7 – 9 PM
May 17 – General Meeting
May 22-27 - RTMC

June 8 - Star Party
June 13 - Board Meeting, 6:15
June 21 - General Meeting

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