



STAR STUFF

The Newsletter of the Ford Amateur Astronomy Club

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Seventh Annual ISLAND LAKE STAR PARTY September 18



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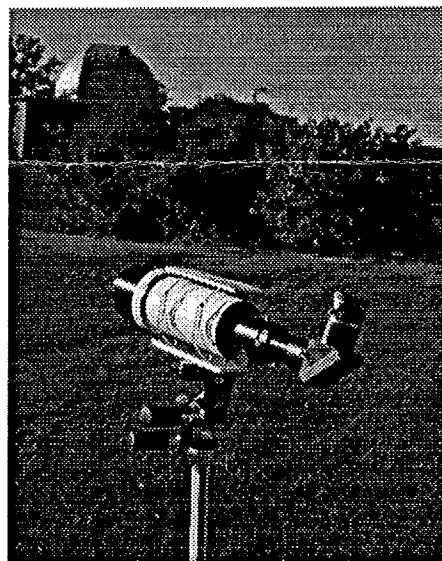
THE BW OPTIK REFRACTOR KIT

by Clayton Kessler

Due to my interest in astrophotography I have looked for telephoto camera lenses for some time. Once you get above 200mm or so focal length they become rare and expensive. On the other hand – a few of my observing friends, and many people that are members of the Astrophoto Mailing List (APML), get wonderful shots through short focus refractors. These range from the 70mm Pronto up to 6 and 7" AP's or Takahashi's. Well, these scopes are somewhat out of my league, but I began to look around and see what I could afford.

The first thing that I tried was an Orion "Short Tube 80". This neat little scope of 400mm focal length worked – but problems presented themselves. The biggest problem was field curvature. Stars were stretched in several directions

on my shots. Not being an optical expert, I do not know how to correct this – if it can be corrected. I looked through a TeleView 85 at the Texas Star Party and it is a wonderful scope both visually and photographically. The \$2,000.00 price tag was kind of a shocker though. I kept coming back to an ad on Bill Burnett's Internet Telescope Exchange website (<http://www.burnettweb.com/ite>). ITE is one of the companies that sells the Russian Maksutov telescopes that are becoming more popular all the time. Bill is advertising a 100mm (4") f6 "Semi-APO" refractor kit with a triplet objective from BW Optik in Germany.



The optical test report and the user comments looked good, so did the price at \$750.00 delivered. After reading the

ad – oh, maybe a thousand times - I ordered one.

Delivering The Goods

It took a little while to get, apparently the unrest in Eastern Europe added to the time involved in getting objectives from Germany, but it finally arrived. It was a happy day when the UPS driver dropped off the long awaited refractor kit. I was able to tear into the boxes and fondle all the bits and pieces for this "antique" telescope (sorry, inside joke ☺). I was pleasantly surprised by the quality of the components that were supplied. The "Fiber" tube turned out to be a high quality and nice looking piece of phenolic tubing. It was very round and straight and perfectly suitable for a telescope tube. The focuser was the same one that is used on the Russian Mak's and is a nice piece of work for visual use. The ads for the scope warn that the supplied focuser may not be "stiff" enough for photographic use, and that is the case, but it works very well visually. The objective came mounted in a cell and is a heck of a chunk of glass. The objective cell has a cam ring designed in to aid in optical alignment of the telescope. The kit included a 2" extension tube, which allows you to use different eyepieces / cameras and still come to focus. A multi purpose mounting rail was included that has a dovetail and several 1/4-20 and 3/8-16 tripod screw holes. The "finder scope" supplied was actually a 4X40 rifle scope

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Your submissions to STAR STUFF are welcome. Please write to the address above or contact the editor...

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Ford Amateur Astronomy Club**Officers:**

President	Dan Kmiecik
Vice President	George Korody
Secretary	David Beard
Treasurer	Ray Fowler

General Meetings:

The Ford Amateur Astronomy Club holds regular general meetings on the fourth Thursday of each month (except the combined November/December meeting held the first Thursday of December) at 5:00 PM in conference room 1491 in the Ford Credit building in Dearborn, Michigan.

Observing:

The Ford Amateur Astronomy Club observes at Spring Mill Pond within the Island Lake State Recreation Area near Brighton, Michigan. The club maintains a permit for after-hours access. Weather permitting, the club observes on Friday nights, Saturday nights, and nights before holidays.

Hotline:

Observing schedules and additional club information is available by calling the Observing Hotline at (313) 390-5456.

Club Membership:

Membership in the Ford Amateur Astronomy Club is open to Ford employees and non-employees. Write or call for an application.

Annual --	new: \$ 25	renewal: \$ 20
Lifetime --	\$ 100	

Membership includes a subscription to the STAR STUFF newsletter, discounts on ASTRONOMY and SKY & TELESCOPE magazines, after-hours access to the observing site, and discounts at selected area equipment retailers.

and rings. While I elected not to use this, I do not see why it will not be effective.

Getting It Together

Complete assembly instructions, and a detailed blue print, came with the kit. I was especially thankful for the blue print as it helped me to visualize how everything worked. In the "Additional Notes to Advanced ATMers" section there are several suggestions that will make for a "Superior End Product". One of these was to replace the fiber tube with an aluminum one. Because I did not know just what the fiber tube was like, I had already acquired a piece of aluminum pipe to make a new tube. After seeing the fiber tube I would probably use it next time. I also made a push/pull adjustment adapter for the objective lens cell. In theory this will allow me to adjust the objective to be in very precise alignment and give the best star images.

Large pieces of glass seem to suck in dust from everywhere, so a lens cap and a dew shield were also made for this telescope.

First Light

Of course, I could not wait until everything was done to look through the telescope. As soon as the metal work was done I screwed the unpainted parts together and walked outside. A 50mm eyepiece gave me 12x with this system and I was able to hand hold the tube steady enough to find the moon. The bright blob in the eyepiece snapped into crisp focus and the moon looked great! This is without any optical alignment – a very good sign. The next morning I took a look at Jupiter and Saturn. I could see moons and bands on Jupiter at this low power but my hand holding was too unsteady to make any quality judgements.

Finishing Touches

The aluminum parts were cleaned and then primed with a zinc oxide primer.

All of the inside surfaces were painted with Krylon Ultra Flat Black. The visible outside was painted with a white epoxy appliance paint. Unfortunately, aluminum is difficult to paint with a durable finish. The first trip home scratched the tube and I was quite disappointed. The solution, at least for now, was to get some white self-adhesive vinyl and wrap a layer around the tube. I will see how this holds up to the rigors of the observing field. The dew shield and lens cap need to be black anodized. This will wait until a larger quantity of aluminum is acquired that must be anodized – the minimum charge is expensive. Rings and dovetail plates were made to attach to my G11 mount. The dovetail plates are aluminum and the rings are lexan. The general arrangement is similar to what I have seen on some Astro Physics telescopes.

In order to make to easier to take astrophotos with this system I made an adapter to attach my JMI SCT rear cell MotoFocus. This is a very nice precision focuser and will support the weight of a camera without moving around. The JMI unit has considerably less focus range – but for photography it will be fine.

**Star Testing and Optical Alignment**

Now I have no idea how to align an refractor. The instructions mention rotating the cam ring on the cell to get a round star image both in focus and out of

focus. No mention was made of how to use the push / pull cell to align the objective. Fortunately, Greg Burnett loaned me a copy of "The Adjustment and Testing of Telescope Objectives" by H. Dennis Taylor. This is an interesting and complete volume in about 110 pages. The first edition date is 1891! (Man - I feel younger all the time). The copy Greg loaned me was the 5th Edition dated 1983. Using this as a guide "Squaring Up" the objective should be simple.

The first "Star Test" was done at Harry Kindt's retirement place in northern Ohio. Naturally, because we were trying to do astronomy, it was pretty cloudy. I did get a chance to evaluate the optics against the illustrations in Greg's book. I don't know what I expected to see, all of my experience has been with SCT's and Newtonians. What I saw, inside and outside of focus, was a beautiful "bullseye" pattern of diffraction rings. There was some slight "off center-ness" to the pattern but it was quite smooth and very close to round. The adjustments that I can make to the objective should allow this to be adjusted out completely. After fumbling around in the dark I can see why an "artificial star" is so handy for optical testing. I am going to order an optical spanner from Edmund Scientific and research the "ball bearing" artificial star method before I attempt any adjustments.

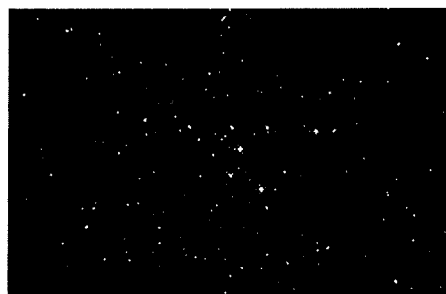
Through The Eyepiece

I can sum up the viewing in one word - "WOW"! Spectacular vistas of stars with a 50mm eyepiece (12X) and the same with an 18mm (33X). I have to get used to the scale of things. M57 was very small and easy to overlook in the 50, it was much easier to see in the 18. M27 was easy in both eyepieces and quite distinct. It was a joy to loosen the clutches and sweep around just gazing at "interesting stuff". To give an idea of the field of view, Bronchi's cluster - more familiar as the "Coathanger" easily fit in the view-field of the 50mm eyepiece with room to spare. I am

hoping that SMURFS will present a chance to better evaluate these optics.

Astrophotography

I must admit, I ruined the viewing for everyone at Harry's. I did this by setting up a camera. I no sooner got the ST4 guiding and the exposure started then the clouds filled the last hole overhead. I walked away for five minutes or so and when I returned the ST4 was beeping and the clouds had just about choked off any further star-gazing. I terminated the exposure thinking that 5 minutes or so would not get me anything. Imagine my surprise when I had the film processed and a nice shot of the coathanger cluster emerged. It is underexposed, but I got more than I expected on the negative. If we get any clear weather at SMURFS I expect to give this thing a real workout!



Conclusions

I think that the BW Optik 4" f6 Refractor is a wonderful buy! The information on the ITE website was very accurate and well presented. Even the downside of the supplied focuser was discussed. I would recommend the kit to everyone who wants to try a high quality refractor, is willing to add some "sweat equity" and doesn't want to re-mortgage the house to pay for one. The only really difficult part of the assembly required is the accurate location of the drilled and tapped holes that you put in the tailpiece and lens cell. These must line up with the holes you drill in the tube. If you have access to a machine shop this is easy but if you are doing the holes by "hand" I recommend you make a simple drill jig to assist in getting everything lined up.

What would I change? Well, the kit is actually fairly complete, a lot of the additions that I made were "just because". The biggest down side is the focuser. Bill Burnett offered to adapt a helical focuser for me at an additional cost. This might be a better solution for those who wish to do astrophotography with the scope. In an ideal world a high quality JMI type manual focuser with a 2.7" capacity, a 2" adapter and a specially designed field flattener would be wonderful! Are you listening Bill? ☆

SETI CONSIDERATA

by Greg Burnett

An interesting scientific result is slowly emerging that has great relevance to astronomy, amateur and otherwise. Wherever we look on Earth, we find life. Entire ecosystems, previously unknown, have been discovered flourishing around deep ocean geothermal vents ("black smokers"). Life has been found secreted in Antarctic rock, thriving under conditions resembling the surface of Mars. Recently, bacteria have been discovered in deep drill cores, from thousands of feet below the surface of the Earth. Everywhere we turn, there is life.

The Search for ExtraTerrestrial Intelligence (SETI) is a tenuously supported, controversial effort to detect the existence of other intelligent civilizations elsewhere in the Universe. Present efforts invariably rely on the detection of radio emanations, under the assumption that radio communication of one sort or another is a developmental eventuality for any intelligent population. Detractors point to what they believe is the obvious futility of the efforts, and scoff at the lack of any tangible benefits of success, however unlikely. They also note the possibly very short lifetime of broadcast radio as a communications medium, a medium already being displaced on our planet by virtually undetectable spread-spectrum, ultrawideband, optical, and other technologies. SETI proponents insist that the laws of large numbers ostensibly

guarantee the existence of intelligence elsewhere, and detection would have far-reaching consequences, not the least of which could be our wholesale re-assessment of Mankind's place in the Universe, to our betterment one would hope, and perhaps even making us privileged to untold universal secrets revealed by some advanced society.

Supporters of the SETI concept often employ the "Drake Equation" (q.v.) to explore the likelihood of intelligent civilizations beyond our own. Manipulating the factors in the equation can yield some interesting results. Without going into detail, let's examine one possible outcome: that extraterrestrial intelligence is *extremely* unlikely. Let's say, for a given star, the chances of it being the life-fire of an intelligent society is one in one hundred billion---very slim odds. Your chances of winning the lottery are more than a thousand times better. Your chance of being struck by lightening in your lifetime is a virtual certainty by comparison! Of course, any odds greater than zero rule out the unlikely and unappealing notion that we are absolutely, utterly alone in the Universe--personally, I reject this idea out-of-hand.

1:100,000,000,000... by some estimates there are about one hundred billion stars in a typical galaxy, a few more in the larger ones. This would mean that, on average, each galaxy in the Universe is home to one intelligent tenant population. This assumption has two interesting implications: First, it would mean that our chances of detecting intelligent life through any presently known or anticipated SETI techniques are virtually zero. At present, there is no prospect of being able to detect an intelligent civilization in another galaxy, accepting the implication that we are probably the sole resident of our own. Second, it would still imply a very large value for the *total number* of intelligent populations in the Universe. Based on the recent Hubble Deep Field images, we are fairly certain that there are between 10 and 50 billion galaxies in our

Universe. At one population per galaxy on average, this is a lot of sapient folks.

Now, let's extend our estimate somewhat. We will leave the probability of *intelligent* life undisturbed but, acknowledging the aforementioned ubiquity of life on Earth, let's guess that life of some sort is relatively common, even though intelligence may be a very rare commodity. SETI will still fail, because by definition, it will not detect life forms that have not invented radio. But imagine now the myriad of creatures dwelling throughout the cosmos, in forms and with life cycles we cannot even imagine! They may be everywhere...in the rocks of Mars, in the oceans of Europa, in the clouds of Jupiter, on the planets of 51 Pegasi, and beyond. With our naturalist hat on, we cannot help but be overwhelmed by the prospects. The question then becomes, how will we ever know for sure? Faint glimmers on the very edge of technology offer some hope... the detection by spectroscopy of oxygen in the atmosphere of distant planets might someday attest to the presence of metabolizing creatures. Closer to home, robot probes to planets and moons in our own solar system may affirm the question within a few years, or perhaps tens of years.

This is an exciting time for science, an exciting time for astronomy. The outlook for spectacular discoveries within our own lifetimes are very real. What a cool hobby we have! ☆

HEARD ON THE NET

by Bob Lambeck

From the sci.astro.amateur newsgroup...

You Know You Are An Eypiece Junkie
If ...

You find it difficult to focus because you have a 20mm Nagler in one hand and a 35mm Panoptic in the other.
Your coat ONLY has 14 pockets.
You 'lift' the fingerprint before cleaning as evidence at the next family 'trial'.

You can carry your scope but must wheel the eyepiece box.

You only need two more eyepieces to fill the 0.1mm focal length gaps from 2mm to 60mm range.

Al Nagler looks YOU up at star parties.

While towing your wife's car to the garage, you are seriously trying to convince her that \$3000 for used Zeiss orthos is a good deal!

You have an eyepiece in your lunch box - just in case.

Your spouse refers to your eyepiece case as 'Glass Acres'.

You have a framed photo of Al Nagler on your wall.

You look through the toilet paper tube before tossing it in the trash.

On your Life Insurance policy you name Al Nagler as your sole beneficiary.

Your kids ride in the trunk ... eyepieces in the child car seat.

Whenever someone wins \$5000 on Jeopardy you think.. "Wow I could buy 10 Nagler 20mm's with that!"

Name of first child. "Plossl"

Whenever Orion Telescope gets an envelope with your name on it they wildly high-five each other and close shop for the day.

Automatic hair pulling fist fight whenever someone mispronounces Koenig.

Spouse and relatives ask what you're ordering and you say "uh...nothin".

You sell your car to finance a new set of Radians.

You get Christmas cards from all the leading eyepiece makers.

And the number 1 sign that you are an eyepiece junkie.....

You have bumper sticker that reads "Life is like a Rini eyepiece ... You never know what you're going to get". ☆

MEETING MINUTES - Aug. 26

by Dave Beard

The meeting was called to order by our President Dan Kmiecik at 5:00 p.m. There were 31 members and guests present. Members started immediately on the pizza and pop provided by Vice President George Korody and Bob Fitzgerald.

The members introduced themselves and talked about their recent viewing experiences, new equipment, and other stuff.

Dan passed out a stack of Island Lake Star Party flyers, and members were encouraged to post them.

F.A.A.C. Scholarship recipient James McConaghie and his father Dave were present at the meeting. James is planning to attend Oberlin College, majoring in pre-med/biology. He graduated from Troy High School with a 3.65 GPA. James was also a drum major, studied bassoon, bass clarinet, and clarinet. He has been an instructor at the prestigious Smith-Walbridge clinics, and participated in the 1999 National Youth Leadership Forum on Medicine in Chicago.

Good luck to James and congratulations on your accomplishments!

The club received a very nice custom made thank you card from the Junior troops 799, 557, an 1202 for an Astro 101 presentation given at Camp Innisfree recently.

The Treasurers report: \$431.46 in checking, \$2101.38 in savings, and \$652.89 in the Scholarship fund.

A demo of the new Celestron 5" Schmidt-Cassegrain telescope was given

to the club. This scope seems to be positioned to be competition for the Meade 5" Autostar.

As a whole bunch of people forgot to bring their flyers and the rest of the meeting was to consist of stuffing flyers, the meeting was adjourned at 6:30pm.

NEXT GENERAL MEETING

The next meeting of the Ford Amateur Astronomy Club will be held on Thursday, September 23, at 5:00PM in conference room 1491 in the Ford Credit building in Dearborn.

The program for the meeting has not yet been determined, but as always, pizza and pop will be provided.

The Ford Credit building is the low building immediately northeast of (but not attached to) Ford World Headquarters. The building is secured with a card entry system. The easiest way to enter for meetings is to park in the lot east of the building and enter thru the lower east or lower northeast doors. At 5:00p no one seems to have much trouble entering, because many people are leaving about that time. At the lower east door there is a manned security desk. Identify yourself, and say you are attending a Ford club meeting, and the guard will admit you. The meeting room is on the lower floor, on the east side of

the building, about mid-way along the north-south corridor. Usually, signs will be posted to direct you to the room. ☆

CLOSEOUT ITEMS

Rider's Hobby Shops
All items subject to prior sale.

MEADE 07458 dual drive corrector for A/C motor drive list \$550 now \$150

MEADE 02014 Magellan I for LX10 list \$595 now \$225

MEADE 07562 AC adapter for LX10 & LX50 list \$50 now \$25

MEADE 07555 color filter system for 416XT & 1616XT CCD list \$1290 now \$399

MEADE 416XT autoguider/imager list \$2995 now \$1299

CELESTRON PIXCEL 255 CCD system list \$3390 now \$1299

All equipment protected by original manufacturer's warranties.

Contact John at Rider's Hobby Livonia
(734) 425-9720
FAX (734) 425-2029
rlivonia@aol.com ☆

1999 FORD AMATEUR ASTRONOMY CLUB CALENDAR

Sep 11	NCO Planning Meeting @ 4:00 PM Followed by Autumnal Equinox Star Party
Sep 11	Lake Hudson Dark Sky Stargaze
Sep 18	Seventh Annual Island Lake Star Party
Sep 23	FAAC General Membership Meeting
Oct 6-10	NCO Wilderness Fall Star Party – Boon, MI (West of Cadillac)
Oct 9	Lake Hudson Dark Sky Stargaze
Oct 28	FAAC General Membership Meeting
Nov 6	Lake Hudson Dark Sky Stargaze
Dec 2	FAAC Joint November/December General Membership Meeting
Dec 11	Lake Hudson Dark Sky Stargaze



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