

# S.C.R.A.P.S.

Society's Chronological Astronomical PaperS



## Lazy Man's Astronomy By Bob Arr

Photos by Mike Littleton

Paul Lewis said, "This is the lazy man's way to use binoculars." Amen.

He was sitting in my binocular viewing chair, with his arms resting on the elevated arms of the chair, leaning comfortably back, the binoculars dangling in front of his face, counterbalanced so that he did not support one single ounce of their weight. He just nestled them up to his eyes, with no sensation of lifting. Indeed, his arms were weightless too, supported by the shoulder-high, and padded arms of the chair. He could swivel the chair to view any direction, and rotate the glasses up to the zenith and back down to the horizon without effort. In other words, he could look anywhere in the entire sky without leaving the seat.

If you ever tried to hold binoculars very long, you found out like me that you can't. If you've ever tried to search with binocs mounted on a tripod or a counterweighted parallelogram, you found out like me that the demands on your spine and neck become overpowering. What to do? Obviously, turn the problem over to a lazy man.



My chair is a used office chair (\$25) that rolls, swivels, elevates and reclines. Virtually all of them do that nowadays. It had to have one special attribute: strong arms that could support the stress of being extended about 10" higher. Six feet of 1" soft aluminum flat stock from Home Depot and a few holes and screws made the extensions. A couple chunks of soft foam were glued to the flat stock, and two short sleeves of material with pucker strings on both ends slipped over the foam. The pucker strings were drawn tight, and voila! Non-slipping cushions for the arms!



length of pipe just long enough to reach the ground, compensating for the different heights of the couplings.) I unscrew the legs when transporting the device. For what it's worth, the device has never capsized.

The pivot on top of the gibbet is a 2" PVC male adapter, with a horizontal slot cut through the threads. The slot is slightly larger than 1/2", permitting a 46" long piece of 1/2" conduit to lie loosely in the slot.

The conduit's fulcrum is a thin, strong pin that goes through both sides of the male adapter and the diameter of the conduit, 16 3/4" from one end. The 2" adapter is not glued to the support column; gravity holds it in place. I take it off when I transport the unit. (continued on p. 3.)

The gibbet is made of 2" schedule 40 PVC plus fittings. The column is 6 feet tall, including its three T's at the base. (The center hole of the T's fit 1 1/2" pipe, all that's needed for the legs.) The T's are butted against each other, and glued so that their 1 1/2" adapters face 120 degrees apart. Each has a threaded female coupling, so that three 30" legs with threaded male couplings will screw in to make a large triangular footprint. (The out-board end of each leg has a 90 degree elbow and a

## ASTRONOMY CORNER PUBLIC OBSERVING

By John Sparks

### *Should SMAS be holding more public observing parties?*

In past years, SMAS has done a lot starparties for public events and there is a lot that can be said for this. We had been affiliated with UT and would get together with Paul Lewis for planned public observing. Just two years ago, the Boy Scouts invited us for a Starparty and about 300 people (mostly boys) showed up. Until you see that childish exciting glow and hear that "WOW!!" coming from a child (from ages 5-105 years old), you only know half of what this hobby is about. As Starparty Organizer, I have concentrated on Starparties with good skies, but not a lot on the public although the public has been invited. There is good reason for this. SMAS has changed a lot in the last two years and we have a lot of new members. Many of the new SMAS members were beginners just a few months ago. Compared to past years, we have had fewer discussions dealing with astrophysics and Herschel objects, faint NGC's, IC's, Mark's ECT... This was because many old timers didn't want to leave the new members behind by talking over their heads. For the same reason, I have done my best to get SMAS members out observing and help them learn how to use their telescopes and to help them learn the sky. There will always be more to learn and I am still a student of the sky myself. In this hobby, there will always be more to see and learn and we have no limits! However, I wanted to be sure that SMAS as a whole knew the sky well enough to hold public starparties and teach the general public before I scheduled any starparties aimed at the public.

I think we are just about there! The majority of club members know the sky well enough to assist those members that lack experience. I have seen many of the new members get pretty good at observing in a very short period of time. I think it's just about time for SMAS to show Knoxville what great astronomers they have. I will see if I can contact an old friend, Paul Lewis, as I know he always has some special events planned. In the past, we would observe at Norris Dam State Park in October and would even plan a picnic. Paul would talk for a while and show slides and then invite the public to look through our telescopes. Paul Lewis does this for the University of Tennessee and while we no longer have anything to do with UT, we can still do this in the name of Astronomy. I think he would appreciate our help and we would appreciate his help in reaching out to the general public.

## AN UNEXPECTED TWIST BY BOB ARR

Congrats to all the brave and hardy souls at the July starparty, who waited out the rain, the overcast and the fog, who finally got to see a beautiful Hoopers Bald sky. To those who couldn't make it, sorry, maybe next time. But there is a twist to the story I have to pass along. The convoy stopped for dinner at Back Yard Burgers. The sky was uncertain at best, so we took a vote to decide which place to go: nearby Look Rock or 90 minute drive Hoopers Bald. Against all logic, we chose Hoopers. On arrival at Hoopers, we found it fogbound and raining. Thirty minutes later, the rain petered out; thirty minutes after that, we could see tiny breaks in the clouds with an occasional star in them. Thirty minutes later, we had a sky good enough to set up our equipment. Things seemed to be going our way at last, except for an obvious and menacing thunderstorm on the horizon. That thunderstorm occupied our thoughts for the next hour and a half. It wasn't far away, but never seemed to get any closer. It just seemed to stay in one place. Lightning flashed constantly. By the time we were ready to close shop, it finally ended. It never made it to Hoopers Bald. Where was it? It was atop Look Rock, 20 miles to the north! My family confirmed all this to me this morning. Sparky, ya done good!

## WANTED: AUTHORS FOR SCRAPS-NO EXPERIENCE NECESSARY!

Have you made a modification to your telescope that you are proud of? Find a piece of sky that is overlooked in *Burnham's Celestial Handbook*? Have you just attended the Cleveland Star Stare? Share your experience with the rest of SMAS and potentially anyone with access to the Internet by writing an article for SCRAPS. It doesn't have to be Shakespeare and the SCRAPS editor will clean up the grammar if needed. Contact Mike Littleton at (865) 671-1022 or email [littleton@ix.netcom.com](mailto:littleton@ix.netcom.com).

## CALENDAR

- **8/4/01** Full Moon
- **8/10/01** Club meeting 8 PM at the Discovery Center Chilhowee Park Shawn Grant is going to talk about astrophotography. He will show what kind of camera is necessary for long exposures.
- **8/12/01** Last Quarter Moon Perseid Meteor Shower peaks
- **8/15/01** Venus rises at 3:59 AM. Jupiter rises at 3:16 AM. Saturn rises at 1:43 AM. Mars rises at 4:36 PM and sets at 1:50 AM.
- **8/18/01** New Moon Star party at Look Rock at dark thirty
- **8/25/01** First Quarter Moon

### UT Sponsored Events:

- **8/17/01** Public observing on the roof of the physics building

Contact Paul Lewis at 974-7815, e-mail at [gplewis@utk.edu](mailto:gplewis@utk.edu), or visit his web site at <http://trdc.phys.utk.edu> for more information about UT sponsored events.

### August Star Party by John “Sparky” Sparkman

On the 18<sup>th</sup> of August, SMAS will be observing at Look Rock, weather permitting. At sunset, the Summer Triangle hovers near the zenith and it is a new moon. Mars continues at the brightest object in the evening sky and Sagittarius offers more Messiers and other objects than one could observe in any one night. Who can resist being drawn towards M8, the Lagoon Nebula, or the M22 globular cluster? With Mars, Scorpius and Sagittarius sharing the same part of the sky, one can't ask for a better way to start the night.

SMAS has been observing at Look Rock long before I joined in 1993 and has always been our favorite observing site. However, this may soon change as the Knoxville area and SMAS itself has changed. More members are enjoying astrophotography and more cars blind us out at Look Rock every year. Light Pollution has become a major problem for astronomy worldwide and Knoxville is no exception. There is a place near Wartburg that has been called to my attention. If anyone knows of this place, get with me and we can take a scouting trip for SMAS.

Clear skies:  
“Sparky!”

### LAZY MAN'S ASTRONOMY (CONT.)

Getting the depth of the slot coordinated with the location of the fulcrum pin is a challenge. If it's right, the binocs will never hang too far up or down (the rocking conduit would bottom out on the slot while the binocs were still within a comfortable height range.)

Finally, the 1/2" conduit has a strong, but light chain at the long end, with a snap that attaches to the binocs. (The binoculars have an eye screw that engages the snap, nicely located at their center of gravity.) The other end of the conduit has a hook on which I hang a plastic gallon bottle (about 60% full of water)--the high tech counterweight. Don't laugh: if someone walks into it in the dark (someone will), it doesn't hurt.



If you are inclined to build something similar, here's my advice. Get your chair done first, then at every step of assembling the gibbet, make sure your dimensions result in the binocs finishing at the right height range. If you care to copy mine, you're welcome to come over and make measurements. Bob Arr (865) 681-3999.

## JULY CLUB MEETING BY LEE ERICKSON

The meeting was held on July 13, 2001. There were 20 persons in attendance. There were four were guests and two new members, Gene and Portia Johnson.

### **Old Business**

Tom Rimmell passed out copies of the bylaws from the club library archives dated December 1989. The minutes of the previous meeting were passed with the amendment indicating that Bob Arr has been confirmed as vice chair at a meeting of the executive board as per the 1989 bylaws. Tom Rimmell reported that the 80-mm refractor is cleaned and ready for use. Tom is working on the club's 10-inch reflector. Lee Erickson pointed out that the club's telescopes are currently located in the homes of members who live in Maryville, which may not be very central for the membership. Lee asked for volunteers to keep the telescopes in a central location. The person's keeping the telescope would check out the telescope to other members, review with the member the proper operation of the equipment, and inspect the equipment upon return. There were no volunteers to serve in this capacity. At the end of the meeting a vote was had on the club logo's submitted and a winner was chosen.

### **New Business**

There was discussion of the visibility of Comet Linear and where it could be located in Pisces. Tom Rimmell says the Sky and Telescope web site has current information on the comet. The club's picnic will be held in September at a date to be announced at the next meeting. The University of Tennessee star parties in July were announced. Other University of Tennessee events can be found at their web site, <http://TRDC.PHYS.UTK.EDU/main.html>. Paul Lewis reported that the reason Mars was somewhat indistinct during recent viewing is that large dust storms are occurring. Paul also passed around a nice recent photo of Mars taken with the Hubble Space Telescope.

Shawn Grant presented slides at a star party at the Big South Fork and encouraged SMAS members to volunteer to show the public the hobby of astronomy there. Shawn indicated that camping fees are waived during Friday and Saturday nights when observing events are being held. Contact Sue Duncan at Big South Fork and Bandy Creek to reserve campsites. When not observing, there is a good local restaurant, BARCOS. There is also horseback riding and two scenic waterfalls and a large natural arch. Two observing events occur in the area, one event is on October 13 at Bandy Creek; and the other is on October 21 and 27 at the Obed Wild and Scenic River Area.

There was a video presentation entitled *Comet Odyssey*, which detailed how two amateur astronomers, with ingenuity and determination made videos of Comet Hyakutake. These videos showed the dynamics of the comet and were applauded by professional astronomers.

## I can build a scope-How difficult can it be? BY STEPHEN ROTHSCHILD

Anybody hearing those words knows the speaker really doesn't know what he/she's in for. I uttered these words and am here to tell you I didn't know jack about building a scope but learned very quickly. My teacher is Pete Yeomans. (Poor guy volunteered!)

**Situation:** I have a 10" DOB from Meade and wanted a truss. My objective was to remove the "hot water heater" look working on the scope in my living room. Did I mention that I store the scope in my living room? My wife, Carol is a love and very understanding. As-a-matter-of-fact, she never complained, but she did drop a few hints!

A truss will box up into a size of approximately 16" cubed. We're pirating all the optics from the Meade and building the truss from 1/2" ply and sq. aluminum trusses. I estimate the cost to be between \$80-\$100 for the material. The actual construction is not difficult, but it is like a chess game-the details MUST be gone over with a fine-tooth comb! To give you an idea, I am making wooden buttons to cover the nuts and wing nuts. Great! Here's where I can finally get a nut that I can grab and turn without a tool or mashing my fingertips. I'm going to make a knob about 2" in diameter. That will really give me a nice surface to grab. W R O N G ! "Make that knob that big and it will hit the interior of the box and will prevent the scope from lowering less than 45 degrees from zenith," so sayeth my teacher, Pete. Who knew? I did, if I had thought about it. Pete crossed that bridge a long time ago. Thanks Pete.

Having a nodding acquaintance with optics and physics helps. Balancing points need to be determined and the correct amount of Teflon has to be considered. Too much is as bad as too little. The length of the trusses will be determined by a sneaky method used by my mentor. We're going to make them oversized, then slide them to a shorter position, as we view a horizon object. When it's in focus that's the proper length. Very technical approach! It helps to have a semi-scientific mind, but a lot of Rube Goldberg is essential. I expect to see first light soon and look forward to sharing my truss telescope with all of you at the August star party.