

Eyepiece Views: September, 2002

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E Y E P I E C E V I E W S

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1. FALL IS IN THE AIR!

Here we are again. You can smell the changing seasons in the air. While we northern hemisphere based observers are moving into the beautiful clear skies of the fall, the southern hemisphere is starting to warm up for more comfortable summer observing experiences.

Of course fall means something else for the AAVSO, the annual fall meeting is closing in. This year it will be held in Cambridge/Somerville on October 24-27, and it will be a joint event together with the International Dark Sky Association. To find more information about our annual meeting, please visit:

<http://www.aavso.org/meetings/fall02.stm>

Our current issue is again full of intriguing articles. When you read Janet A. Mattei's heartwarming and 'friendly' experience with variables, we are sure you will share her enthusiasm, experience and thoughts about variable star observing.

Gerry Dyck recalls his unique observation of BC UMa, and Mike Simonsen takes us to the world of unusual fall objects.

You can also connect with one of the southern hemisphere's most prolific observers by sharing Rod Stubbing's journey into variable star observing.

We wish you a very enjoyable season with your 'variable friends'.

Thanks and good observing!

Gamze Menali, AAVSO Technical Assistant (MGQ)
Aaron Price, AAVSO Technical Assistant (PAH)
Mike Simonsen, AAVSO Observer (SXN)

2. AN OBSERVING TALE - Janet A. Mattei

How have you made your "friendship" with variable stars? Has it been through your observing? Or through your reading? Or through your training?

My friendship with variable stars have been built mostly on books, papers, through the observations you our observers provide, and as an astronomer through training in college and graduate schools, and as a summer research assistant at Maria Mitchell Observatory where I photographically or photometrically, using setting circles, and push buttons, observed and studied variable stars. On the evening of April 27 - 28, 1984, I added another dimension to my acquaintance with variable stars and it is that experience I wish to share with you, here.

It was a beautiful evening (remember the date is much before the Internet, the AAVSO had no web site, no charts online, no chart CD, no quick look file, no light curve generator and almost everything was on paper) -- clear skies, mild spring temperatures, ideal observing conditions, on April 27 - 28. My husband, Mike who had been observing the planets, particularly Mars with his award winning telescope, the past few weeks, was going observing that night at the clubhouse of Amateur Telescope Maker's of Boston at Haystack Observatory. He convinced me to go with him and do some observing. I gave in and decided to observe some variables. I took Mike's folder of charts. I could not find our Norton's Atlas, and I did not want to take The AAVSO Variable Star Atlas, as it was too heavy to carry. After all I was going to observe some very easy stars so I could do without it, (That was a wrong assumption from the start.) I took my small planisphere that shows the naked eye stars, our 20 X 80 binoculars and a tripod.

In the yard of our club house, I set up the binoculars, put our chart files on the hood of the car, and decided to enjoy the stars for a little while before "serious observing". I spent a good amount of time just sitting on a tree trunk and absorbing the beauty of the sky. I could identify the constellations to which lots of my variable "friends" belong to.

After a delightful time just enjoying the sky for about an hour I decided to "seriously" acquaint myself with few of my "variable friends". I thought I would try Z UMa, since I "know" it is easy to find, I suggest that to a beginner observer, so often. I could not find its finding chart in the file I had, so I gave up on Z UMa. As I checked the file of charts to decide what I could observe, I found the charts for R UMa, and decided to go after that. I searched for it in Ursa Major for maybe half an hour, all without any luck. By this time my neck was so twisted, and aching so bad, I thought there's got to be a more comfortable "friend" I could visit.

While rubbing my aching neck, I thought of the theme song...

His knees should bend and his neck should curl
His back should twist and his face should scowl.
One eye should squint and the other protrude
And this should be his customary attitude.

(Theme song for the aching amateur astronomical observer, selected from the Harvard Observatory "Pinafore"; being a parody on the Gilbert and Sullivan light opera: "H.M.S Pinafore," written 1879 by Winslow Upton of the Harvard College Observatory and presented December 31, 1929 by members of the Observatory Staff at a New Year's Eve party of the American Astronomical Society on the occasion of its annual meeting. -Amateur Telescope Making Advanced, 1949, Book two, page 521)

Why not try R Leo, another easy star, favorite of Leslie Peltier's, the star that got him started in observing variables. Alas, I was disappointed to find out that I had no charts for it. While leafing through the charts I came across those of R LMi. That was a fairly easy long period variable, so why not find out what it was doing. I had not checked AAVSO Bulletin 46 and its supplement to figure out if it would be bright enough for me to observe it with binoculars, but then R LMi is bright even at minimum for my 20 X 80 binoculars, I thought. I could almost see its light curve, in front of my eyes. I got excited thinking that one of the dots we would be plotting on the light curve of R LMi for April would be my very own, the product of this night's observing.

Anxiously I started, I located R LMi on the "a" scale chart, next with the chart in my hand, a small flashlight, stuck in my mouth as there was no other place for it, I started to star hop slowly toward R LMi, in the sky. You observers will remember there is a pair of bright stars to its east, in Ursa Major and a pair of bright stars of Lynx to its west. I found these pairs. I should be able to star hop right in to the field of R LMi, from alpha Lynx, I thought. At this time I checked the "b" chart to see what other faint stars are located in the field, and started to star hop. It was going pretty good and I was feeling quite satisfied with myself. Just then Mike called me to look at Mars and Saturn through his telescope. I decided to take a little break, to do just that. Saturn looked beautiful, I could see Cassini division, clearly. There were so many features visible on the surface of Mars! After thoroughly enjoying the planetary display, I went back to my observing of R LMi. Well, it had moved out the field of the binoculars, so I found alpha Lynx again, and started all over. Just when I had the field of R LMi in the eyepiece, a friend who was also observing there stopped by to chat. Thus I took another short break, and got back to my observing with a self-made promise that I would not let myself to be interrupted again, until I made the brightness estimate of RLMi. So back to the field R LMi I went. I found the comparison stars few bright ones and few faint ones, and I started to search for R LMi. I could not see it! I made sure I was in the right field, I checked the chart, and again, I was so anxious to find it my eyes stuck on the eyepiece firmly, I noticed the stars there slowly blurring out. I yelled at Mike that there is something wrong with the binoculars, I checked the lenses for dewing, there weren't but the eyepieces were, from the temperature of my eyes resting against them. Well, I gently rubbed the dew off and started again.

I star hopped from one star to the other until I was looking at right where LMi should be. It still could not see it. The faintest comparison star I could see was the 10.9 magnitude one to the north east of R LMi. Well, I recorded my time, my fainter than 10.9 estimate, the comparison stars I used and decided to stop as by know, it was passed midnight, and I had to get up early the next morning. I had made my very own variable star observation and it took me three and a half hours!

As I was waiting for Mike to finish his observing I was reflecting on my observing experience. I was feeling refreshed, as if I had communicated with a friend up there, even though it took such a long time to make the "connection". Variable star observing certainly requires patience, and perseverance, and a lot of both, I found. Familiarity with the constellations is a big help. It also helps to plan and organize one observing, it took me so long to make one estimate, partly because I had not been organized when I went observing. I did not bring the charts, and the AAVSO Variable Star Atlas. I had not checked the AAVSO Bulletin 47 Supplement. If I had done all that I probably would have ended up being acquainted with more "friends" than just R LMi. I did not do what I have been preaching to you, our observers, and thus it took me three and a half hours to make one estimate. I promised myself to do more observing, and next time I go out to observe I will be better organized and more prepared.

I also realized that making variable star observations requires a real concentration, it is best accomplished when working alone.

More than ever, my one estimate made in three and a half hours made me sympathize with the new observers and the difficulties they encounter. More than ever it made me appreciative of our observers' contribution month after month. When I made my estimate of R LMi in three and a half hours, it was a VERY mild night, I was not fighting with extreme cold, or wind. It was clear; I was not fighting with passing clouds. The night was still; I was not fighting with the painful interruptions by mosquitoes.

It was a beautiful night. I could almost "hear the silence", in reverence to the majestic universe. I felt revitalized. I decided that observing was one of the best cures for stress.

I wanted to shout out my one estimate of fainter than 10.9 to the world. More than ever I realized how wonderful it would be and how much I wanted to acknowledge each observer's contribution, if only time allowed. On the evening of April 27 - 28, 1984, there were no mosquitoes around but I was bitten by observing fever. You observer, next time you are out there trying to reach your variable star friend, do know that I greatly appreciate and know what you are going through; my silent thanks are going your way. And who knows, I may even be trying to communicate with the same friend up there on the same night as you.

3. A MEMORABLE OBSERVING EXPERIENCE - Gerald P. Dyck

On September 8, 1990, I eagerly awaited the fall of night. The sky was clear and I would be able to use merry-go-round observatory for the first time after completing a major improvement, which had required eight hours of back - breaking work that day. At sunset I took the one-minute walk down the path through our woods to the clearing to open the observatory and admire my handiwork. In one more hour I would test the results of my labor.

My objective that night was the same as that of every other clear night - to observe a list of about sixty cataclysmic variables. As usual, I began in the western sky, trying first to get those targets, which would soon be "closed for the season". About two degrees above the tree line I detected the naked eye 3.7- magnitude star, Chi Ursae Majoris. I had not seen that one last night because it was already below the tree line. Chi Uma is the first stop on my hop to BC Uma, a CV, which I had been monitoring for six years. I put the finder on Chi, hopped to the third star of a dog leg of

8th magnitude stars below it, then moved to the eyepiece and hopped to the "shovel", which opened onto the "L", inside of which was the target, just visible above the tree top. I had made nearly five hundred "invisible, but fainter than magnitude 14.0" observations of BC, but this time there blazed forth on target a star at magnitude 11.0! I looked away. I checked it again. I looked away. I triple checked. BC Uma was indeed in outburst!

The remainder of my observing session was postponed while I sprinted back up the path to the phone and dialed 1-617-354-0484. I left my brief, breathless message on the answering machine at AAVSO Headquarters, and then explained to my wife what all the haste and excitement were about.

The next day, I learned from Director Janet Mattei that BC Ursae Majoris had last undergone an outburst in 1982 and that I was the first observer to report the current outburst. This was personally satisfying, but what made this observation of BC Ursae Majoris even more unique was that it was made on the night of the very day on which my observatory improvement was made-raising the foundation with a double course of a cinder block to allow for a better northwestern horizon of three degrees.

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4. MY JOURNEY WITH VARIABLES - Rod Stubbings

On July 19th 2002 I was checking my e-mail and noticed a message from the director of the AAVSO Janet Mattei, titled, 'Invitation'. It was an invitation to attend the Pan-Pacific, 91st Spring Meeting of the AAVSO, held at Waikoloa Beach, Hawaii, to accept an award. After reading the contents several times I felt very honored, but I could not possibly attend this meeting. After all, I have not even ventured out of my own state, let alone traveled on a plane. Thankfully Janet encouraged me to attend and the realization of stepping into an international plane and travelling overseas to the Big Island of Hawaii was about to come true.

The day has arrived and I am entering the International Airport, where do I go to check in? Which line do I stand in? Tickets, passports, baggage, go to gate 24, etc.... finally I'm on the plane for the first short leg to Sydney. Almost repeating the now familiar scenario, I find myself travelling over the deep blue sea for the 10-hour trip to Honolulu.

My introduction to Astronomy started in 1986 while reading a magazine, it showed a 60mm refractor with stunning pictures of the Planets, and this could all be seen with a magnification of 500X ! Well, it was ordered immediately and I eagerly awaited its arrival. With my new telescope in hand I headed outside to see these Planets, no not that one, must be this one etc, etc..... could not find anything and I even had trouble focusing on the stars. I went back inside a little deflated with the whole situation. Not to be deterred, I headed to the newsagents for some books on astronomy. My choice was 'Astronomy without a telescope'. This book showed the names of the brightest stars in each constellation with lots of well known objects, double stars and of course where to find these elusive Planets, thus my observing career had started. I still remember the first time I found Mars at 3AM one chilly morning, it looked just like an orange peel.

The general interest in astronomy continued for a few years and I eventually went along to the local astronomy club where I met Peter Nelson who had an interest in variable stars. Peter was always writing articles on variable stars and trying to get someone (and the more I've thought about it - "bait" someone) to go out and make some observations. At this point in time I was looking at the same objects each night so I thought I could put my time to better use, the bait was taken and with my basic knowledge of the night sky I set out to find all about these variable stars. My first variable star observation was made on L Carinae in May 1993. L Car is a naked eye Cepheid variable with a period of 35.5 days and a magnitude range of 3.3 - 4.1. I kept up observations on this star for over 2 years, after all, it didn't matter where you were you could always sneak out from a boring situation, get dark adapted and grab an estimate on L Car. My first month of observing yielded 10 observations with countless hours of star hopping and locating fields. The variable star bug was starting to bite and I asked Peter if he had some time could he send me a few more charts. Well Peter must have known what was about to happen and you have heard the term 'strike while the iron is hot' well, I was bombarded with charts, charts and more charts!

I progressed up through the stages of observing from naked eye, binoculars, 60mm, 150mm, 250mm and 320mm reflecting telescopes. The transition from each instrument was always a new learning curve with more stars and deeper fields to get accustomed to. The variable bug is well and truly entrenched and the satisfaction of knowing your data is being accessed worldwide makes it all worth while. My association with the AAVSO began in 1997 when I received an e-mail from the director Janet Mattei asking if I could send observations of outbursting stars. This was further encouragement to continue observing, especially coming from the director of the AAVSO. In 2002, my 9th year of observing I have amassed over 100,000 observations, something that was never thought about in 1993.

The flight arrived in Honolulu at 1.00AM and the short hop to the Big Island of Hawaii was not until 5.00AM. The airport was very quiet at this hour and the sound of Hawaiian music in the background was very relaxing. A good time to catch up on some sleep so I sprawled out on a concrete bench and 'tried' to sleep. Every 15 minutes this recording interrupted the Hawaiian music and said " Do not leave your baggage unattended, it will be picked up and destroyed!" On the early morning flight to the Big Island we were treated with a magnificent sunrise coupled with a beautiful view of the islands. AAVSO staff members were on hand to greet arrivals at the Kona airport and then driven to the resort, talk about being spoilt! Having been in contact with several observers via e-mail only the meeting provided great satisfaction with finally seeing the faces of so many talented observers and amateur astronomers. I walked up to introduce myself to Janet Mattei (after all, no one new this guy from Australia) and was greeted with a warm hug! Finally meeting the staff members was also rewarding for both parties, as I had been only known as 'SRX' at headquarters. Being my very first AAVSO meeting, listening to talks and enjoying the social activities was such an experience I regard myself as very fortunate to have been a part of it. I look forward to the next AAVSO meeting should I be able to attend and catch up with friends.

After years of lost sleep I was intending to cut back on my observing, but I now find myself refreshed and thinking about the next 100,000 observations!

5.HUNTERS and HEROS - Mike Simonsen CVs and Unusual Objects for Fall

At this time of year, the western and eastern horizons at dusk and dawn are dominated by constellations representing hunters and heroes. This "season of the hunter" is my favorite time of year to observe. Mild temperatures, longer nights, better seeing, and generally clear skies get me to the telescope early, and I stay as long as I can.

These bright constellations, lying on either side of the summer Milky Way, contain a number of interesting cataclysmic variables and unusual objects. So, whether you prefer hunting for CVs in the evening or the morning, here is something for everyone.

Bootes seems to hang above the eastern horizon far longer than expected. As the days grow shorter, he is given a nightly reprieve from vanishing into the sun's glare.

1344+08 CR Boo- (AM CVn) This is an odd binary system consisting of two white dwarfs, one accreting mass from the other. Outbursts occur, as with "normal" dwarf novae, and are usually in the 13th magnitude range.

1439+22A UZ Boo- (UGSU) With outbursts occurring in 1978 and 1994, this is one that you will have to wait for patiently. This star is comparable to other dwarf novae with large amplitude outbursts and long cycle times. In outburst it may get as bright as 11.5, so it will be hard to miss!

1454+41 TT Boo- (UGSU) At +40.6 degrees north declination, this is the last of my program CVs in Bootes to fall into the sun each year. The outburst cycle is around 200 days or so, and it gets into the mid-12's in outburst. My star-hop to this variable begins at an 8th magnitude star attended by a string of fainter stars running almost due north of it. As it happens, this grouping makes an excellent indicator of the sky conditions for the evening.

Hercules no longer gets the full ride across the zenith, but starts out high enough that faint observations can still be made in darkness.

1626+21 V592 Her- (UGWZ?) Another one you will have to be patient for. Last seen in outburst in 1998, this dwarf nova was discovered in 1968. Only one other outburst has been detected, and that was recorded photographically, in 1986. It shows large amplitude outbursts into the 12th magnitude range with, obviously, long cycle times.

1640+25 AH Her- (UGZ) One of the most hyperactive of the UGZ type stars, and easy to keep track of in a moderate sized scope. This one seems to have gone into a small outburst from standstill in late August. Keep an eye on this one. You never know what it will do next.

1802+31 V1008 Her- (UG) Formerly known as Var61 Her, this little studied UG outbursts into the 14th magnitude range, roughly once every 300 days or so. There are new charts with a CCD(V) sequence that make this one easier to find and observe.

1830+24A CH Her- (UG) This CV seems to exhibit bright outbursts in the 14th magnitude range and fainter outbursts in the 15th magnitude range at very irregular intervals.

In the morning, Perseus rises in the northeast, chasing Cassiopeia around the pole. If I were to re-make the constellations, the Pleiades would be part of Perseus, instead of Taurus.

0130+50 KT Per- (UGZ) One of my 'top ten' favorite CVs, this is a fun one to follow. It is fairly active, so about half the time I observe it, it is in outburst, fading or in standstill. It can get as bright as 10.6 in outburst, and fades to around 16th magnitude in quiescence, so bigger scopes can follow the action in its entirety. The star-hop to get there takes me right past M76, the Little Dumbbell.

0203+56A UV Per- (UGSU) This is another CV with fairly long cycles and large amplitude outbursts that may get as bright as 11.7! This is a field that I sometimes take in just for the sheer beauty of the stars and asterisms that abound in the vicinity of the variable. Even the view in the finder scope is impressive.

0206+57A TZ Per- (UGZ) Just a short hop north from UV Per, in the same finder scope asterism, is another of the more hyperactive UGZs. TZ Per seems to be up to something all the time. It has a close 14th magnitude companion that can fool uninitiated observers, so be careful in identifying the variable. With a range of 12.3 -15.6, this is another one that can be followed all the time with a 12" or bigger scope.

0228+55 DY Per- (R CrB) This star is just recovering from a dramatic fading episode. Usually hovering precariously around 11th magnitude, this star began to fade in January last year. It seems to have bottomed out around 14th magnitude, and has now recovered to almost 12th magnitude. This is a strangely enigmatic R CrB type star, which may one day prove to be a missing link or member of a subset of R CrB types.

0401+50 FO Per- (UGZ) Leaving the cluster-laden regions around UV, TZ and KT Per behind, I head north to another old favorite, FO Perseii. This is another UGZ that is quite active. I don't recall seeing it exhibit standstills, like most UGZs, but frequent outbursts in the 13th magnitude range make it a worthwhile stop if you want to actually see a CV in outburst from night to night.

When the great hunter, Orion, finally clears the trees before dawn here in Michigan, the foliage on the trees begins to turn. A sense of urgency sets in, to take advantage of the mild weather and clear skies, because I know winter can't be too far away.

0507-05 CN Ori- (UGZ) Almost due east of M42, this is another UGZ that lacks the obvious typical Z Cam type standstills. It is quite active and fairly bright in outburst, getting up to 11.9 or so. Passing by M42 on the nightly run can be a distraction or a blessing, depending on your frame of reference.

0524-03 V1159 Ori- (UGSU ER)- Located about mid-way between M42 and Eta Orionis, this star is one of the most active UGSU types, with an outburst cycle of around four days! Unfortunately, this star lies in one of those mysterious hazy patches in the sky that make it a bit difficult to observe. There are a number of these hazy regions in Orion, Taurus and Monoceros that I think are nebulous, and make observations more difficult than usual.

0611+15 CZ Ori- (UGSS)- Sometimes you get lucky and find CN, V1159 and CZ Ori all in outburst on the same night! This UGSS is also quite active and

reaches 11.2 in outburst on occasion. This chart is a "twofer", with V344 Ori (UG: 14.2- 17.5p) WNW on the same chart.

For those of you that monitor these and other CVs in the wee hours of the night, my hat is off to you for being the "hunters" of amateur astronomy. And to the researchers and professional astronomers, who rely on your notification of outbursts of targets of opportunity, you are the 'heroes' of variable star observing.

Clear Skies and Happy Hunting!

6. VARIABLE STAR CHART CDROM 2.0

The AAVSO Variable Star Chart CDROM 2.0 is the follow up to the first CDROM collection of variable star charts published in January of 2001. Here are some details of the project. However, the CDROM is currently still in development so these details are subject to change.

Contents

The collection is two CDROMS with over 4,500 star charts for over 2,000 objects.

* The entire AAVSO collection of Variable Star Charts: This is every chart on the first CDROM, plus new and updated charts published since then. This includes over 135 new EB/RR Lyrae charts, 70 new PEP charts, 30 constellation finder charts, and hundreds of new visual and CCD charts.

* ChartCD 2.0: This MS Windows software allows you to print all the charts on a single sheet of paper on every printer. It also allows you to zoom, reverse, and search the charts based on RA and DEC. It mirrors most of the capabilities of the online chart search engine. This program replaces the HTML files on the previous CD. (ChartCD is also available for download and use with the first AAVSO CDROM by visiting <http://www.aavso.org/cdata/chartcd.shtml>.)

* Directory Structure: The directory structure will be a mirror of the AAVSO chart FTP site so that those not running Windows can access the files directly. An art program will then be needed to view and print the GIF charts. Those with PostScript printers can just copy the PostScript files directly to their printer.

For more information on the price and ordering, please visit the URL below:

<http://charts.aavso.org/chartcdrom.shtml>

Send additional questions to charts@aavso.org.

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Good observing!

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