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E Y E P I E C E V I E W S #314

May, 2006

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1. INTRODUCTION

Warm weather is not the only thing arriving in the northern hemisphere! For the AAVSO,
quite a bit is in store. We expect an exciting summer ahead and hopefully a fruitful one.

We had our spring meeting in Rockford, Illinois (May 4-6, 2006) which was a great success. There have been AAVSO Special and Alert Notices, Validation File updates among
many other activities. A spanish translation of the Visual Observing Manual is now on-line and we have a volunteer for an Italian translation! Five new JAAVSO preprints and The International Variable Star Index (VSX) are also available online.

Our current issue is full of fantastic articles. We are grateful to all our contributors

for contributing to these issues. It is impossible not to share the author's excitement
and appreciation while reading through David Levy's contribution. David's wonderfully
emotional piece puts you in his shoes going through the publishing process. One of our
avid contributors, Erwin van Ballegoij, prepared a recap of the previous year's novae,
which we think you will truly enjoy reading. And also we are very lucky to have our current President's contribution, "Light Curves Tell the Story", which is a very inspiring and educational piece as well as fun to read.

We hope you will enjoy our current issue and as always, please send us your comments and
questions. We also welcome your contributions too.

Have a wonderful summer ahead!

Thanks and good observing!

Gamze Menali, AAVSO Technical Assistant (MGQ)

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2. WRITING VARIABLE STARS - David Levy

Last December a new second edition of my Variable Star book came out. It is actually more than the second, since the first went through a major reprint a few years ago. Now published by Cambridge University Press as David Levy's Guide to Variable Star Observing, it is my latest try to get people interested in the machinations of these celestial swans. When Gamze Menali, a dear friend from the AAVSO, asked me to "write about writing it," I took up the challenge because the original book was one of my earliest, and my first with a major and highly regarded publisher like Cambridge. Just finding that publisher was a story in itself. I went to two other publishers before Cambridge. The first was a Canadian who called me one day around 1979 and asked about my writing the book, possibly with comet discoverer and variable star expert Leslie Peltier as a co-author. Leslie declined graciously, saying that he had too much on his plate. After the first draft was completed, it was typeset by someone so inept that it was unreadable. And the typesetter said he expected that a spell checking

program would automatically correct the errors! Let's take an example from the opening of the section "Getting to know the stars." What I wrote: "The best way to get a good start on observing is to go outside and discover the stars for yourself. Before you learn about observing variable stars, get your bearings and learn your way around the sky. Becoming familiar with it is an important first step toward useful observation."

The typesetter's version went something like this:
"The bet wy t get a good stat on observng is to g outside and dicover the stars for yuself. Befor you learn about observin varble tars, get your bearings and learn your wy round the dly. Becoming fanulkuA with it is an impotnt first tep toward ysefl obswevation."

And the automated spelling checker's correction, circa 1985, might resemble this: "The bet way t get a good stat on observing is to outside and discover the stars for Joseph. Before you learn about observing marble tar, get your bearings and learn why you way round the lie. Becoming funicular with it is an impotent first tea toward Joseph observation."

We had to have a meeting to settle all this out. So on one unbearably hot and humid summer day in Toronto, we met to go over the text and decide how to handle it. But it was too hot to handle-the weather, not the book. So his family and some friends of mine rented an air conditioned hotel room for the day, sat out by the pool, and swam around. It was a happy experience, though it didn't bring the book much closer to completion. After a while, he decided that he wasn't in a position to publish, so he recommended a second publisher. This second man was very helpful to me in two ways. First, he used an electronic page numberer to number all the manuscript pages. Second, he wanted me to remove the poetry, remove the introductory sections on getting started with observing, and add hundreds more variables. But I wanted a book to inspire, not an encyclopedia. When I told him that, he said he would consider it. (There was a hardcover and a softcover edition, and then a second edition, from Cambridge, and I believe that publisher number 2 is still considering.) Meanwhile, Norm Sperling, a friend from Oakland, California, told me that Cambridge University Press might be interested in publishing a book about variable stars. I quickly sent the manuscript to Simon Mitton, then the press's editor for science. We immediately developed a wonderful working relationship and have been friends ever since. He told me once that my books are now published by the same press that Edmond Halley had! I gave myself a deadline of the end of 1986 to get the manuscript completed. On the evening of January 4, 1987, I began an

all night session of printing the book using an old typewriter-style printer. As the end of the night neared, I noticed that the heavy clouds were beginning to clear. The printing of the book on variable stars completed at last, I began comet hunting in the east as even heavier clouds approached in the west. But it was clear sky enough. In that predawn chill I found my second comet. As I plotted the comet's position on my Atlas Eclipticalis heavy rain began to fall. With pelting raindrops outside, I found it hard to believe that I had finished my book on variable stars AND discovered a comet on the same night. I was pretty worried about whether the final draft would be accepted, and I also was hounded by the fear that I really didn't know anything about variable stars. Actually I did know about them-during the late 1970s and early 1980s it was my prime observing field, and in 1980 my 10,000 observations, many of them of the symphony of variable stars in the Orion Nebula, was the highest in the AAVSO. But still, there was always that doubt. Then there was the Janet issue. Having asked Janet Mattei to write the foreward, I had to make it a good book out of respect for her and to the organization she directed. As draft after draft went over to her, Janet made many suggestions. When she finally gave her approval and wrote the foreword, I knew I was okay. If Janet okayed it, then it was fine. I have to add that over the years, I would get a note from Janet every year or so, listing the new members who had written on their application forms that they had been inspired to join AAVSO because of that book. That was the sweetest joy of all. When the time came to write the second edition, I accepted readily. A lot has changed in variable stars over the years, but two things stand out. The first: many, many more observers are using CCDs to measure variables now. And second: I have two new variable stars to write about. TV Corvi came along during my writing a biography of Clyde Tombaugh. I learned about his discovery of the variable (but no other information) on plates taken March 23, 1931. I found its image on 9 additional plates at Harvard, determined its type (a CV), and made its first visual observation on March 23, 1990. (More March 23: on March 23, 1992, I wrote to my future wife Wendee for the first time. On March 23, 1993, the Shoemakers and I took the discvovery photographs of Comet Shoemaker-Levy 9. March 23, 1997: our wedding day. And on our third anniversary, March 23, 2000, TV Corvi went into outburst again, for the third time on that date. The second variable star, discovered by Tom Glinos as part of a search program he is doing with Wendee and me, is a bright new eclipsing binary in Delphinus. I dedicated the book's first edition to my parents and grandparents, and added Wendee, and our children and grandchildren to the second. My Dad never know about the first edition, for he had passed away in 1985, and my maternal grandmother, Pearl Pailet,

was so unwell that I feared that she would not live to see the book's appearance. In the early months of 1987 I worked closely with Cambridge-all I needed was a single copy, hot off the press, to present to Grandma in New Orleans. As soon as Simon offered me a publication date, I bought tickets to New Orleans. A few days before I was to leave, the first copy was rushed from England, its pages still hot from the press run. Grandma really enjoyed it. She asked me to wheel her throughout the building where she lived; she wanted to show it, dedicated to her from her grandson, to everyone. It was a day I will never forget. This new edition, therefore, is deeply personal for me. Wendee did a phenomenal job on the index, at the same time managing a mentor project with a high school student, Karissa Green, who is interested in astronomy. We hope that the exercise will help her to get inspired and enjoy variable stars. I also want to thank amateur astronomer and book aficionado Marilyn Unruh, who told me at the end of 2004 that the original edition was out of print, and who encouraged me to do a second; and Elizabeth Waagen and Gamze Menali of the AAVSO, who encouraged its production. A final note: even though the 2nd edition of this guide to variable stars is my 32nd book, I still have as much trouble getting a publisher for every new book as I did for the first edition. These books are my children, but publishers do not line up to print astronomy books. In a way, that difficulty makes the appearance of each new book, especially this one, even sweeter. May this labor of love bring you to the joys and thrills of variable star observing.

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3. LIGHT CURVES TELL THE STORY - David Williams

Whenever I'm attending a club observing night and Algol is going into eclipse, I point it out to all the other observers. "There's Algol. Watch it, and in a couple of hours it will be almost a magnitude fainter, then it will start brightening again." I also often call attention to delta Cephei: "See, delta's the star at the tip of that little triangle. The other two stars in the triangle are equal to delta's maximum and minimum brightness. Watch that little triangle every clear night and you'll see delta brightening and dimming by that much."

Alas, not everyone stays for the several hours required for Algol to perform its slow variations (and don't seem that interested anyway), and no one remembers to check delta Cep each night. Someday I'm going to recruit a new variable star observer, but it hasn't happened yet.

What attracts amateur astronomers to variable star observing? Aside from the "action" (variable stars actually change in brightness, some of them quit suddenly and unpredictably), I think it's the chance to make a contribution.

But a better question might be: what kind of amateur astronomers are attracted to variable star observing? There are armchair astronomers, of course, who read about astronomy but seldom go out and look through an eyepiece. There are engineers, who build great equipment but never use it. And there are sightseers who aren't satisfied with pictures and want to see everything for themselves, even the faint smudges of light at the very limit of vision.

The most likely variable star recruits will be found among the active observers. They already have equipment and they already spend time at the telescope. Those are the two initial hurdles. Then, from this group we need to sort out the very few who have scientific curiosity and want to make a contribution.

I believe light curves are the best bait for catching the attention of future variable star observers. All kinds of light curves, the more the better. The intriguing shapes immediately spark the curiosity of the amateur with science potential. A light curve raises the question: why would a star do that? And when the caption says the light curve is compiled from magnitude estimates made by amateurs with backyard telescopes, these folks are going to think, "I can do that too!"

Please click here for the past 400 days of AAVSO data on SS Cyg, T Cep and Z Umi to illustrate the contrasting shapes of their light curves, which raises the question "Why would a star do that?"

This is a great time to become a new variable star observer. As several members have pointed out on the AAVSO discussion list, in the Bad Olde Days you reported your observations to headquarters and got no feedback. It might be several years before an AAVSO Report was published, containing light curves with ten-day mean data points. I still have my copy of Report 38 with my estimates red-penciled onto the light curves to see how well I did.

Today, a new observer can report his or her first observation and within a

few minutes can see the new data point added to that star's light curve, with everyone else's individual estimates for comparison. I can't think of anything more likely to spark a new observer's enthusiasm. If the Light Curve Generator had been available when I started, I'm sure I would have made many more observations.

So use AAVSO light curves to explain variable stars and recruit future observers. Use them in talks, use them in displays. The next time there's a nova and you make some estimates, show other amateurs the light curve with your observations highlighted. In variable star astronomy, light curves tell the story.

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4. GALACTIC NOVAE OF 2005 - Erwin van Ballegoij

The AAVSO excels in issuing its Alert and Special Notices, both by direct emailing them to the observers as on the website. These notices draw the attention of the observers to transient objects in the night sky. It is unfortunate that there is not much follow-up on the novae after the discovery notice. Sometimes special web pages are created that includes some pictures and spectra of the novae. But these pages do not contain information about subsequent research on these novae. The AAVSO is now rectifying this by publishing a review of the Galactic novae of the previous year in this issue of Eyepiece Views.

V2361 Cygni = Nova Cygni 2005
Type: NA
Range: 10 - <16V
Position: 20h 09m 19s.09, +39o 48' 52".2 (2000.0, K. Kadota, Japan)
Spectral Classification: Fe II
Novae have a knack of appearing in parts of the sky unfavorable to observations, and V2361 Cygni is no exception. Hideo Nishimura from Japan discovered this nova on the 10th of February 2005, when the constellation of Cygnus was already close to northwestern horizon in the evening sky for most of the northern hemisphere. It was discovered near maximum light. The nova reached visual magnitude 10. The first five days the nova faded slowly, but then it started to fade very rapidly. In two weeks time it dipped close to magnitude 20, before it recovered a little bit to magnitude 18. The strong rebrightening hoped for did not materialize. With a fade of three magnitudes in just eight days, V2361 belonged to the fast novae. The progenitor has not

yet been found.

The lightcurve can be found here.

Sources: IAUC 8473 - 8487 - 8511 - 8524 - 8529 - 8641

V382 Nor = Nova Norma 2005
Type: NA
Range: 10 - <16V
Position: 16h 19m 44s.74, -51o 34' 53".1 (2000.0, L. A. G. Monard, South Africa)
Spectral Classification: Fe II
The southern hemisphere had its share of novae last year. William Liller, Chile discovered the first one in the constellation Norma on March 13. This object was not detectable down to red magnitude 11 on March 9. This nova was again a fast one. It faded by three magnitudes in about 23 days. The weak P-Cyg profiles indicate an average expansion velocity of 1100 +/- 100 km/s.

The lightcurve can be found here.

Sources: IAUC 8497 - 8498 vsnet-alert: 8491 - 8492 - 8493 - 8495 - 8497

V5115 Sgr = Nova Sagittarii 2005
Type: NA
Range: 7.7 -
Position: 18h 16m 58s.96, -25o 56' 38".9 (equinox 2000.0, K. Kadota, Japan)
Spectral Classification: Classical nova
The Japanese observers Hideo Nishimura (discoverer of V2361 Cyg) and Yukio Sakurai independently discovered a nova in Sagittarius on March 28. On March 27 nothing brighter than magnitude 14 (ASAS-V) was seen at this position. The nova was discovered before maximum light, at magnitude 9, and a day later had increased by one full magnitude. The third nova of the year was also a fast nova, and the brightness subsequently decreased by three full magnitudes in ten days. The P-Cyg profile indicates an average expansion velocity of 1300 km/s. Yamaoka notes a bright infrared source in the 2MASS catalogue very close to the nova's position.

The lightcurve can be found here.

Sources: IAUC 8500 - 8501 - 8502 - 8523

V378 Ser = Nova Serpentis 2005
Type: NA
Range: 11.5 - <19.5
Position: 17h 49m 24s.57, -12o 59 '59".2 (2000.0, G. Masi and R. Wilcox)
Spectral Classification: Fe II
This nova was discovered by G. Pojmanski on ASAS images obtained on March 18. The nova reached peak brightness on April 4 and has been fading with fluctuations since then. It was a fast nova that faded by three magnitudes in approximately 100 days. The P-Cyg profile indicates an average expansion velocity of 1350 km/s.

The lightcurve can be found here.

Sources: IAUC 8505 - 8506 - 8509 - 8527 - 8529

V1663 Aql = Nova Aquili 2005
Type: NA
Range: 10.5 - <18
Position: 19h 05m 12.50s, +05o 14' 12.0" (2000.0, A. Oksanen, Finland)
Spectral Classification: Fe II
On June 10 the ASAS-3 Survey reported the discovery of a nova in the constellation Aquila. The Survey detected this nova already on June 9, but on pictures taken on June 3 the object was fainter than magnitude 14. USNO-B1 0952-0410569 is probably the progenitor of this nova. This star is just visible on the DSS plates. The amplitude therefore exceeds 8 magnitudes. V1663 Aql appears to be a symbiotic nova, with a white dwarf primary and an early K-type secondary. This peculiar nova is a fast nova that decreased its brightness by three magnitudes in roughly 25 days.

The lightcurve can be found here.

Sources: IAUC 8544 - 8640 vsnet-alert 8440 - 8442 - 8443 - 8444 - 8445 - 8446 - 8447 - 8448 - 8449 - 8452 - 8457 - 8459 - 8460

V5116 Sgr = Nova Sagittarii 2005 no. 2
Type: NA
Range: 8.0 - <15V
Position: 18h 17m 50s.77, -30o 26' 31".2 (2000.0, A. C. Gilmore and P. M. Kilmartin, New Zealand)
William Liller, Chile, discovered his second nova this year as an 8th

magnitude object on July 4. The object was not visible on pictures taken by ASAS on July 2. The expansion velocity derived from the sharp P-Cyg line is approximately 1300 km/s. V5116 Sgr is yet another fast nova that diminished its brightness by 3 magnitudes in roughly 30 days.

The lightcurve can be found here.

Sources: IAUC 8559 - 8561 - 8579 vsnet-alert 8527 - 8533 - 8534 - 8536 - 8537 - 8538 - 8539 -8540 - 8541 - 8542 - 8545 - 8547 - 8548 - 8549 - 8550 - 8551 - 8552 - 8553 - 8554

V1188 Sco = Nova Scorpii 2005
Type: NA
Range: 9.0 -
Position: 17h 44m 21.59s, -34o 16' 35.7" (2000.0, N. Hashimoto and T. Urata, Japan)
Spectral Classification: Classical nova
The ASAS-3 survey discovered a nova in the constellation of Scorpius on July 25. This nova was independently discovered by Hideo Nishimura from Japan (his third nova this year) on July 26. At discovery this nova reached magnitude 9. According to ASAS, the nova was fainter than magnitude 14.0 on July 23. V1188 Sco was a fast nova with a decrease in three magnitudes in 20 days.
The lightcurve can be found here.

Sources: IAUC 8574 - 8575 - 8576 - 8581 vsnet-alert 8567 - 8568 - 8569 - 8570 - 8571 - 8572 - 8573 - 8578 - 8579 - 8580 - 8581 - 8582 - 8583 - 8587 - 8588 - 8594

V1047 Centauri = Nova Centauri 2005
Type: NA
Range: 8.5 -
Position: 13h 20m 49s.8, -62o 37' 50".9 (2000.0, B. Heathcote, Australia)
William Liller discovered a nova in the constellation of Centaurus on September 1; this was his third nova discovery of 2005. At discovery it had a brightness of approximate magnitude 8.5. The first ASAS pre-discovery images date back to August 19. This nova faded three magnitudes in about 23 days, making it a fast nova again.

The lightcurve can be found here.

Sources: IAUC 8596 vsnet-alert 8656 - 8657 - 8659 - 8660 - 8661 - 8662 -

8663 - 8664 - 8665 - 8674 - 8690 -

V476 Sct = Nova Scuti 2005
Type: NA
Range: 10.9 (p) -
Position: 18h 32m 04s.86, -06o 43' 41".8 (2000.0, (L.A.G. Monard, South Africa)
Spectral Classification: Fe II
The Japanese observers A. Takao and K. Haseda discovered a nova in Scutum on September 30. The discovery magnitudes were 10.3 CCD (Takao) and 10.9 photographic (Haseda). It was again a fast nova that decreased its magnitude by three in just 10 days.

A lightcurve of V476 Sct can be found here.

Sources: IAUC 8612 - 8638 vsnet-alert 8701 - 8702 - 8703 - 8704 - 8705 - 8706 - 8707 - 8713 - 8714

V477 Sct = Nova Scuti 2005 no. 2
Type: NA
Range: 10.4 - < 19V
Position: 18h 38m 42.93s, -12o 16' 15.6" (2000.0, T. Puckett, USA)
Spectral Classification: Classical nova
The ASAS-3 survey (through G. Pojmanski) reported the discovery a nova in Scutum on October 11 and 13. Nothing was visible at this position on an ASAS image taken on October 7 (<14V). The Japanese observer K. Haseda independently confirmed this discovery on October 13. At maximum in October 11 the nova reached magnitude 10.4 CCDV. V477 Sct was once again a fast nova. It decreased three magnitudes from maximum light in about 10 to 15 days.

A lightcurve of V477 Sct can be found here.

Sources: IAUC 8617 - 8644 vsnet-alert 8718 - 8721 - 8722 - 8722 - 8723 - 8724 - 8725

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Good observing!

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

THE AMERICAN ASSOCIATION OF VARIABLE STAR OBSERVERS
25 Birch Street, Cambridge, MA 02138 USA
Tel. 617-354-0484 Fax 617-354-0665
http://www.aavso.org

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AAVSO
25 Birch St., Cambridge MA 02138, USA
Tel: 617.354.0484 Fax: 617.354.0665 Email: aavso@aavso.org