



SJAA EPHEMERIS

Historic With-Browning Telescope with Unique Provenance

Robert A. Garfinkle, F.R.A.S.

Have you ever wondered what happened to the optical instruments used by the amateur watchers of the skies during the past 125 years or so? I have often done that, imagining myself looking at the Moon through the same instruments used by the great lunar observers of the past trying to see the Moon as they did. May I assume that you are familiar with the classic English lunar observers/writers Neison, Elger, Goodacre, and Wilkins & Moore. Right? You may ask why I am mentioning these gentlemen out of the hundreds of other amateur observers. I have their books, many of their lunar articles, and an original set of Goodacre's 1910 lunar charts, but I did not know until November 2000 that they had something in else common be-

sides their lunar writings and love of the Moon.

I recently purchased a complete almost mint-condition, 1874, 9.25-inch With-Browning reflector with cast iron altazimuth mount. This instrument was originally owned by the great English lunar observer/writer Edmund Neison (1851-1938), who passed it on to Thomas Gwyn Elger (1838-97), who passed it on to Walter Goodacre (1856-1938), who passed it on to Hugh Percy Wilkins (1896-1960). The telescope was found several years ago in Wilkins' garage with a letter inside the tube signed by Elger stating how he got the instrument from Neison. Knowing that

Wilkins and Sir Patrick Moore (1923-) had collaborated on lunar writings during the 1950s, I wrote to my friend

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SJAA Activities Calendar

Jim Van Nuland

May

- 5** General Meeting: Speaker Seth Shostak from SETI
- 12** Fremont Peak star party sunset 8:04 p.m., 71% moon rises 1:02 a.m.
- 18** Astronomy Class VI, 7:30 p.m., hall, Houge Park, Topic TBA
- 18** Houge Park star party. Sunset 8:12 p.m., 17% moon rises 4:16 a.m.
- 19** Fremont Peak star party. Sunset 8:10 p.m., 10% moon rises 4:43 a.m.
- 25-28** Riverside Telescope Makers Conference, 1Q moon following Tuesday
- 26** Coe and Peak star party sunset 8:17 p.m., 20% moon sets 0:13 a.m.

June

- 1** Houge Park star party, sunset 8:23 p.m., 85% moon sets 3:54 a.m.
- 2** General Meeting, Speaker Dr. Larry Lasher from the Pioneer Project.
- 15** Astronomy Class VII, 7:30 p.m., hall, Houge Park. Topic TBA
- 15** Houge Park star party, sunset 8:30 p.m., 31% moon rises 2:44 a.m.
- 16** Fremont Peak star party, sunset 8:27 p.m., 22% moon rises 3:12 a.m.
- 23** Coe and Peak star party, sunset 8:31 p.m., 10% moon sets 10:56 p.m.
- 29** Houge Park star party, sunset 8:32 p.m., 72% moon sets 2:29 a.m.

July 7, Greg Laughlin of NASA Ames,
The Five Ages of the Universe



Robert Garfinkle's classic With-Browning telescope packed for shipping.

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With-Browning Telescope

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Sir Patrick and he responded that he had used the telescope many times and that it is a good instrument. Price? By agreement with the seller, I cannot disclose the actual selling price, but the telescope was recently appraised



The cast iron 75-pound mount.

at about \$38,000. (About double what I paid for my first house (1,200 square feet), in Newark, California, about 32 years ago.)

The Browning race car green wrought-iron tube is 9.25 inches inside diameter and the green-tint soda-lime glass George With mirror is 8 inches in diameter. I have seen this particular instrument mentioned in the astronomical literature as being a 9.25-inch f/7.5 instrument, and I have also been told that it is an 8 inch instrument. Which is correct; 9.25 or 8 inches? I don't know, because it can be called by either size and be correct. In the Victorian era, Newtonian telescopes were labeled and sold by their aperture size and that now we use the diameter of the mirror. Neison refers to the telescope as a 9-1/3-inch instrument, which is its outside diameter.

The tube weighs about 100 pounds and the cast iron alt-azimuth mount weighs over 75 pounds. The 1-inch straight-tube finder scope, finder

scope mounts, two handles, mount shafts, focuser, and eyepieces are all solid brass along with most of the attaching knobs and screws on the telescope tube. No brass plating in those days. The eyepieces screw into the focuser. Modern slip-in eyepieces do not fit. I still need to determine the power of the finder scope and the

telescope with each eyepiece. The focal ratio is not marked on the eyepieces.

George Henry With (1827-1904) was considered one of the best silver-on-glass mirror makers of the late 19th century. He was one of the leaders in the move from metal to glass telescope mirrors. The mirror was

recently resilvered at Kitt Peak and tested at 1/25 wave. By profession, George With was a schoolmaster in Herford, England and made astronomical mirrors as a side business.

John Browning, F.R.A.S. (1835-1925) was one of the best telescope and spectroscope manufacturers of that time. He wrote numerous articles on astronomical instrument and a book on spectroscopes. Browning's family instrument company was in business for about 145 years, closing with his retirement in 1905.

If you would like to see a drawing of a sister telescope to mine, there is one in the Norman Lockyer Observatory in England, just follow the link. My telescope looks like the upper image. The drawing is from the 1876 John Browning Company catalog.

<http://www.ex.ac.uk/nlo/news/nlonews/1995-10/9510-12.htm>

I have been planning on how to make a new oak base for the telescope. I have some drawings of similar

instruments and a photograph of a 10-inch With-Browning of the same era. A base has to be built before this nineteenth century telescope gets to feed on twenty-first century moon beams. I am also planning on building oak storage boxes for the tube, mount, and accessories.

I intend to collect as much information as I can about my particular instrument. I have already located several references to this specific instrument in the astronomical literature in several reference works in my home library. Neison mentions it as the instrument used in several of his lunar observations given in the "Selenographical Journal" in the years 1879 to 1882. The telescope is specifically mentioned on page 20 of the Wilkins and Moore book "The Moon." When I am in London this summer after observing the total solar eclipse in Zimbabwe, I intend to spend some time in the Royal Astronomical Society and British Astronomical Society libraries in Burlington House and to see what businesses are now using the John Browning Company factories at 111 Minories (about a block from the Tower of London) and his last place of business at 63 Strand (near the Waterloo Bridge).

I can hardly wait to observe the Moon in much the same manner as my lunar heroes Neison, Elger, Goodacre, and Wilkins through the same fascinating treasure of a telescope that they used.



Brass eyepiece and focuser detail from the With-Browning reflector telescope. Photos by Morris Jones.

From the Descent of Atlantis to the Depths of the Abyss

Jay Reynolds Freeman

I have said in other essays, watching a row of zeros come up on an odometer is fun: In March, 2001, I logged my ten thousandth different celestial object seen. Lest you think that saying so demonstrates lack of humility, there are professional sky surveys in process that are expected to catalog *millions* of galaxies. My life list of objects is a thimbleful of water compared to an ocean of stars.

I have observed many of these

record with a file-card cross-index, organized by object. I might not have done so had I known what I was getting into — my index now fills thirteen shoe-box sized containers — but I am glad I did. Otherwise, I would have no way to find observations of specific objects, or to know whether I had observed them at all.

From time to time I summarize things — I have many log pages showing how many objects of several

different kinds I saw recently, and how many observations I made with different equipment. Only lately did I start breaking down new objects seen by equipment used to see them, so I can only estimate the contributions my various instruments have made to the list of different objects seen.

My observing

program used to be simple: I only had a 7x50 binocular. With good dark adaptation, high transparency, and maniacal persistence, I managed to find all the Messier objects with it. I had not seen most of them before. I also mooched views of other things through telescopes belonging to friends and fellow astronomy club members, but soon I wanted more capable equipment of my own.

I built a fast 6-inch Newtonian, and learned to use it hand held, with no mounting. I retired it nearly twenty years ago, after 965 observations. Those included a Messier survey — I have done one with nearly every telescope or binocular I have pos-

sessed — but I also used it to begin working my way through the lists of galaxies, star clusters and nebulae in Burnham's *Celestial Handbook*. Burnham formed the basis of my observing for over a decade — the goal was to see everything in those lists north of 45 degrees south declination.

Presently I succumbed to aperture fever, and bought the largest telescope I have owned, the Celestron 14 that I later named Harvey. It has been a real workhorse, accounting for 10022 observations, nearly half the grand total — more than half if I subtract off all those Messier surveys. It has also been the telescope I most commonly use for chasing down new objects — I first saw the vast majority of those 10000 different things with the C-14. I don't know where the idea came from, that small telescopes get used more than large ones, but as far as my own experience goes, that notion rates with flat-earthism and the luminiferous ether as unadulterated nonsense. If I could have only one astronomical instrument out of all the ones I have owned, it would without question be my Celestron 14.

I soon found I occasionally wanted something quicker to set up, so I built a lightweight 8-inch f/5 tube-type Dobson, that was almost as handy as my mountless 6-inch. I used it nearly as much as the 6-inch — 848 observations. Those two telescopes still rank third and fourth in numbers of observations made with various telescopes. The 8-inch also did yeoman duty with the brighter objects in Burnham.

My observing declined in the mid-1980s. I was nearly done with Burnham, and had neither object lists nor charts suitable for deeper work. What's more, the C-14 drew long lines at star parties, enough so I didn't get to use it much. I started to bring smaller telescopes to star parties, but there weren't a lot of new things I could see with them. These instruments included

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Jay Freeman in his trademark ushanka hat presides over the annual SJAA Auction, April 2001. Photo by Mike Koop.

things more than once — some bright and popular objects, over 100 times. Counting repeats, and also counting a few hundred instances when I reliably identified the location of something but could not spot it, my logs contain 22891 observations altogether. Yet for me, the great thrill has always been looking at something new, preferably new and difficult.

My present run of logbooks began in 1978, when I became much more active in a hobby I had let dwindle during college and graduate school. Even as a child, I had habitually written down what I saw in the sky, in a simple logbook. When I began observing again, I decided to augment that kind of

The Celestial Tourist

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binoculars larger than my old 7x50, and a Vixen 90 mm fluorite with wonderful optics.

In the mid 1990s, I evaluated an Intes 6-inch Maksutov-Cassegrain at the request of a local dealer, and was impressed enough to buy it. It was a nice match for the Great Polaris mount that came with my 90 mm fluorite, and its stubby carrying case was less awkward to haul around than the long box of the Vixen OTA. About then, I finally got around to finishing the last few objects in my Burnham observing program. Then I ran across a list all the 2500-odd objects that William Herschel had discovered, posted on the internet.

Herschel did most of his observing with telescopes vastly smaller than his well-known 48-inch monster, but his list of discoveries is suitable for smaller instruments, considering that he used speculum metal mirrors and had to find things anew, without knowing their positions. My index revealed that I had already seen about half the list. Finishing it took a year or two. Most of what was left was indeed within the range of the Intes 6-inch, though many objects took more aperture — one or two required borrowed 18-inch Dobsons to ferret out. The Intes is second only to Harvey in total number of observations made, but a poor second, with a count of 1888.

As my Herschel program wound down, I bought a copy of a massive, expensive new reference work — *Millennium Star Atlas*, with enormous numbers of deep-sky objects accurately plotted, and with a stellar limiting visual magnitude of 11 — 1.5 magnitudes fainter than on my best previous charts. Gazing at the atlas pages, I realized there would usually be charted stars in the field of a low-magnification eyepiece in my old Celestron 14. With so many guideposts, finding deep-sky objects would be easy, and the atlas pages had lots of new things.

I described recommissioning the C-14 in another essay. It proved as fine a match for *Millennium* as I hoped. During the next two and a half years, I

worked nearly all the way through *Millennium*, page by page, north of 39 degrees south declination. I didn't see every deep-sky object plotted — many Abell galaxy clusters were invisible, and lots of planetaries were too faint to see or too small to appear non-stellar. Even so, there were so many objects that I could start at one side of a chart and star-hop across it, logging things as I came to them. That was lots quicker than locating objects that are far apart.

My experience with small telescopes left me fascinated with them. During the 1990s I played with many, doing a Messier survey with each, but it was rare that I used them to see anything new. The major exceptions to that rule came with large binoculars — I have made extensive use of a 14x70

I always say that aperture wins, and having a whole galaxy scooping up light ... helps a lot

(519 observations) and a 25x100 (465 observations). There are lots of large bright and dark nebulae best seen with the wide fields of view they provide. The small instrument I have most used is Refractor Red, a dayglow-painted 55 mm Vixen fluorite refractor, but its 568 observations include almost nothing new.

Two other modestly large telescopes figured prominently in observing new objects, one because of geography and the other because of panache. I built a 10-inch f/5 Dobson to fit in a case as airline checked baggage, and took it to Hawaii in late May, 2000. I observed about 400 new southern-sky objects from Mauna Kea, mostly with it, though a few were with my 14x70. I have made 580 observations with altogether with that 10-inch. And in December, 2000, I acquired an Astro-Physics 10-inch Maksutov-Cassegrain, and named her Gillian. I do not intend this instrument as a telescope for vague nothings, but between new, high-end coatings and small central obstruction, the AP-10's performance on deep-

sky objects is closer to Harvey's than mere collecting area would suggest. It is nice to have a high-end planetary instrument that can also find faint fuzzies. I have logged 811 observations with the AP-10 so far, including 364 of objects new to me.

As I write these words, the number of different objects I have logged as actually seen is 10026. 922 are stars — mostly doubles that I resolved, or tried to resolve. 62 are solar-system objects, both natural and human-made. 5967 are in the New General Catalog — that's about three quarters of the NGC — 553 in the Index Catalog (IC), and the rest are a wide assortment of other deep-sky targets, including large contingents of galaxies from the ESO, MCG, and UGC catalogs.

One object was not really celestial: On a night when it was possible to see all the planets without pushing twilight, I looked down between my feet and made a mental note to include "Earth" in the log. The nearest celestial object might have been a meteor, but I like to think it was Space Shuttle Atlantis, engulfed in a re-entry fireball, streaking high across San Francisco Bay as dawn turned the morning sky gray. The farthest "object" I have looked for was the Hubble Deep Field, in the remote depths of the cosmos. I didn't see anything there, C-14 notwithstanding. The most distant thing I have actually seen was probably the quasar that is gravitationally lensed as Einstein's Cross. I always say that aperture wins, and having a whole galaxy scooping up light from this distant target indeed helped a lot.

As my *Millennium* observing program winds down, I am not sure what to do next. I would like to see more of the southern sky, so perhaps travel is in order. Beyond that, the thought of professional surveys of millions of galaxies makes me wary of the obvious next step, of getting an even bigger telescope and even better charts. Yet I imagine that I will find more observations to make. The universe is full of wonders.

Auction XXI

Jim Van Nuland

The SJAA/Bay-area Auction was a great success! With the auction run first, there was much more material than in years past, and it took longer — about 3 hours. The results were worth the work, however, as the net income was \$993.35 — better than most years.

The swap meet was sharply different! One of our biggest sellers was absent, and with much already sold, the swap was almost non-existent!

There was another \$41.15, and, with the dollars from bidder numbers and some donations, the overall total is \$1054.35.

Jay Reynolds Freeman conducted the auction in his unimitable style; a big thank-you to Jay.

We must also thank Scope City for the filters, books, and charts that were donated; they brought in \$192. Thank You, Scope City!



Photos from the 2001 SJAA Auction. (Left) Jay Reynolds Freeman takes bids from a room full of eager buyers. Photo by Mike Koop. (Above) Winning bidders line up to part with their cash. Photo by Akkana Peck.

School Star Party program

Jim Van Nuland

The school star party program is winding down, with just two events remaining on the calendar. There have been 25 successful events and 13 cloud-outs. This is sharply better than 1999-2000, when we did 14 successes and 10 cloud-outs. Most have been at elementary schools, with a smattering of middle and high schools. In addition, SJAA has about 25 public star parties at Houge Park each year, and we have school or scout groups there, but I don't have a count, perhaps another dozen.

This year, we experimented with after-DST (Darkness Squandering Time) events at grade schools, and I'm happy to report that, despite the late time, 8 to 10 pm, we had good turnouts! So our season is extended a couple weeks, and there's more time to get from job to school.

Special thanks go to our stal-

warts, Bill O'Shaughnessy, Gary Mitchell, and Jim Bartolini. Honorable mention to Terry Kahl, Bob Havner, and others who have come out when their jobs allowed. My apologies for not listing you all. We have a few PAS members who help when we're on that side of the valley, and another few Stanford students who help when we're wayyy up the peninsula.

We have done events from Mountain View to Milpitas to Morgan Hill, with most in San Jose east of Hwy.101.

John Dobson has said that the measure of a telescope is not the size of the mirror, or the quality of the figure, or the smoothness of the mount; the measure of a telescope is the number of non-astronomers who have looked through it. By this measure, we have some superb instruments!

Clear Skies!

Lecture Program at Foothill College

Andrew Fraknoi

Dr. Vera Rubin of the Carnegie Institution of Washington will appear on Wednesday, May 2, at 7 p.m. to speak on "What's the Matter in the Universe: Galaxies and Dark Matter." The lecture is free, non-technical, and open to the public.

The lecture will be held at Foothill College, El Monte Road and Freeway 280 in Los Altos Hills. You can reach the series hotline at (650) 949-7888.

Dr. Rubin, one of the most distinguished astronomers in the U.S., has made significant contributions to many areas of our understanding of galaxies. Her research in the 1970's first suggested that these vast islands of stars must include a great deal of unknown, unseen material, which astronomers now call "dark matter." She will describe our modern understanding of this weird "stuff," which may make up the majority of the universe.

This is a joint Silicon Valley Astronomy Lecture and American Astronomical Society Second Century Lecture.

The Buzz on Petau, Kopernik and Tyge

Dave North

As this part of the year drifts by (along with the all-too-common clouds) the first quarter (and earlier) moon slips higher and higher in the sky.

If you want a good look at the eastern half of the moon, you generally must wait until just after full Moon and set your sights on midnight or later.

But not now!

Because the early Moon is so high in the sky, some of these goodies are often seen in steady air just at sunset, even though the Moon has already begun to set.

I remember one May at Fremont Peak when I had my 12.5 set up next to Rich Neuschafer's then-newish AP180 and the air was dead calm at

***Don't waste that twilight:
look at bright things and
check for seeing!***

sunset ... we had incredible views of the Moon at roughly 45 degrees altitude, though some tree branches ran brief interference.

It was a great prelude to a dark sky night, and the air was steady enough to let even my 12.5-inch work to full advantage.

This kind of thing can happen any night this time of year, so don't waste that twilight: look at bright things and check for seeing!

That halcyon night at The Peak was particularly memorable for the great views of the Gang Of Four (my own name for the four similar, large and obvious craters that show up a few days into the lunar cycle. They are wonderfully named all: Langrenus, Vendelinus, Petavius and Furnerius).

I was especially enthralled (literally bubbling enthusiasm; it was truly a sickening spectacle for those present) about the complex rille structure in Petavius — which usually isn't all that complex.

Petavius is particularly friendly to any telescope, because it has one of the fattest rilles on the moon, and at the same time offers a well-defined shape and good detail in the walls.

In other words, it's interesting and easy to see.

But it has some hidden secrets: a couple of finer rills and other features that only show up in very good conditions.

We could see *everything.*

And if you want to see what's there, you should try and try again. One day you'll hit it. Especially late this month.

But early in just about everyone's lunar career, the Rille in Petavius will figure as one of the more memorable discoveries (whether I point it out or not, you'll eventually notice it: it's a real standout!)

Any telescope will do.

As to the hifalutin name Petavius, some folks might wonder why most of the things on the Moon are named after ancient Latins... well, they're not.

Petavius is named after a French Jesuit Cleric named Denis Petau, but it was stylish (if not even reasonable) for mid-era Europeans to "translate" their names into Latin — not an easy thing sometimes, as there wasn't any reasonable translation. In this case, the name Denis is thought to be a genetic drift of Dionysius, and Petau ended up Petavius somehow.

The same sort of thing happens right now when folks who don't come from an English-speaking country publish on the Web; they often translate their names using an alphabet (ours) that doesn't offer a good match for the sounds in their names — so it's often easier to just adopt a similar name from the English arsenal.

Of course, in those days, all scholarly works were in Latin. Now, the language of science, computer and otherwise, (as well as air traffic control) is English. So we see the same thing happening.

Petau was essentially a translator of Greek works, and a very good one. His deep knowledge of the subject led to the writing of histories that are still considered definitive today.

But why is this magnificent crater — one of the more striking on the Moon — assigned to a notable but otherwise obscure historian while some other far more solid contributors are essentially unmentioned, or assigned tiny, obscure craters?

Politics, of course!

Though he was slightly controversial in his interpretations, Petau stood in good with the Vatican, which was an almost unparalleled power in the 16th and 17th centuries (his time).

***Petavius is particularly
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And if you wanted a Moon map published in those days, it was a good idea to stay tight with the Powers That Be (again, nothing has changed in that regard).

So that, mostly, is why when you look at the moon you hear tons of obscure Latin names rather than something that should sound a bit more familiar.

But it's not a completely grim picture.

You'll also hear Copernicus (actually a Polish guy named Kopernik), Kepler (his real name) and the curious Tycho — actually Tyge in his native Denmark (that part of which is now in Sweden).

What's so strange? It's his first name, not last! It would be like, oh, if Aldrin Crater were actually named "Buzz."

Can you think of another crater that's a famous first name?

AANC Conference Scrapbook

105 attendees from 27 of the AANC groups, including 13 club presidents and founders, and 8 newsletter editors, attended this year's AANC conference at Chabot Space & Science Center in Oakland on April 7th. 11 members of the SJAA trekked up to join in the fun, and Mike Koop gave a great presentation about the SJAA.

Photos clockwise from right: (1) Jane Houston Jones introduces Chabot Space & Science Center Executive Director Mike Reynolds to kick off the conference in the Ask Jeeves Planetarium. (2) SJAA VP Bob Havner shares a beverage with San Francisco Amateur Astronomers president Al Stern. (3) John Dobson visits with Robert Garfinkle. (4) SJAA Pres. Mike Koop. (5) Robert Garfinkle awards an autographed copy of his book *Star-Hopping* to marathon winner Liede-Marie Haitisma of Mt. Diablo Astro. Society.



The Shallow Sky in May Akkana Peck

As May opens, Jupiter and Saturn are low in the west at dusk, and you can still catch a little detail on them and watch the motion of their moons. Try to find them right at sunset, or even earlier if you can — you'll see more detail when they're higher in the sky.

But the real target of the month is Mars. Mars isn't at opposition this month — that doesn't happen until the middle of next month — but if you want to see as much detail as possible during the few weeks around opposition when it will be closest to us, now is the time to start practicing, even though you have to stay up past midnight to get a good view. Our small red neighbor is already pretty close — about half an

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Seth Shostak to Speak at May 5th General Meeting

Seth Shostak of the SETI (the Search for Extraterrestrial Intelligence) Institute will be speaking at the May 5th meeting. In his talk, titled "The Chances for Finding E.T.," He will discuss new developments in both the science and technology of SETI. Also if a signal is found, how will the news be made public? What will we learn? And what effect will it have on our society?

Seth Shostak is the Public Programs Scientist at the SETI Institute. As public programs scientist, Seth's responsibilities include explaining to the public the work done at SETI, and what they may one day discover. He is also the author of the book *Sharing the Universe: Perspectives on Extraterrestrial Life* (Berkeley Hills Books). Copies will be available at the meeting. Come hear this fascinating speaker May 5th at 8:00 p.m. in the Houge Park meeting hall.



Dr. Seth Shostak from the SETI Institute speaks at the May 5 General Meeting.

Shallow Sky

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AU at this month's end — and even a small telescope should be enough to show some of the planet's major features, like the dark feature of Syrtis Major (shaped roughly like India) and the huge, pale impact feature Hellas. Larger telescopes will show more detail — sometimes you can see clouds around the volcanic region of Tharsis, and this year, with the planet barely tilted at all as viewed from our location, we might get a good view of the challenging Sinus Meridiani area.

How do you identify these features? The RASC Observer's Handbook, which many club members bought at SJAA meetings, has a decent Mars map in it. The drawing isn't great, but the labelled features give a good idea of what a telescopic observer might hope to see. Planetary programs are more useful, if you can find one that shows features on Mars correctly oriented as they appear at a specific time. Guide (Windows), Starry Night (Windows and

Mac), and XEphem (Linux) are some programs which offer this feature. It might also be worth searching the web for a freeware program called "Mars Previewer", which was useful in the last opposition for showing the orientation of Mars and its features.

If you don't have a computer handy, or don't want to hassle with bringing one out into the field with you, try a globe. Replogle makes a nifty mini Mars globe which is often available for not much money in combination with an earth globe (out of date) and a moon globe (not the best quality but sometimes useful). Try large toy stores (I bought mine two oppositions ago in the Great Mall).

The outer planets — Uranus, Neptune, and Pluto — all rise late and are best viewed well after midnight. More on those planets in columns to come.

The inner planets, Venus and Mercury, are both morning objects now. Early risers (or people pulling all-nighters) can get a lovely view of a large crescent Venus throughout most of the month.

Celestial Calendar

May 2001

Richard Stanton

Lunar Phases:	Date	Rise	Trans	Set
FM 06:32 PDT	07	20:26	00:57	06:27
LQ 03:11 PDT	15	02:00	06:23	10:55
NM 19:46 PDT	22	04:04	11:37	19:27
FQ 15:09 PDT	29	10:41	18:20	01:16

Nearer Planets:	R. A.	Dec.
Mercury, 0.93 A.U., Mag. -1.5		
07 06:46 14:07 21:30	03:58.2	+22:22
17 07:03 14:35 22:07	05:06.6	+25:17
27 07:07 14:36 22:05	05:49.1	+24:54

Venus, 0.52 A.U., Mag. -5.3		
07 04:16 10:29 16:42	00:22.8	+03:06
17 03:58 10:16 16:33	00:48.5	+04:21
27 03:43 10:07 16:32	01:19.6	+06:30

Mars, 0.55 A.U., Mag. -2.1		
07 23:17 04:02 08:42	17:55.2	-24:28
17 22:39 03:22 08:00	17:54.8	-25:01
27 21:56 02:36 07:12	17:48.8	-25:36

Jupiter, 6.02 A.U., Mag. -1.9		
07 07:41 14:59 22:18	04:54.3	+22:12
17 07:11 14:30 21:49	05:03.8	+22:27
27 06:40 14:00 21:20	05:13.6	+22:40

Saturn, 9.09 A.U., Mag. 0.9		
07 07:01 14:06 21:12	04:01.2	+18:53
17 06:26 13:32 20:39	04:06.5	+19:09
27 05:51 12:58 20:06	04:11.9	+19:24

SOL Star Type G2V Intelligent Life in System ?	Hours of Darkness				
06:36	07	06:03	13:04	20:05	02:57.2 +16:51
06:10	17	05:54	13:04	20:14	03:36.5 +19:21
05:47	27	05:48	13:05	20:22	04:16.6 +21:19

Astronomical Twilight:	Begin	End
JD 2,452,036 07	04:23	21:46
046 17	04:09	22:00
056 27	03:59	22:12

Sidereal Time:	
Transit Right Ascension at Local Midnight	
07 00:00 = 13:53	
17 00:00 = 14:32	
27 00:00 = 15:11	

Darkest Saturday Night: 19 May 2001	
Sunset	20:16
Twilight End	22:02
Moon Rise	04:15
Dawn Begin	04:07
Hours Dark	06:06

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Ephemeris Staff

Editor Jane Houston Jones (415) 453-2885
Editor Morris Jones (415) 453-2885
Circulation
Bob Brauer (408) 292-7695
Lew Kurtz (408) 739-7106
Dave North (408) 297-5257
Printing Accuprint (408) 287-7200

School Star Party Chairman

Jim Van Nuland (408) 371-1307

Telescope Loaner Program

Mike Koop (408) 446-0310

Web Page

Bill Arnett bill@nineplanets.org

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San Jose Astronomical Association,
P.O. Box 28243
San Jose, CA 95159-8243

SJAA Loaner Scope Status

All scopes are available to any SJAA member; contact Mike Koop by email (loaner@sjaa.net) or by phone at work (408) 473-6315 or home (408) 446-0310 (Leave Message).

Available Scopes

These are scopes that are available for immediate loan, stored at other SJAA members homes. If you are interested in borrowing one of these scopes, please contact Mike Koop for a scope pick up at any of the listed SJAA events.

# Scope	Description	Stored by
1	4.5" Newt/ P Mount	Tim Roberts
10	Star Spectroscope	Steven Nelson
15	8" Dobson	Daron Darr
16	Solar Scope	Jim Van Nuland
24	60mm Refractor	Al Kestler
32	6" f/7 Dobson	Sandy Mohan

Scope Loans

These are scopes that have been recently loaned out. If you are interested in borrowing one of these scopes, you will be placed on the waiting list until the scope becomes available after the due date.

# Scope	Description	Borrower	Due Date
3	4" Quantum S/C	Hsin I. Huang	7/1/01
6	8" Celestron S/C	Al Kestler	4/19/01
7	12.5" Dobson	Bruce Horton	5/10/01
8	14" Dobson	Jack D. Kellythorne	7/13/01
11	Orion XT6 Dob	Raghu Srinivasan	6/16/01
12	Orion XT8 Dob	Steve Sergeant	5/13/01
23	6" Newt/P Mount	Dennis Hong	4/28/01
26	11" Dobson	Robert Morgan	6/2/01
27	13" Dobson	Gene Schmidt	6/30/01
31	8" f/8 Dobson	John Templeton	5/16/01

Extended Scope Loans

These are scopes that have had their loan period extended. If you are interested in borrowing one of these scopes, we will contact the current borrower and try to work out a reasonable transfer time for both parties.

# Scope	Description	Borrower	Due Date
2	6" f/9 Dob	John Paul De Silva	?
9	C-11 Compustar	Paul Barton	Indefinite
13	Orion XT6 Dob	Li Chung Ting	6/15/01
19	6" Newt/P Mount	Ilkka Kallio	6/15/01
21	10" Dobson	Ralph Seguin	Repair
28	13" Dobson	Michael Dajewski	6/2/01
29	C8, Astrophotography	Doug Graham	6/18/01

Waiting List

8" Sky Quest: Gordon McClellan, Dennis Hong, Joe Fragola, Robert Morgan

Loaner Notes

The auction was very good to the loaner program this year! Dave Simons donated five eyepieces. The Peninsula Astronomical Society also donated an eyepiece and an objective lens. Thanks for your support of the loaner program!

Submit

Submit articles for publication in the SJAA Ephemeris. Send articles to the editors via e-mail to ephemeris@sjaa.net.

To subscribe to or unsubscribe from the SJAA Mailing List, visit <http://www.sjaa.net/mailman/listinfo/sjaa-announce>

San Jose Astronomical Association Membership Form

New ___ Renewal ___

Membership - \$15

Junior (younger than 18 years old) - \$6

Sky and Telescope - add \$30 to membership

(Sky & Tel will not accept multiyear subscriptions)

Make checks payable to "SJAA"

Bring this form to any SJAA Meeting
or send (along with your check) to

San Jose Astronomical Association

P.O. Box 28243

San Jose, CA 95159-8243

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May 5

General Meeting:

Seth Shostak from SETI

May 18

Observational Astronomy Class