

the san jose astronomical association

bulletin

october
1982

Ephemeris

- Oct. 2 General Meeting. Slide and Equipment Night. Come one, come all; show your hobby off to your co-conspirators. A good time will be had by all. See what everybody else has been up to this past year. (Details inside.) Los Gatos Red Cross building, 18011 Los Gatos-Saratoga Road.
- Oct. 8 Board Meeting at Bob Fingerhut's. If you don't know where Milpitas is, call Bob for further details. (408) 263-4455.
- Oct. 9 Red Cross indoor star party. First opportunity to take advantage of our newly rejuvenated mirror-grinding/telescope-making "class". Prepare yourself for those long, wet, cold winter nights, and stay warm by grinding away at your favorite hobby.
- Oct. 16 Fremont Peak star party. For some impressions of what Fremont Peak is "really" like, read the articles by Frank Dibbell and Denni Frerichs inside, and join us for a great night of observing (weather permitting). See the map on the cover for road directions.
- Oct. 23 Red Cross indoor star party. Join the Grit Gremlins, and start to build that dream telescope. Ongoing mirror-grinding and telescope-making classes. Bring astro slides, or whatever, to show.
- Oct. 30 Red Cross indoor star party. HALLOWEEN PARTY! (If you're an Aldebaranean, come as you are...otherwise, costumes will be the order of the night. (An equal time message follows: Martians are also welcome. This message has been sponsored by the Take a Martian Out to Dinner This Month Society.)

The SJAA Bulletin is published monthly by the SAN JOSE ASTRONOMICAL ASSOCIATION, 3509 Calico Avenue, San Jose, CA 95124. The membership year runs from July to June; dues are pro-rated if you join after June. Membership rates: \$18/year for adults, \$12/year for children under 12. Subscriptions to the Bulletin are available to non-members for \$7/year.

SJAA President: Denni Frerichs, 15022 Broadway Terrace, Oakland, CA 94611; (415) 654-6796.

Bulletin Editor: Steve Greenberg, P.O. Box 292 Livermore, CA 94550; (415) 443-6638.

THE PRESIDENT'S COLUMN
by Denni Frerichs

October 2nd will be the SJAA's annual Slide and Equipment Night, to be held at the Los Gatos Red Cross Building. "What is Slide and Equipment Night?" you ask. This traditional event has always been looked forward to, because it is put on for the members, by the members. It's a chance for everyone to "Show and Tell" about their astronomy in informal surroundings, during an enjoyable evening with friends.

SJAA'ers are encouraged to bring any astronomically related slides they may have taken over the past year, and/or any equipment and ideas they use (and would like to share) with others. After all, we've had a Messier Marathon, the Riverside Telescope Makers' Conference, a lunar eclipse, a space shuttle landing, comet Austin, and numerous star parties to take pictures of! Come on: there are scores of photographers (astro-type) in the club. If John Gleason, Frank Dibbell, Jim Eiselt, Jack Zeiders, etc. don't show up with their slides, may a strobe light catch them taking their next picture.

As for equipment, everyone bring something to talk about. With luck, maybe we can persuade Ron and Judith Probst to show up with the almost finished 14" club telescope. Another item of interest could be the beautiful Crayford focuser that Bill Cooke made for Bruce Swayze's 16". (Yes, Bruce, that does mean you have to bring the whole 16" and show it off, also.)

And, maybe Kevin Medlock can be talked into lugging down the 30" mirror he's working on, all 120 pounds worth, to the meeting. Jay Freeman (we know you're out there hiding, Jay) almost always has a new observing trick or two to show us. I've also got some good news about the SJAA's telescope/mirror making class.

As always, there will be refreshments. (Volunteer munchie-makers gladly accepted; we've got enough volunteer munchers!)

Slide and Equipment Night starts at 8 PM, so see you there.

Observations

by Steve Greenberg

ASTRONOMY and TELESCOPE MAKING Group Rates. On September 20th, I received a phone call from Jim Van Nuland. He had just received from Astro-Media publishers (via Gerry Rattley), a forwarded, forwarded letter mailed in early August. The group renewal period for Astronomy Magazine and Telescope Making is now very close. Astronomy Magazine is available for \$12/year and Telescope Making for \$6/year. Partial subscriptions will be accepted, to keep in step with their January to December renewal cycle.

A minimum of five people is needed to qualify for the group rate. Contact Jim Van Nuland or Bob Fingerhut by October 1st, by which time Jim has promised to announce these rates at our last two SJAA September functions. Further information will also be available at the October 2nd general meeting, which should be considered the last opportunity to sign up for these excellent rates.

Letter to the Editor

Dear Editor:

I must take issue with some of Sandra Faber's remarks regarding Mt. Wilson Observatory (as reported in the September Bulletin - Ed). Mt. Wilson's telescopes are far from being "virtually useless". Admittedly, the bright sky limits studies of the faintest objects, but the 100" can still photograph objects fainter than those in the Palomar Sky Survey (21st magnitude - Ed.), when coastal clouds cover the city. In fact, the 100" (and 60") telescopes are used for productive research on virtually every clear (and not so clear!) night.

Photometric programs, including the continuation of stellar cycle studies (begun by Olin Wilson, fifteen years ago); stellar spectroscopic studies (by Roger Ulrich), using image intensifiers with the 100" coude spectrograph; and direct imaging of planetary nebulae, with narrow-band filters and image intensifiers (by Lawrence Aller and Stanley Czyzak), are only three of the programs keeping these telescopes busy.

Infrared work is also being done with some of the smaller telescopes on the mountain.

Mt. Wilson is not "virtually worthless", and is nowhere near being closed down because of a bright sky (or for lack of work). It is important for astronomers doing work at the limits of technology, and the universe, to remember that their data interpretation is based on a foundation of other data acquired with better signal-to-noise ratios, closer to home.

Steve Edberg
Moonshadow Expeditions

(Thanks for your note, Steve. I was unaware of the range of research still being done at Mt. Wilson. Indeed, since I'd also heard rumors that the 60" is being sought by some amateur astronomy groups for use as a "National Amateur Astronomy Telescope", I had assumed that bright skies had already decimated the professionals' research activities. Ed.)

SJAA BOARD OF DIRECTORS:

GENE CISNEROS	(408) 923-6800
BILL COOKE	(408) 739-6319
FRANK DIBBELL	(408) 746-6493
DENNI FRERICHs	(415) 654-6796
STEVE GREENBERG	(415) 443-6638
CHRIS PRATT	(408) 629-2994
SHEA PRATT	(408) 629-2994
JIM VAN NULAND	(408) 371-1307
JACK ZEIDERS	(408) 246-6189
TREASURER:	
BOB FINGERHUT	(408) 263-4455

* * * * *

"I wonder what would happen if you handed a pen and a star chart to a kid and told him to connect the dots..."

Kevin Medlock.

General Meeting

by

BOB FINGERHUT

About 30 people were treated to a fascinating talk by Dr. Sy Stein at the September 11th General Meeting. Dr. Stein presented slides and a movie explaining how NASA's preparation for manned space-flight has contributed valuable and life-saving technology to the medical profession.

For many years, Dr. Stein (a physician himself) was a biomedical specialist in the Life Science Department at NASA's Ames Research Center, in Mountain View.

Among the advances described by Dr. Stein was the miniaturized tri-axial accelerometer, which was used to measure meteoroid impacts on a spacecraft to determine if a man could safely fly in space. The accelerometers are so sensitive that they can measure a butterfly's heartbeat. They are currently being used to detect Parkinson's disease at an early enough stage for it to be treated and prevented.

Another advance, miniaturized telemetry, was developed to monitor astronauts in a cramped spacecraft. Dr. Stein told us how this technique was adapted for monitoring patients without their having to undergo constant supervision. He explained how the first person with thyroid cancer was saved with such devices.

The sight of a pitot tube protruding from a lifting body (an early space shuttle concept), followed by an inquiry as to what it was, led to the development of a version so small that it could be inserted into a vein through a needle. This device is now used to measure pressure inside the heart, allowing surgeons to determine the condition of heart valves prior to surgery.

Spray-on electrical contacts were developed because the astronauts felt their time was far too valuable to allow doctors to spend a lot of it sticking contacts onto them for measuring temperature, heartbeat, and respiration. The spray-on contacts go on so rapidly that they can be used on impatient and squirming children.

He also explained how a centrifuge, used for training astronauts at Ames, was also used to reposition a .22 caliber bullet in the brain of a man, from Morgan Hill, who was shot during a robbery. The location of the bullet prevented him from standing up without fainting, and was also lodged in an inoperable area. The bullet was successfully moved to a safe place, and he returned to his normal life.

Dr. Stein also noted that funding cutbacks at NASA have resulted in a factor-of-ten reduction in biomedical advancements in recent years. This is truly a pity.

We enjoyed Dr. Stein's presentation very much, and would like to thank him for coming.

SHAKE-UP AT LOMA PRIETA

BY

DON MACHHOLZ

Most of you probably remember the magnitude 4.7 earthquake, which "shook up" a few members of the SJAA on April 12th, 1980 while they were observing at a Fremont Peak star party. Fremont Peak, incidentally, was the epicenter of that particular earthquake. Their report appeared in the SJAA Bulletin for May 1980, and later in Sky & Telescope.

During that earthquake I was sleeping, until it woke me up; I had set my alarm clock for midnight, so I could do some morning comet hunting. Then, about a year ago (when I was up at Loma Prieta) there was another earthquake. However, at that time, I had just stopped observing because of clouds (earthquake weather?).

It wasn't until Wednesday, August 18th, 1982, that I felt an earthquake while actually observing through the telescope. It was just after 1:40 AM, and I had finished setting up my 10-inch f/3.8 reflector at 35x for a morning of comet hunting ... session # 1117. My "warmup object", and the starting point for my morning's search, was M74, the magnitude 10.5 galaxy in Pisces. I placed it in my finder, took off my glasses, put on my eyepatch, and stepped up to the pre-focussed eyepiece. An airplane had just gone overhead, and its noise had faded out in the north. It was 1:43 AM.

Suddenly, I felt the ground rise. Then it fell away from me. Then it rose again. Then it stopped moving. It was the type of up-and-down feeling you get if you are standing on a bridge when a big truck goes over it.

I did not get a good look at M74. As soon as my eye got to the eyepiece, the galaxy swung to the top of the field of view, and then came partly back down again. This is probably because I had both hands on the telescope.

I was fairly certain that this was an earthquake. But the first thing I noticed was that there was no noise,...not even a rumble. It was perfectly quiet. The air was still, but the ground wasn't. About 15 seconds later a dog, about half a mile away, began barking. I guess he felt it, too. Then the crickets joined in again.

Jay Stone, of KLOK radio, let the record finish, then mentioned we had an earthquake, and he was receiving phone calls from Fremont to Aptos. As it turned out, the magnitude of this quake was measured at 4.5 on the Richter Scale; and the epicenter was some 7 miles north of Watsonville, which placed it, good grief, only a few miles south of where I was standing.

The rest of the morning was a little less eventful.

Letter to the Editor

Dear Editor:

Now that Comet Austin is visible, I've had a chance to test the new LUMICON Deep-Sky Filter on it. Because of its unusually wide bandpass (900 Angstroms), I've always thought that this filter might be ideal for comets (but this was my first chance to test it). The two Swan bands in comets, due to emissions from molecular C_2 , occur near 470 and 520 nanometres (nm). Both of these bands are fully transmitted by the Deep-Sky filter, but are partially blocked in most nebula filters, and completely blocked by the narrow-bandpass Daystar-300 nebula filter (improved Nebula filter).

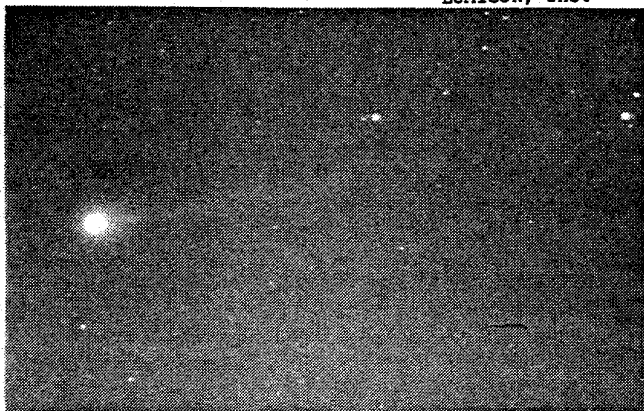
Using a Deep-Sky filter, I noticed a definite improvement of visual contrast in the tail of Comet Austin. From my backyard in Livermore, California, I also performed a photographic test of this filter using my 8" f/4.5 telescope, and hypered 2415 film. The light pollution was severe, because the comet was low in the sky; right above heavily lighted neighboring towns. I took a 10-minute exposure with the Deep-Sky filter, and a 10-minute photo without it. The negative from the unfiltered exposure was so dark that there was no contrast. The filtered photo was easily printed, and clearly shows the tail.

Expressed as the numerical ratio of the light transmission through the two negatives, the light pollution was 15 times worse on the unfiltered comet photo. (The filtered photo required 17 seconds at f/11 to print. The unfiltered photo required almost one minute, at f/4.5)

In conclusion, there does exist a good filter for viewing comets: the LUMICON Deep-Sky Filter. It improves contrast on the tails of gaseous comets, both visually and photographically. This filter is also superb for photographing emission nebulae, so it is a versatile, all-purpose aid in our battle against ever-encroaching light pollution.

I have enclosed a half-tone print of Comet Austin, and have used a coarse 85-mesh screen to simplify its reproduction by copying machine.

Dr. Jack Marling,
President:
LUMICON, Inc.



(For those interested in further details, Jack has a chart comparing the spectra of two comets with the spectral responses of the human eye and the Deep-Sky Filter, plus copies of his original (unscreened) photos. Since I'm sure the photo reproduction here is not going to be the greatest, I'll note that the

comet's ion tail is visible for about two inches (at this scale) in the screened photo.

I also observed Comet Austin from Livermore, with 13 x 80 binoculars. Because of the heavy Berkeley, Oakland, and San Francisco light pollution "near" the horizon, I saw only the slightest elongation of the fuzzball due to the tail (and that on only one of three evenings). I was quite impressed when I saw Jack's original "before and after" filter photos at the AANC/WAA convention.

I predict that the many amateurs enthused by the International Halley Watch presentations Steve Edberg is giving, may well find themselves investing in such filters by 1985, since (as Don Machholz pointed out last month) Halley's comet will be low in our southern skies and is predicted to be about as bright as Comet Kohoutek. Ed.)

AUGUST NEW MOON AT FREEKIE PEAK

By
DENNI FRERICHs

It used to be said in Bay Area astronomy circles that if there was a two-day star party at Fremont Peak, one of the two days would be cloudy, and it was likely to be Saturday. Clouds like to wipe out as many telescopes as possible in one spot, and Saturday normally is the crowded night.

Fortunately, the western horizon cirrus clouds stayed where they were Saturday evening and comet hunters were at least able to get a good look at Comet Austin. The comet (approaching magnitude 5.5 at the time) was not naked eye, but was easily found with my 11 x 80 binoculars. Don Machholz's coordinates for it were fairly accurate, considering that it was climbing rapidly from the horizon through Ursa Major towards the Big Dipper. Its path was reminiscent of Comet Kobayashi-Berger-Milon's, back in 1975, though comet Austin appeared fainter. In the binoculars it was a fuzzy cotton ball. Photos show a 1° tail.

Those who had set up their equipment in Coulter Camp, and were not mobile, were wiped out by the northern trees. Those who could make it up to Madrone Flat were rewarded with a few hours of twilight comet viewing, before western haze and San Jose wiped out the lower seeing.

Another comet was also viewed during the evening. Comet Bowell is only a few degrees away from the Trifid Nebula, and because it is leaving our neighborhood almost in our line of sight, there is little apparent motion. It was quite dim (11th magnitude) in Kevin Medlock's 18" at 150x, so it might take some looking to see it.

Since I had left my 8" at home, I started out using Charles Turner's Quantum 6. It's a nice commercial scope, but I'm a trifle aperture spoiled. I soon found myself sitting with Bob Fingerhut, enjoying the shirt-sleeve temperatures (70 degrees), and jumping up whenever someone from the surrounding telescope forest would say, "I've got NGC such and such in my scope, if anyone wants to see!"... Relax, enjoy the view, and let someone else do the work. We went through numerous planetary nebulae and NGC galaxies this way.

The Blinking Planetary (NGC 6826) in Cygnus was very impressive in the 18", and actually a fun object

(Continued on next page.)

(Continued.)

to let your eyes play tricks with. By looking straight at the planetary, the green nebulosity is very evident. If you use averted vision, the central star "pops" out and dominates the planetary. This normally causes the observer to look back at the nebula, which in turn causes the star to disappear. Hence, the "blink". Try it. It should be apparent in an 8" and larger.

Another well sought-after object was Stephan's Quintet in Pegasus. This object, which is actually five galaxies, is less than a degree southeast of the bright edge-on galaxy NGC 7331, and many observers make the mistake of thinking they have found the brightest member of the quintet when sighting it. Stephan's Quintet was very faint in a 12-1/2" Newtonian brought by Tom Scott of Fresno; some members were identifiable in a 14" Dobson; and it was recognizable in the 18". There are claims that it has been seen in an 8" from Fremont Peak, but I have to think that all that was seen was lumpy darkness!

The mystery of the evening came when Kevin, while searching for a planetary east of M56, ran into what looked like a miniature M82, an edge-on galaxy with irregular dark lanes. Vehrenberg's Atlas of the Constellations listed it as a planetary (NGC 6765), while Tirion and Skalnate Pleso did not list it at all. Where are Gerry Rattley and Jay Freeman when you need them?! Anybody have any idea of what was seen? It's at 19hrs. 9min. RA, +30.5° Dec.

Earlier in the evening, while going through the show objects with the 18", M13 was observed. Walter Scott Houston pointed out in his August, '82, Sky & Telescope "Deep Sky Wonders" column, that the globular cluster actually appears to be broken into a trifold by three darker vanes. He first suggested this appearance at Stellafane '81, and I was fortunate to be one of the first to view it through the 12" Porter Turret telescope at Breezy Hill. It's quite easy to see once you know it's there, and in the 18" the vanes were quite prominent.

There was a lot of aperture at the Peak. Besides those already mentioned, Charles Turner had his 14" fork-mounted Newtonian, Bill Cook had his 10", Frank Dibbell his C-11, and Bruce Swayze his 16". Notable absences were Jay Freeman's C-14, and Chris and Shea Pratt's 12-1/2" Starlost.

It was a very friendly star party, with members of the San Mateo club mixed in. The SJAA must have had about twenty people there. Altogether the crowding was not as bad as some past summer new-moon weekends at the peak have been, and there was no yelling at offending cars and their drivers except for the traditional "Lights out!" (Kim McKelvey, when questioned as to why he was yelling "lights out!" at a car in broad daylight, replied, "Well, I have to keep in practice!")

STAYING WARM
by
JEFF HORNE

Have you ever noticed some of the peculiar things people wear at star parties? The oddest collection of jackets, togs, rags, and what-nots you'll find anywhere not under the sun. My favorite oddity

is the hats that people wear. Some are old fishing hats (with lures attached), tweed driving caps, chic ski hats, and some appear to be old stretch socks pulled down around the ears.

Coats and jackets are another interesting item. Some people show up at star parties with parkas straight from a polar expedition, while others stuff every shirt they own under a light windbreaker. While the first group act like Eskimos, the second group look like bags of potatoes with legs.

This brings us to what I call "the macho observer"; you know the one -- the last guy to put a coat on. He'll walk around in shirt sleeves, while ice is forming on his telescope tube. "Oh, it isn't so cold," he says, "Back home in Vermont we keep our eyepieces in the freezer, so they don't fog up when we go outside." People of this persuasion have been known to show up at star parties with short pants on, saying it was too hot to change before they left home. Later in the evening they complain loudly about needing to replace a noisy servo gear, when it is really just their knees knocking together. Particular offenders of this clan are those from New Vanland who will arrive at a star party without a shirt on. Trying to get a tan from the starlight, I guess.

On the serious side, what should one wear to winter observing sessions? It is best to dress in layers of clothes, rather than to use one heavy, bulky coat. A couple of light sweaters worn together will be warmer than one thick one because of the insulating "dead-air layer" trapped between them. Layered clothing can be put on one piece at a time, as the night gets colder, or taken off in layers if the wind stops and you get warm. My favorite choice is a long-sleeved shirt with a light sweater, and finally a medium jacket. This combination is warm down to about 32° F. I'll bring another sweater if I think it will be colder.

A hat is an absolute must. Up to 30% of your total body heat can be lost through the top of your head, so you will find it difficult to stay warm without some kind of head covering. Try to find a hat that keeps your ears warm as well. Ear flaps may look funny, but they do the trick. Thermal underwear will also keep you very warm, but can get hot while driving to the star party. I recommend loading your telescope into your car before getting heavily dressed. Carrying heavy objects can make you perspire, and wet clothing can get very cold later.

Wear a good pair of gloves and two layers of socks (cotton inside, wool outside). I use some aluminized glove inserts that reflect the heat. Also, as a rule, mittens are warmer than gloves, but more clumsy. If you bring a pair of boots to wear, carry them inside the car, not in the trunk, and put them on as soon as you get to the star party. Cold shoes are almost impossible to warm up. My feet are always the coldest part of me, so maybe some electric socks are a solution. In addition, any ski store is a source of warm ideas.

All of this doesn't mean you have to rush out to buy a bunch of stuff if your closet isn't already full. No matter what you have, try to dress in layers and wear a hat: you'll be a happier astronomer.

Comet Comments

by Don Machholz

As we move into the final months of the year, three comets remain visible in our skies. Meanwhile, we have learned of two additional "sungrazing comets" that have collided with the sun. These were both discovered by a satellite, and reported recently.

Two Probable Sungrazing Comets. The Naval Research Laboratory has recently reported that P78-1, its sun-monitoring satellite, photographed two comets in 1981 as they crashed into the sun. Neither comet left a trace after hitting.

The first one was followed for four hours on January 27th, 1981, as it traveled 5 solar radii, brightening from about +1 magnitude (at 5.5 radii) to magnitude -2.5 (at 3 radii). (One solar radius is approximately 15 arc minutes, or one-quarter of a degree.)

The second comet hit the sun on July 20th, 1981. It too was followed for four hours, as it traveled from 9.6 to 6.3 solar radii. Its magnitude (at 8 radii) was -0.8.

Both of these comets seem to have been part of the Kreutz sungrazer comet group. Neither seems to have been observed from the earth's surface.

As reported here in December, 1981, this satellite discovered an earlier comet that hit the sun in late August, 1979, and is now known as Comet Howard-Kooman-Michels. The two "new" discoveries are not yet named.

Great Comets. Comet Kobayashi-Berger-Milan (1975h=1975IX). Although not a bright comet, this object was well placed in the evening summer sky, and was widely observed. It was first spotted by Toru Kobayashi, of Japan, on July 2.7 (UT) as an 8th magnitude object in Aquarius, and he reported it as a "probable" comet. On July 5.3, Doug Berger (of the East Bay Astronomical Association) independently discovered it from Henry Coe State Park, while at a star party. He and Debbie Moore were searching for M2, and they accidentally found the comet.* It was the first comet to have been discovered by an American amateur in some seven years. Two days later, while vacationing at Yellowstone National Park, Dennis Milan also picked it up.

The comet approached to within 40 million miles of the sun on September 5th, 1975, and reached 4th magnitude. With its paraboloid orbit, it is not expected to return for a very long time.

Comet Austin (1982g)

DATE (UT)	R.A.	DEC.	MAG.
10-03	12h 53.5m	+36°53'	9.2
10-08	12h 55.7m	+35°58'	9.5
10-13	12h 57.7m	+35°10'	9.8
10-18	12h 59.5m	+34°29'	10.2
10-23	13h 01.0m	+33°55'	10.5
10-28	13h 02.4m	+33°28'	10.8
11-02	13h 03.4m	+33°09'	11.0
11-07	13h 04.2m	+32°56'	11.2

Displaying an ion tail during August and early September, this comet is still a fine object in the evening sky. In mid-October, it will be entering the morning sky, and from then on it will be better seen in the pre-dawn sky. (Positions and magnitudes are from the IUA Circ. 3724, and Comet News Service 82-3.)

Periodic Comet D'Arrest (1982e)

DATE (UT)	R.A.	DEC.	MAG.
10-03	18h 50.8m	-29°49'	8.4
10-08	19h 12.1m	-31°17'	8.4
10-13	19h 33.8m	-32°24'	8.5
10-18	19h 55.7m	-33°09'	8.6
10-23	20h 17.5m	-33°34'	8.7
10-28	20h 39.0m	-33°40'	8.9
11-02	20h 59.9m	-33°28'	9.1

Diffuse and traveling through the Milky Way, this periodic comet (6.4 years) may be more difficult to see than the figures indicate. (Data from Comet News Service, 82-3.)

Periodic Comet Churyumov-Gerasimenko (1982f)

DATE (UT)	R.A.	DEC.	MAG.
10-03	04h 25.8m	+15°24'	11.1
10-08	04h 40.2m	+16°47'	11.0
10-13	04h 54.9m	+18°13'	10.8
10-18	05h 09.5m	+19°43'	10.7
10-23	05h 24.1m	+21°16'	10.6
10-28	05h 38.5m	+22°53'	10.4
11-02	05h 52.6m	+24°31'	10.2

Placed in the morning sky, this comet will pass near (or over*) the Crab Nebula (M1) on October 24th. (Data from Comet News Service 82-3.)

* * * * *

*(There seems to be a certain amount of cosmic humor, karma, or justice in an amateur astronomer's discovering a comet while looking for a Messier object. Don, do you know about (m)any other instances of this happening? And, what can be said about other comets passing in front of a Messier object, especially M1? Ed.)

Space Program Update

by Bob Fingerhut

Private Rocket Successfully Launched! The Conestoga-I rocket vehicle, of Space Services, Inc., was launched on September 9th from Matagorda Island, off the Texas Gulf coast. A Minuteman I second-stage motor boosted it to a planned altitude of about 195 miles during a 10.5 minute flight. Splashdown was in the Gulf of Mexico, about 260 miles downrange.

Space Services chairman and mission director Donald K. (Deke) Slayton said that the flight objectives were achieved (including the successful separation of a 1079 lb. mock payload). There is an orbital development mission planned for next year, and flights carrying commercial payloads could begin by mid-1984. Space Services hopes to sell low earth orbit remote sensing time to oil companies and others interested in mineral exploration or geologic mapping.

First Operational Flight of Ariane Fails. The premature shutdown of the Ariane I third-stage motor, 14 minutes after its launch on September 10, sent the vehicle and its payload into the Atlantic Ocean.

The European Space Agency's MARECS-B maritime communications satellite, and their SIRIO-2 satellite were both destroyed. SIRIO-2 was designed to disseminate meteorological data over Africa, and provide laser synchronization for atomic clocks, from its geostationary orbit.

Insat-1A Fails. After 148 days in orbit, India's Insat-1A domestic communications, direct-broadcast-TV, and weather-monitoring satellite failed due to a lack of propellant for its attitude control system. The fuel loss was caused by a malfunctioning valve in the oxidizer line. The spacecraft was designed to last seven years in orbit. The second Insat is scheduled to be launched next July.

ANIK-D1 Successfully Orbitied. The Canadian ANIK-D1 domestic communications satellite was successfully launched into a geosynchronous transfer orbit on August 26th, aboard a Delta 3920/PAM vehicle.

Space Station Visitors Return to Earth. The Soviet Union returned its two-man/one-woman cosmonaut crew to Earth on August 7th, after an eight-day mission to the Salyut 7 space station. Two cosmonauts remain at the space station.

Materials Processing in Space. Japan's National Space Development Agency recovered an orbiting materials processing payload, containing two electric furnaces, following its successful launch on a Nissan Motors TT-500A rocket. The experiment created a new nickel alloy and an amorphous semiconductor.

Japan Launches an Experimental Satellite. On September 3rd, the Japanese space agency, NASDA, successfully launched its Engineering Test Satellite III into orbit. It is in a circular orbit, 1000 km high, with an inclination of 45° to the equator,

and has a period of 105 minutes. ETS-III is a precursor to a remote sensing satellite, and is being used to test a three-axis attitude control system, the deployment of a solar array panel, and an active thermal control system.

Soviets Plan "New" Navigation System. The Soviet Union has filed documents with the International Telecommunications Union stating that it plans to deploy "Glonas", a global navigation satellite system, which is almost identical to the U.S. Department of Defense Navstar global positioning system.

Challenger Engine Test. The space shuttle orbiter Challenger's main engines will be fired on Pad 39A on December 7th, for 20 to 25 seconds, to verify that its main propulsion system is functioning properly. Challenger's first flight is now scheduled for mid-January, 1983.

NASA/Department of Defense Funding: Part I. Some members of Congress have tried to get the Department of Defense to pay the full cost of their launches to NASA. In Fiscal Year 1983, NASA will subsidize the DoD to the tune of \$409 million.

The Defense Authorization bill agreed to in conference committee, and passed by both houses of Congress, bars the DoD from paying the \$409 million.

On the other hand, NASA will start to pay the full cost of using DoD aeronautics facilities, beginning on the first day of Fiscal Year 1983. NASA cannot even charge the DoD for using wind tunnels, since legislation mandates that NASA support DoD aeronautics research at no compensation.

NASA/DoD Funding: Part II. The Air Force and NASA have agreed on a higher price for military space shuttle launches from FY '84 through FY '88. The payments will be made one year in advance, and will reduce the \$409 million NASA subsidy of the DoD in FY '83 by about \$15 million.

U.S./West German Spacecraft Venture. A cooperative space science agreement has been signed by the Federal Republic of Germany and the U.S., for a program to launch an x-ray observatory spacecraft in 1987 to study x-ray emissions from non-solar celestial objects. The project has been named ROSAT, short for Roentgen satellite. Germany will provide the spacecraft and x-ray telescope; NASA, a high-resolution imaging detector and a shuttle launch.

New Projects for FY 1984? NASA plans to ask for funds to start two new projects in FY 1984. They are a tethered satellite, and a teleoperator retrieval system for the space shuttle. The first of these projects will be done jointly with the Italians.

For the U.S./Italian project NASA would develop a reel and tether line that would allow an Italian-developed spacecraft to be pulled along at altitudes as low as 65-miles. This is too low for the space shuttle to fly, and too high for airplanes.

The teleoperator retrieval system would be a small, reusable propulsion unit that could fly to spacecraft the shuttle has difficulty reaching. It would dock with, and then return, the spacecraft to the shuttle.

Chris Kraft Jr. Urges Stronger Support for Research and Development, and the Space Program. Kraft, who stepped down August 7th as director of NASA's Johnson Space Center, presented his views at his farewell briefing. He said that the Reagan Administration's approach to science, technology, and development falls short of what is needed to maintain U.S. leadership in the world. He urged:

- Space station development.
- Separate shuttle orbiters for the military and NASA.
- The purchase of at least twice as many orbiters as the four currently planned.
- Broader relationships with the commercial sector for using the Space Transportation System.

Chris Kraft had 37 years of service with NASA and its predecessor, the National Advisory Committee for Aeronautics (NACA). He played a key role in the planning and engineering of all our manned space programs. He was flight director for all the Mercury, and several of the Gemini, missions. He also directed the design and construction of the Johnson Mission Control Center.

NASA sources said that Kraft's departure was requested by NASA Administrator James Beggs, in order to install someone whose philosophy was more in line with Beggs' views about the transition of the space shuttle into an operational system.

FREMONT PEAK WEEKEND
By
FRANK DIBBELL

The August 20th - 21st Fremont Peak Star Party meant different things to different people. Some people came to see the comet, others to attempt to observe through the murky skies. The more adventurous, to scale the Peak and explore the caves. We all came to escape the smog and traffic of the Valley.

The party began officially at 3:05 PM on Friday with the arrival of Bill Cooke, myself, and Stosh Groner, in that order. The day was very warm, and those infamous Fremont Peak Flies descended upon us! There was no escaping them, at least until sunset when they all went away.

Anyway, my reason for being there that evening was to find Comet Austin and photograph it. The weather was very uncooperative; a large band of cirrus hugged the western horizon, threatening to obscure the comet. Persistence paid off; soon I had found Austin with my 7 x 50's, in a break between the cirrus. Through the C-11 at 100x it looked like a small, unresolved globular, somewhat fainter than predicted, with no observable tail. Because of the poor seeing, I gave up any attempt at photography.

Later arrivals that night included Kevin and Denni Medlock, John Gleason, Charles Turner, Earl Watts, and a host of other regulars, and not so regulars, whose names I either can't remember or don't know.

High cirrus plagued us most of the night. The night was so warm that it was a shame the sky would not cooperate. If you can believe those who remained up ALL night observing, the seeing improved after 4 AM. The less adventurous called it quits around 2 AM.

Saturday morning was uncomfortably warm, the portent of a hot day in the making. Overheard at the breakfast table...

"We need another earthquake at Fremont Peak!" (Denni).

Charles Turner, commenting on the very-early-morning noise pollution, "If Kevin can't sleep, nobody else can!"

"Anybody for Doritos for breakfast?" (Me, looking into my cooler for something to eat.) You had to have been there.

After a hearty breakfast of bacon and eggs, Cheerios, and Doritos, a group of us retired to a shady grove to contemplate an attack on the Peak. While Bill Cooke, Kim McKelvey, and I argued the merit of assaulting the East Slope instead of the North Face, Kevin was busily playing connect-the-dots on his star charts with a silver pen. More idle banter...

"What is another name for Alpha Canis Majoris?" (Kevin).

"Sirius!" (Denni).

"Procyon!" (Bill, simultaneously).

"That's Alpha Canis Minoris!" (Me).

"That's a Sirius mistake!" (Kevin).

It was obvious that zero-sleep was taking its toll. On that, we decided to start the expedition to the summit of Fremont Peak, having earlier agreed upon the easier East Slope as our route. The expedition consisted of Kim, Bill, Kevin, Denni, myself of course, and a quart of luke-warm water.

It was a grueling experience -- 30 long minutes to reach the summit, where we finally paused in the 90° heat to catch our collective breath. Since we made the summit with no casualties, the expedition bravely decided to push on to the famous Fremont Peak Caves, even though our water was critically low! After another arduous 30 minutes, we were rewarded for our efforts by the cool, dank air of the caves.

The return to Coulter Camp seemed somehow anticlimactic; it was also then that disaster struck! On the narrow and winding path downward, Denni lost her footing, and plunged 800 millimetres down the trail. Loose rocks can be a bear when you're wearing heels! The First-Aid Team determined that no serious injuries were suffered (other than pride), so after a brief rest we continued our trek back to Coulter without further incident.

Saturday night, unfortunately, turned out to be almost as bad as Friday for observing. The western sky was a bit clearer, so it was easier to find Comet Austin. I attempted to photograph it, but my developed slides indicated that my attempts were less than successful. Visually, it was much more impressive than on the previous night. As the sky grew darker, Austin's tail became distinctly visible in the C-11. As seen in 10 x 80 binoculars, the tail appeared very thin, and about 2 or 3 degrees in length.

Quite a few more people showed up on Saturday, including some old-time members like Wolf Hanisch and Gary Rice, along with the usual Fremont Peak irregulars. Lots of aperture was present, including Kevin's 18-1/2" Newtonian, and Charles Turner's 14" Newtonian. A couple of large Dobsonians were there, as was a little Questar. (And I always thought that a Questar was a color TV, made by RCA!)

(Continued on next page.)

(Continued.)

As bad as the seeing was, the big Newtonians were doing an admirable job on such FPN's* as Stephan's Quintet, though I have to admit the term "Lumpy Darkness Syndrome" more accurately describes what I actually saw. With a little encouragement from Kevin, even I was able to finally see all five galaxies. The remainder of the evening was spent looking at obscure planetaries, favorite showpieces, and just plain having fun.

Like all good things, even the weekend star party had to come to an end. So: Sunday morning, it was dismantle the scope, pack the tent (or was it dismantle the tent and pack the scope?), stuff the sleeping bag, load the car, and prepare for the long drive back to San Smogé, all the while thinking about next month's outing. So long, until next month!

*Faint Fuzzy Nothings.

WAA BOARD MEETING
By
DENNI FRERICHES

The summer board meeting of the Western Amateur Astronomers took place at the Sunnyvale Hilton on the Friday night of the AANC-WAA NASA/Ames conference. The conference had brought in over 300 amateur astronomers, so the board meeting was crowded, with 31 people representing about two dozen clubs. The SJAA members who attended were Steve Greenberg, Kevin Medlock, and myself. John Sanford, of the Orange County Astronomers was presiding president.

The topics discussed included:

- The future appearance of the G. Bruce Blair Gold Medal. (Should it stay a single piece or go to two sides, which can be viewed together in their presentation box?)
- The location of the 1983 WAA Conference. (It was voted to join the ASP in Hawaii for their June conference.)
- Whether or not anything should be done about Astronomical League entry into WAA territory. (It was voted that the WAA would officially refrain from any correspondence with the AL.)
- The amount owed by the WAA to Bob Schalck for his work on the 12-1/2" telescope being donated to the Philippines Astronomical Society.

Steve Edberg, of Jet Propulsion Laboratory and the International Halley Watch, announced that the asteroid Pallas will be occulted in late May, 1983, and the predicted path will pass through the YMCA campground at Big Bear, during the Riverside Telescope Makers' Conference! He called for graze observers to participate in the event; and because Pallas is a suspected double object, significant data could be collected.

Since the SJAA normally has 20 to 30 members attending the RTMC, should not an SJAA graze team be in order? If the predicted path stays stable, let's plan to observe the occultation!

The next WAA winter board meeting is planned for the Los Angeles area on Saturday, January 29, 1983. Subjects will include nominations and voting on the 1983 G. Bruce Blair recipient, future WAA conferences, and probably further discussion about the Astronomical League.

AMATEUR ASTRONOMY SURVEY

Sunset Magazine is researching a story on amateur astronomy for an upcoming issue. You can help them out by answering the following questions, and then returning the questionnaire to Sunset Magazine. Feel free to elaborate on any point. Thanks.

1. How long have you been an amateur astronomer? (Please note whether you are male or female, and your age.)
2. What first interested you in amateur astronomy, and what is your major interest in the subject now (i.e. viewing, photography, etc.)?
3. Do you own your own telescope? If yes, what kind is it, and did you make it or buy it? Please note its approximate cost.
4. Why did you choose that telescope?
5. What town/state do you live in? And, what are the best months for amateur astronomy in your area? And why?
6. Do you belong to an astronomy club? Why, or why not?
7. If your answer to 6 was yes, we're interested in the name of the club, its mailing address, phone number of an officer, and information on when and where club star parties meet (i.e. winter months only, or year-round, or the first Saturday of each month, etc.)
8. About how many hours a week do you devote to this hobby?
9. Do you have any advice for someone contemplating becoming an amateur astronomer?

Thanks for your help. Please send the completed questionnaire to: Mary Ann Reese and Cathleen Duncan; Sunset Magazine; Menlo Park, CA 94025.

