

NOVAC

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President's Column

Brenda Clements Jones

Looking back over the past few months, it seems very funny. One of my concerns about Comet Hyakutake was that we might not get enough publicity about our comet parties at Crockett Park and we'd have hardly anyone show up!! As Comet Hyakutake got closer and closer publicity was definitely not a problem for us.

During the week of the comet's closest approach there was an article nearly every day in The Post, along with various other papers listing NOVAC's comet parties. My phone was ringing and ringing with calls from reporters and if you've had trouble getting our secretary, Bill Jensen, by phone lately it could be because his phone has totally melted down!

Our first comet party, Friday March 22, was under partly cloudy skies. We were able to catch some good views of the comet through holes in the clouds which kept many people at home that night. The staff at Crockett Park collected an entrance fee from 58 cars from the general public while they were set up at the entrance gate. It was a very pleasant, relaxed evening. The only excitement being the wonderful display of the comet stretching out overhead.

Our second comet party, Saturday March 23, was quite another story! When I arrived, an hour before the publicized starting time, there was already a big crowd. That night I think that the sight of the constant stream of cars just

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What's Up?

Al & Lynn Schumann

A Reecally Great Shew
Comet Hyakutake had an almost mesmerizing effect on us here in Williamsburg. And talk about luck. Just think, the brightest comet in decades was soaring in a high, looping, northerly orbit, ideally placed for observation. All too frequently something screws up the works, like maybe a week long Nor'easter -- or the Moon just approaching full. Not this time. We hit the jackpot with Comet Hyakutake! We saved our strength for the seven day period surrounding Hyakutake's closest approach to Earth. During that week we lost only one night to cloudy weather. For most of the remaining time the conditions were superb.

The First Look

We first saw the comet on the night of March 19/20 when it was still in Virgo. Around midnight, we walked out of a brightly lit house, looked towards Spica, and Whamo, there was Hyakutake! The comet was so big and bright it took no dark adaptation at all to see it. Our little Edmund Astroscan and our trusty Canon FT camera were pressed into service straight away. The nucleus of the comet was star bright, and the coma was enormous. At that time the tail was not all that distinct. The comet just seemed to be a bit more blunt on one end. It took some averted imagination to make out the suggestion of a tail. The camera was already loaded with Kodak Royal Gold, ISO 1000 print film, and we were prepared to

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Upcoming NOVAC Meetings at the Arlington Planetarium

May 15, 1996	Nov. 20, 1996
June 19, 1996	Dec. 18, 1996
July 17, 1996	
August 21, 1996	See page 4 for meeting topics.
Sept. 18, 1996	
October 16, 1996	

President's Column

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pouring into the park was nearly as awe inspiring as the sight of the comet overhead. I'm very thankful that we had such an excellent cloudless night for the public to come out and see the comet!

Everyone has been most anxious to hear the park's count of cars. For Saturday night's comet party, there were 395 cars from the general public that came through while the park was set up to take entrance fees. However they were only set up for a portion of the evening and the cars kept pouring in until the wee hours of Sunday morning. It has been estimated that we had around 2,500 people out to see Comet Hyakutake on Saturday March 23!

I want to thank all of you for helping out with this special event. There were so many who helped with parking, and helped entertain the troops with their telescopes and binoculars. All of you couldn't hear the many thanks, but as many, many people were leaving the park they were thanking us profusely for being at Crockett to show them the comet! There were even a couple NOVAC members who told me that this event has made them proud to be members of the club!

Astronomy Day last Saturday April 20th wasn't so fortunate weatherwise. We had quite a lot of clouds! I want to thank those of you who came out despite the clouds to help out. It was fun evening even though we didn't get to see the comet again.

Things coming up: May 15 meeting - Andrew LePage - SETI; June 15 - NOVAC picnic at Crockett Park - 2:30 til ?? We have a picnic shelter reserved - bring your family out to enjoy the park -bring along a picnic dinner and stay for observing!! June 19 meeting - NOVAC Annual Swap Meet - dig out those extra eye-pieces that have been gathering dust! See if you can find a buyer and something to take back home!! Do you have a folding table? Bring it along, it might be helpful for displaying things! I hope I'll see you out observing or at the next meeting!

Keep looking up!!

Brenda

Meade Dobsonian for Sale

Meade 12 1/2" Dobsonian,
1 1/2 years old,
8x50 mm Finder.

Like new
\$690.00

Contact Howard J. Marcus (703) 481-0074.

Kalmbach Book Orders

Nicole Mastej

The next order period for books will be July 17-August 1. Books will be delivered at the August 21 meeting. To place an order please call Nicole Mastej at (703)476-1207 or email your

order to nmastej@b-r.com. All books in the Kalmbach catalog are discounted 20% and there is no shipping fee.

Catalogs are available at the NOVAC monthly meetings. Checks should be made out to NOVAC and sent to Nicole Mastej 2241 Lovedale Lane, Unit J, Reston, Virginia 22091. □

What's Up?

(Continued from page 1)

shoot a roll of film each night for the next week. (Interestingly, the first pictures we shot of Comet Hyakutake came ten years to the day since we nearly froze our buns off on the Skyline Drive while observing and photographing Comet Halley.) On the night of March 22/23 the tail started showing its stuff. It seemed to explode into prominence in a little more than a day. From that point on, the 1 power eyeball became the best optical device for viewing the entire comet. Even at 16x, the Astroscan was too much telescope for the job. It was fine for enjoying the beauty of the coma and nucleus, but that was it. To the unaided eye, the tail was clearly visible out to about 15 to 20 degrees. And this was right in Williamsburg.

Closest Approach

Comet Hyakutake came nearest to Earth on the night of March 23/24. We joined some of our new colleagues from the Skywatchers Astronomy Club at an overlook on the Colonial Parkway along the James River. The skies are quite dark out there, although there are a number of annoying high pressure sodium lights about a mile away across the river. It's kinda like looking towards the airport from Crockett Park. Also, you have to turn away from the headlights of the occasional passing car. Even so, the skies along the Parkway are far darker than they are at the Skywatchers' observatory at NASA, Langley. The Moon was a couple days from first quarter, and it tended to wash out the southwestern horizon. But, the Moon was at our backs, and the comet was a marvelous sight just off the handle of the Big Dipper. The tail was at least "four fists" long to us, which would make it about 20 degrees. Most of the younger folks could follow the tail out even further. It was a splendid sight. Quite a crowd of people stopped by to take a look and ask questions about the comet and the sky in general. In addition to the 4 inch Astroscan, we brought along our 13 inch Dobsonian. All you could see in the big Dob was a very bright nucleus and the humongous coma, so we had a grand time using it to take people on a tour of the heavens. Along with the comet, everyone had a chance to see the Moon, half a dozen galaxies, the Orion Nebula, the beautiful open clusters in Auriga, the "Beehive", and the

bright globular cluster, M-3. The OOOHs and AAAHs are always very satisfying.

The Last was the Best

The night of March 26/27 was the one we were really waiting for. The comet had already made its closest approach to Earth, but it had yet to loop over Polaris. Early on, we had some low clouds to contend with, but over the course of the night we watched the comet go from about the 2 o'clock position relative to the north star counterclockwise around Polaris to the 7 o'clock position. Between 3 and 4 a.m. we got our best pictures -- right from the street in front of our house. The aforementioned Canon had a 50mm f-1.2 lens. It was mounted on a sturdy tripod, and we used a cable release. We also used the old hat trick. Hold a hat over the lens, open the shutter with the cable release, wait a few seconds for vibrations to dampen out, and quickly remove the hat while starting the timing. At the end of the exposure, slip the hat back over the lens and close the shutter. Our exposures ran the gamut from 20 seconds to eight minutes. For this comet, four to five minutes worked best.

Overview

That was about it for us. The Moon became more of a nuisance at the end of March. Also, the comet was moving ever lower in the sky, which gave us a serious tree problem. For many years Comet Halley was our benchmark for bright comets. We had observed so many piddling little comets since Halley that we had despaired of ever seeing a great one. We never saw Comet West. However, it is hard to imagine that it could have been more impressive than Hyakutake. After that horrible winter we all endured it was certainly a treat to get the telescopes out again for something really good. Somehow, we feel rejuvenated. We have a new benchmark, whole new standard of measurement. We have finally seen a great comet. Now if Comet Hale-Bopp lives up to its expectations, this will be a year to remember. We're psyched!

[Ed. note: the Schumanns enclosed a beautiful color print of the comet along with the above copy. I regret that we cannot reproduce it here. I will bring it to the next meeting for "Show and Tell"] □

Sky Sweep

Kevin B. Jones

This issue's telescopic tour starts in the constellation Hercules, just rising in the east as the sky darkens in early May but high overhead in late evening by June. After locating the distinctive "Keystone" asterism of Hercules, composed of the stars Epsilon, Zeta, Eta, and Pi Herculis, try to pick out the bright globular cluster M13 without optical aid. M13 is located along the west side of the Keystone, about a third of the way from Eta (the northern star on the west side of the Keystone) to Zeta (the southern star on the west side). This cluster, also called the Hercules Cluster, glows between fifth and sixth magnitudes, and can be seen with the naked eye under good dark skies. M13 can be readily resolved into individual stars by most telescopes, since the brightest of its component stars are eleventh magnitude. If you are observing M13 with a fairly large telescope, the small spiral galaxy NGC 6207 can be glimpsed in the field. The galaxy is roughly half a degree northeast of M13, and is directly north of one of the two seventh magnitude stars which flank M13.

In the southern part of Hercules, a tiny but bright planetary nebula can be found. NGC 6210 can be found about a third of the way along a line from Beta to Delta Herculis, or at about where lines drawn through the east and west sides of the Keystone would intersect. This tenth magnitude planetary can be resolved into a vaguely blue disk at high power, and the thirteenth magnitude central star can be seen shining at its center in large telescopes.

Another big, bright globular cluster is situated in northern Hercules, about six degrees north of the star Pi Herculis, the northeast star in the Keystone. This seventh magnitude cluster, M92, is very impressive through the eyepiece. Its location in the sky near the even brighter M13 results in M92 often being overlooked. M92 is approximately one-third the angular size of M13, and is slightly more difficult to resolve into stars.

Adjoining Hercules to the east is the tiny constellation Lyra, the Lyre. Lyra contains several deep-sky objects of interest within its tight boundaries. The first of these, as well as the easiest to locate, is Epsilon Lyrae, also called the "Double Double." Epsilon is a third magnitude star found about two degrees east-northeast of brilliant Vega. This star system appears to be a single star to most people's naked eyes, but when viewed through binoculars it resolves into two distinct stars. When this stellar pair is seen through a telescope at high power, each of the two stars resolve again into pairs, giving this multiple-star system four visible components.

Messier Marathon Results Request

Jon Stewart-Taylor

If you managed to do some or all of a Messier Marathon this year please send me the date and your total. I'm accepting results via e-mail (jstewart@telenet.com), telephone ((703) 689-6726), or in person at the meetings. □

Centered around the star Delta Lyrae (the northeast corner of Lyra's parallelogram asterism) is the large, scattered open cluster Stephenson 1. This aggregate of stars is best appreciated through binoculars or a finderscope, as it is over a degree across and is only sparsely populated with stars. In the field of this cluster is a nice example of stellar color contrast: a bluish star situated near a golden one. The colors are similar to those of the famous colorful double star Albireo, the nose of Cygnus, the Swan. The Ring Nebula, M57, is located essentially in the middle of the south side of Lyra's parallelogram. As planetary nebulae go, M57 is rather large in angular size. It can easily be resolved into a grayish "Cheerio" or smoke ring through most telescopes. Don't expect to see a central star here, however. Although the ring itself is ninth magnitude, the central star is fifteenth magnitude, beyond the range of the telescopes of most amateurs.

The final object on this celestial tour is in southeast Lyra, near the Cygnus border. The globular cluster M56 shines here at eighth magnitude. The brightest eleventh magnitude stars on the fringes of this cluster can easily be resolved through the telescope, although the central mass may remain simply a blur of light.

That's it for this issue's tour of the heavens. Don't stop now, though-there's plenty more up there to see! The warm late spring evenings of May and June are some of the best of the year for stargazing: the chill of winter is long gone, and the star-obscuring haze and oppressive humidity of summer have yet to arrive in force. Clear skies!

{Ed. note: Kevin writes:

"... I'm thinking about making my July/August column the last Sky Sweep. I don't intend to stop writing for the newsletter, but 1) after eight years I'm getting a little burned out on Sky Sweep, and 2) I'll be heading up to Brown in RI for grad school and I don't know what my free time situation will be like at this point! I'll probably keep writing because I enjoy it, but probably not a regular column..."

And just when my deep sky telescope is due to arrive! Ed.] □

Re: E-Mail Membership Directory

Corrections and additions:

Elliott Fein. edfein@cpcug.org
Ray Fobes grf1@dgs.dgsys.com
Robert Owen raowen@ahoy.net

Girl Scouts Need Volunteers

To: novac@his.com

Hello!

I have received three requests for volunteer astronomers from the Girl Scouts.

These have come through Dan Costanzo of the National Capital Astronomers.

The first is from Pat Fowler, 301-656-6816, who is planning a program called "Keepers of the Night" on May 18 at Little Bennet Regional Park near Clarksburg, MD. Around 150 girls are expected, from 2nd to 8th grade.

She asks for people with telescopes, though I myself always push binoculars. [I think that's how I got my name in the Wash. Post; unasked, I put my binoculars around the reporter's neck and made her look at the comet.]

While I was at the NOVAC meeting, another request was left on my answering machine: Abby Lutz, 703-644-6724, is planning a week-end camp at Pohick Bay, which is down Route 1. [It used to be the Camp Wilson Boy Scout camp.] The dates are May 3rd and 4th, a Friday and Saturday. Between 40 and 50 girls are expected. Telescopes and binoculars are also desired.

The third is for this summer: The local Girl Scout council is planning three week-long camps focussing on nocturnal activities, called "Moonbeam Mania." This is the first year they will be doing this. The dates (that is, the nights) are June 23 through 28, July 28 through August 2, and August 4 through 9. The camp is near Leesburg, and around 30 girls (new 4th-graders, I think) will be participating each time. My concept is to go out at least two nights, the first time without a telescope, concentrating on star lore. The second time would be with the scope. I will be able to do the first and last, but I would like company/help. Please call me, John Stewart, 202-667-1186 at home or 703-787-2149 at Xerox, to coordinate this.

Clear skies!

John Stewart □

Upcoming NOVAC meeting presentations

Doug Jackson

May 15, 1996

I am pleased to announce that Andrew LePage will be with us to give a presentation on "The Top 100 SETI Targets".

Andrew LePage is a physicist at a small R&D company in the Boston, Massachusetts area involved in space science image and optical data analysis. As a freelance writer, he has written many articles on astronomy and the history of spaceflight that have been published in magazines throughout North America and Europe. He is currently active in independent research on a variety of topics ranging from space industrialization to SETI. Andrew is a member of the Editorial Board of SETIQUEST magazine and is the President of the Boston Chapter of the National Space Society.

June 19, 1996

NOVAC Annual Swap Meet.

This is the night to come see, try, buy, trade, swap and sell astronomical equipment. You are encouraged to bring items which, perhaps, you wish to sell or trade. If you don't have anything to sell or trade come anyway and see wonderful gizmos used in the pursuit of the worlds oldest science, Astronomy.

Doug Jackson

Vice President

Northern Virginia Astronomy Club

Samplings of E-mail from the NOVAC List Server

From: jstewart@tclenet.com (Jon Stewart-Taylor)

Subject: Astrophotography Readiness Evaluation

So, you want to do Astrophotography? Here's a quick easy test to see if you have what it takes.

Materials:

- o 1 sheet black construction paper
- o 1 piece white chalk
- o Kitchen timer
- o 1 cardboard tube from a roll of toilet paper

Procedure:

- 1) Using the chalk, make the smallest possible white dot on the paper.
- 2) Set the timer for 20 minutes
- 3) Looking through the tube, center the dot in

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Comet Hyakutake from Florida

Bill Burton

Last fall Laurel and I and our two young children decided to join Illinois family members of mine at their annual winter vacation spot in Florida: two condos in a high-rise at Fort Myers Beach, in the southwestern corner of the peninsula. We picked the period March 19-29--not knowing at the time, of course, that this period would coincide with the flyby of one of the century's great comets!

When it became clear what was going to transpire, I got out my Sky and Telescope directory and made phone calls to members of the Southwest Florida Astronomy Club in Fort Myers and the Everglades Astronomical Society in Naples, seeking out dark-sky sites and potential star parties.

They put me in touch with the Fort Myers Childrens Museum, which would be hosting a star party during my visit. Everyone was friendly and cooperative, and the Naples club generously offered me use of their observing site in the Everglades any time. To the normal-sized birding binoculars on our packing list was added the behemoth 20x100's and their tripod. For our destination I had pictured a miniature Miami Beach, but was pleasantly surprised upon our arrival to find that the area was relatively undeveloped by South Florida standards. Our high rise was at the south end of Estero Island and looked south across the channel towards a state park and nature preserve. Naples was 20 miles to the south and Fort Myers 15 miles north. A short walk up the beach brought one to a miniature barrier island that harbored dunes, a lagoon, and a wide variety of shore birds.

Brown pelicans coasted effortlessly over the waves, underneath which lay a tantalizing variety of seashells. Dolphins raced around in the shallows of the channel, chasing fish. An hour after arriving it was clear that I would have to assume two identities: naturalist by day, astronomer by night.

In the beginning we had to contend with some un-Florida like windy weather, with gusts up to 30 miles an hour that blew sand into our third-story screened-in balcony. But it was sunny, and the wind-whipped waves combined with a new moon to create really high tides and some great shelling. Plastic bags swinging alongside the bare legs of adults and children quickly filled. Poolside, in the shelter of the building, square meters of exposed skin continued to darken.

Due to relentlessly poor weather farther up the coast I had not seen the comet in five days. The first night a pattern was established that would

hold for the next week: I went to bed shortly after the kids were tucked in, around 9 o'clock, and fell into a deep slumber, exhausted by the day's activities. Suddenly, my eyes popped open and, glancing at the bedside clock, noted that it was 12:45, early morning of the 20th. No more sleep for me--I was in the throes of comet fever! Dressing quickly, I slipped the backpack containing the 20x100 binoculars over my shoulders, picked up the tripod and the 10x40's, and headed out the door.

Our six-story condo complex mercifully had very subdued lighting on its ocean side. The total skyglow was perhaps just a little worse than Crockett, with a limiting magnitude overhead of perhaps 5.5, although I never measured it. What was sacrificed in the way of darkness was of course compensated by convenience and comfort: an hours' drive was replaced by a stroll on the beach. Several light layers of clothing and regular shoes kept one comfortable outside for hours. That first night I had hoped to establish an observing site up on the mini-barrier island, but in the face of the steady sand-blasting westerlies decided instead to just go down to the water. Ducking down behind a ledge in the sand, as if into a foxhole, I looked up. Pale white cumuli raced across the sky, separated by inky, starry blackness. Then a large hole moved over a certain spot, I raised my binoculars, and gasped. Is that the same comet as the faint little flower I beheld back in Virginia five days ago? It had increased in size and brightness almost fivefold! That brilliant, tiny white spot staring at me through the white shroud of the coma was clearly the eye of a monster comet. A stubby but distinct tail extended out several degrees. Suddenly I had a familiar feeling: almost exactly 10 years before I had been on a tropical beach in the Virgin Islands, staring at a similar eye in the huge white head of Comet Halley as it, too, passed by Earth. I made a sketch of Comet Hyakutake in the same notebook in which I had sketched Halley a decade ago, and went back to bed.

The next bleary-eyed morning (first of many) I joined my family shelling in the nature preserve across the channel and then returned to the condo and scribbled out a comet report over lunch. The rest of the East coast was clouded out, and some correspondence was in order. Going down to the corner grocery, I faxed the report to a colleague at work who then e-mailed it to the NOVAC list. That duty done, it was back to the pool for some R and R. The next night (early AM of the 21st) windy conditions again produced fast-moving cumulus clouds with clear holes between. Back in my foxhole 10x40 binoculars revealed a large round coma cored by a small bright inner coma. I saw more distinct structure in the tail that night than on any other night. A thin

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Comet Hyakutake

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plasma tail extending west at least five degrees was flanked asymmetrically by two short dusty spikes fanning out at an angle of 30 degrees from the coma. The abundance of clouds prevented a magnitude estimate, but the comet was obviously brighter and closer.

An airboat ride in the Everglades, alligator "hunting" along the Tamiami Highway, bird watching in Big Cypress, and the swing sleep shift. I got up before 3 the next morning to see the launch of the space shuttle, but was thwarted by clouds. Tiny sucker holes told me that the situation wasn't hopeless for comet-viewing, however, and since the wind had finally abated I decided to hike up to the barrier island. In the darkness the soft swish of the waves on the beach was interrupted periodically by the startled cry of a shorebird, awakening at my approach. Just before dawn the skies cleared, and I got a good view of the comet with a 15-degree tail, shining at magnitude 1 or so. Interestingly, the eye of the inner coma was no longer round but elongate, in a tailward direction.

The next night (22nd-23rd) was a memorable one, for the skies finally cleared and I could see Comet Hyakutake in all its glory against a proper celestial backdrop. The comet was as bright as Spica and had a tail nearly 20 degrees long. My clumsy pencil sketches did not do justice to the incredibly delicate diffusiveness of the coma and tail. The inner coma was now distinctly teardrop-shaped in both 10x40 and 20x100 binoculars. Faint short dusty tails fanning out from the head of the comet contrasted with the long main plasma and dust tail which gradually broadened outward. In an hour, using background stars as a reference, I recorded a proper motion of 40 minutes of arc northward for the inner coma.

On a glorious night like this, even with a great comet in the sky one has to eventually look elsewhere. I turned, and in the darkness to the south over the Gulf stood the Southern Cross, dabbling its foot in the water. The 20x100's swung around and began searching for deep-sky objects in the southern hemisphere. The great globular cluster Omega Centauri floated 20 to 30 degrees above the horizon and was resolvable, as was the dust lane in the galaxy Centaurus A above it. Farther east and south were globulars in Lupus (NGC 5986) and Ara (6397) and a pair of pretty open clusters in Norma (6067 and 6087). I was struck by the three-dimensional beauty of the open cluster NGC 6231 in the tail of Scorpius, which I had never appreciated before. Finally the great star-clouds of the Sagittarian Milky Way hove into view, and it was dawn.

No rest for the weary, for Saturday was scheduled for Busch Gardens, a three-hour drive north. I managed to nap in the car on the way home that night and could feel the old comet strength returning around Fort Myers. Laurel and I nodded at each other and we steered the car towards the star party at the Childrens Science Center. Conditions were hazy with high clouds, and when we arrived the last visitors were leaving. But Director Nancy Glickman was still there, a tall dark-haired woman with dangling glow-in-the-dark earrings. She generously offered us the use of her 12 1/2-inch Newtonian, which was sitting on a large concrete viewing platform painted with spiral galaxies. Arrayed around the platform were wooden benches with reclined backs and footrests that offered one of the most comfortable views of the sky I have ever experienced. On this pleasant, warm evening the two nature programmers compared notes while I had my first telescopic glimpse of the inner coma through the haze, and exhausted children slept in the back seat of the car. Back at the beach conditions improved a bit and I observed that the inner coma was even more elongate, and measured an hourly proper motion of 58 minutes.

The next night was the big one, and clear skies had finally settled in over Florida. Remembering our club motto, I put up signs the next day at the elevators inviting everyone out on the beach to view the comet. That evening about 30 people put down their drinks long enough to come out and see Hyakutake through the giant binoculars in the northeast sky—not exactly a NOVAC-sized crowd, I realize, but hey, I did my part.

We all fondly remember our peak astronomical experiences, and later that night was certainly one of them for me. I hiked out to my observing site in the barrier dunes, set up the binoculars, and looked up. The comet was at its closest point to Earth, and rivaled Arcturus in brightness. A long thin tail stretched from north of the Big Dipper all the way south to Coma Berenices, an angular distance of over 40 degrees! In the 10x40's the coma was asymmetric with a stubby dust tail west of the main tail. Again I measured its proper motion over an hour: 1.5 degrees!

But the real climax came in the 20x100's: a brilliant, tiny, round inner coma sported bright jets in two directions—a blazing, long thin one that extended tailward and slowly merged into the main comet tail, and a broad, more diffuse, fan-shaped one that expanded headward towards the sun-facing parabolic front of the coma. Suddenly it became clear—this was the inner workings of a comet, and I could see it with my own eyes! Way down in there the nucleus was shooting gas and dust away from the sun in a stream to form the great long slender

tail, causing the elongation of the inner coma I had noted on earlier nights. On the opposite side the gas and dust sprayed out, slammed into the solar wind, and swept back to form the rounded head of the coma. Surely this was one of the clearest views of a comet coma the world has ever seen! I gazed at it a long, long time, with twin 4-inch objective lenses burning that image into my retina, until finally dawn came.

In the rosy light sandpipers and willets scurried back and forth along the waterline looking for food while terns and black skimmers roosted patiently on the beach, waiting for sunrise to start their day. In the dunes I could barely make out the scuttling little form of the piping plover, an endangered shorebird. It had come here to make its fragile nest in the sand, and in a couple of days my observing site would be fenced off as part of a protected nesting area. This morning I had a birding trip to Corkscrew Swamp Sanctuary with Laurel to look forward to. As I walked towards the rising sun my nighttime self receded, satiated, while my daytime self grew with anticipation. There, at the end of night and the water's edge, they balanced, and I was happy. □

Samplings

(Continued from page 4)

the field of view.

4) Keep the dot centered until the timer expires.

Evaluating your test results:

- o If you thought the whole idea was so stupid you wouldn't even try, forget Astrophotography. You haven't got what it takes.

- o If you did the test, but only lasted a minute or less, you should stick to lunar photography.

- o If you did the test, but you gave up before the timer expired, you're ready for planetary photography.

- o If the timer expired, and you were surprised that the test was over so soon, you're deep-sky material. Fame and fortune via the pages of the national astronomy mags await you.

From: bburton@resdgs2.er.usgs.gov (William C. Burton)

Subject: Project Orion in Sky and Telescope "Measuring the Night Sky", an article by Bill Burton and Pete Gural on the Project Orion light pollution experiment, will be in the June issue of Sky and Telescope, in the Amateur Astronomers department. Many thanks to all of you who contributed to Project Orion.

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Comet Hale-Bopp

Robert N. Bolster

From: "" <73257.507@compuserve.com>

To: NOVAC <novac@his.com>

This comet promises to be even brighter than Hyakutake. We must remember that the -1.7 magnitude predicted is an extrapolation, but the brightness so far has followed predictions quite well. Marsden sees similarities with the great comet of 1811 (IAU Circ. 6202). In any event, it should be interesting.

The comet's orbit is almost perpendicular to the ecliptic. It crossed the plane about 1996 February 27, and will be well north of it as it approaches perihelion. It then plunges south, crossing the ecliptic plane again about 1997 May 6, becoming unobservable from here by mid-1997.

There will be many opportunities to view the comet from this latitude:

1. In 1996 March it became visible in the morning in the southeast. The altitude increases as does the azimuth during April-June. It is observable earlier as the summer progresses, being in opposition to the Sun in early July. On July 4 the earth crosses the plane of the comet's orbit and the appearance of an anti-tail is possible. However, the tail will be greatly foreshortened (phase angle 3 degrees) at this time. The comet continues as an evening object into early December, moving lower and westward in Ophiuchus and Serpens. The phase angle increases to a maximum of 20 degrees at the end of September. At the end of this period it may become visible to the naked eye.

2. In 1997 January it should be a naked-eye object in the morning in the east in Aquila, rising higher each day as it brightens to zero magnitude in mid-February in Vulpecula. It will reach an altitude of about 30 deg. and then descends, moving to the northeast as it reaches its closest approach to the earth about March 22 in northern Andromeda, and greatest brightness very low in the last week in March.

3. Thanks to its high declination (+46 at closest approach) it can also be seen in the evening in the northwest from early March on. After March 21 the altitude in the evening is higher than in the morning, and it will be above 20 deg. at maximum brightness. The Moon, full on the evening of the 23rd, also interferes less in the evening on the following days. During the brightest period (March 22 to April 3) the comet will be 20-25 degrees above the horizon in the northwest in Andromeda at nautical twilight. After perihelion (April 1) the comet will remain at a good altitude into May, moving lower and to the WNW in Perseus and Taurus.

The tail of this comet probably will not be as long as was that of Hyakutake. It will not come as close, and the phase angle will reach a maximum of 50 degrees. The apparent length of the ion tail cannot exceed that angle, even if it is infinitely long. The dust tail may be bright in March and April. The coma or "head" should be easier to see in light-polluted skies than Hyakutake's, as it will be brighter and probably more condensed due to its much greater distance.

The ephemeris below, based on Marsden's elements from MPC 26723, covers the apparition from the present on. The positions are for the beginning of morning or end of evening twilight, or at midnight near opposition. Near perihelion, where the comet may be bright, nautical twilight rather than astronomical is used. The horizon coordinates are for Hopewell Observatory. Errors will increase as the difference in an observer's latitude from 39 deg. increases. Longitude differences can be approximately corrected by adding 4 minutes to the UT for each degree west of -77.7. For Washington, subtract 3 minutes.

Time conversion, hours:

UT	EDT	EST	
0	20	19	Subtract 1 from date
1	21	20	
2	22	21	

5	1	0	Note that date is for after midnight
7	3	2	
8	4	3	
9	5	4	
10	6	5	
11	7	6	

23	19	18	

Terms:

R.A., Dec.: Right ascension and declination, J2000.0.
 Delta, r: Distance of comet from Earth and Sun, in A.U.
 SUN Elong: Angular distance from the Sun.
 h, Az: Altitude above the horizon, azimuth from north toward east.
 ml: Predicted brightness - can be considerably in error.

Elements:

Epoch of Perihelion: 1997 4 1.12081 Lat. 38.870
 Arg. of Perihelion: 130.58985 Long. -77.699
 Long. of Asc. Node: 282.47097
 Inclination: 89.42765 Elements by B. Marsden, IAUC-BAT
 Perihelion Dist. .914116 A.U. Epoch: 1997-5-13
 Eccentricity: .9951019
 Period: 2549.532 yr.
 a: 186.62665
 n0: 0.000387

Morning, Sun at -18 degrees (astronomical twilight).

1996 UNIV.				SUN				COMET				MOON			
Date	Time	R.A.	Dec.	Delta	r	Elong	h	Az	ml	h	Az	h	Az		
4 21	8 49	19 45.1	-18 6	4.424	4.649	97	26	146	7.9						
4 24	8 43	19 44.9	-17 52	4.344	4.619	100	27	147	7.9						
4 27	8 38	19 44.6	-17 38	4.265	4.589	103	27	149	7.8						
4 30	8 33	19 44.2	-17 24	4.185	4.559	105	28	151	7.7	-0	268				
5 3	8 28	19 43.5	-17 10	4.107	4.528	108	29	152	7.7	19	233				
5 6	8 24	19 42.8	-16 55	4.029	4.498	111	30	154	7.6	32	190				
5 9	8 19	19 41.8	-16 40	3.952	4.467	115	31	156	7.5	29	142				
5 12	8 15	19 40.7	-16 26	3.877	4.437	118	32	159	7.5	12	102				
5 15	8 11	19 39.4	-16 11	3.802	4.406	121	33	161	7.4	-8	70				
5 18	8 7	19 37.9	-15 56	3.729	4.375	124	34	164	7.3						
5 21	8 3	19 36.2	-15 40	3.658	4.345	127	34	166	7.2						
5 24	7 60	19 34.3	-15 25	3.588	4.314	130	35	169	7.2						
5 27	7 57	19 32.2	-15 9	3.520	4.283	134	36	172	7.1						
5 30	7 54	19 30.0	-14 53	3.454	4.252	137	36	176	7.0	4	252				
6 2	7 52	19 27.5	-14 37	3.391	4.220	140	37	179	6.9	25	215				
6 5	7 50	19 24.8	-14 21	3.329	4.189	144	37	183	6.9	36	168				

At local midnight.

1996 UNIV.				SUN				COMET				MOON			
Date	Time	R.A.	Dec.	Delta	r	Elong	h	Az	ml	h	Az	h	Az		
6 5	5 8	19 24.9	-14 21	3.331	4.190	143	26	138	6.9	19	129				
6 8	5 8	19 22.1	-14 5	3.272	4.159	147	28	142	6.8	-1	94				
6 11	5 8	19 19.0	-13 48	3.216	4.128	150	30	145	6.7						
6 14	5 8	19 15.8	-13 31	3.162	4.096	153	32	149	6.7						

6 17	5 8	19 12.4	-13 14	3.111	4.064	157	34	153	6.6	9 21	0 40	17 30.4	-5 29	2.934	3.003	84	38	219	5.2	31	198
6 20	5 8	19 8.8	-12 57	3.063	4.033	160	35	157	6.5	9 24	0 35	17 30.0	-5 20	2.950	2.968	81	37	221	5.1	34	149
6 23	5 8	19 5.1	-12 39	3.018	4.001	163	37	161	6.5	9 27	0 30	17 29.7	-5 11	2.965	2.933	78	36	223	5.1	19	104
6 26	5 8	19 1.2	-12 22	2.977	3.969	166	38	166	6.4	9 30	0 25	17 29.7	-5 3	2.979	2.898	76	35	225	5.0	-3	70
6 29	5 8	18 57.2	-12 4	2.938	3.937	168	39	171	6.3	10 3	0 20	17 29.8	-4 54	2.993	2.863	73	35	226	5.0		
7 2	5 8	18 53.1	-11 46	2.903	3.905	169	39	176	6.3	10 6	0 15	17 30.1	-4 45	3.005	2.827	70	34	228	4.9		
7 5	5 8	18 48.8	-11 28	2.871	3.873	168	40	181	6.2	10 9	0 11	17 30.6	-4 36	3.016	2.792	68	33	230	4.9		
7 8	5 8	18 44.6	-11 10	2.843	3.841	167	40	186	6.2	10 12	0 6	17 31.3	-4 28	3.026	2.756	65	32	232	4.9		
7 11	5 8	18 40.2	-10 52	2.818	3.808	165	40	191	6.1	10 15	0 2	17 32.1	-4 18	3.035	2.720	62	31	233	4.8	1	251
7 14	5 8	18 35.9	-10 34	2.796	3.776	162	39	196	6.0	10 18	0 0	17 33.1	-4 9	3.042	2.684	60	30	236	4.7	23	219
7 17	5 8	18 31.5	-10 17	2.778	3.743	159	38	201	6.0	10 21	23 53	17 34.7	-3 56	3.049	2.636	57	29	237	4.7	39	156
										10 24	23 49	17 36.0	-3 45	3.052	2.600	54	28	239	4.6	28	109
										10 27	23 45	17 37.6	-3 35	3.053	2.564	52	27	240	4.6	5	75
										10 30	23 42	17 39.2	-3 23	3.052	2.528	50	26	242	4.5		

Evening, Sun at -18 degrees.

1996 UNIV.

Date	Time	R.A.	Dec.	Delta	r	Elong	h	Az	m1	h	Az
7 20	2 24	18 27.3	-9 60	2.763	3.712	155	38	154	5.9	2	273
7 23	2 20	18 23.0	-9 42	2.751	3.679	152	39	158	5.9	20	242
7 26	2 17	18 18.8	-9 25	2.742	3.646	148	40	162	5.9	32	201
7 29	2 13	18 14.6	-9 9	2.736	3.614	145	41	165	5.8	29	152
8 1	2 8	18 10.6	-8 53	2.733	3.581	141	42	169	5.8	11	110
8 4	2 4	18 6.7	-8 37	2.733	3.547	137	42	173	5.7		
8 7	1 59	18 2.9	-8 21	2.735	3.514	134	43	176	5.7		
8 10	1 54	17 59.3	-8 7	2.739	3.481	130	43	180	5.6		
8 13	1 49	17 55.9	-7 52	2.746	3.447	127	43	183	5.6		
8 16	1 44	17 52.6	-7 38	2.754	3.414	123	43	187	5.6		
8 19	1 39	17 49.6	-7 25	2.764	3.380	120	43	190	5.5	6	256
8 22	1 34	17 46.8	-7 12	2.776	3.347	116	43	193	5.5	24	222
8 25	1 28	17 44.1	-6 60	2.789	3.313	113	43	196	5.5	33	177
8 28	1 23	17 41.7	-6 48	2.803	3.279	109	42	199	5.4	25	128
8 31	1 17	17 39.6	-6 37	2.818	3.245	106	42	202	5.4	4	89
9 3	1 12	17 37.6	-6 26	2.834	3.211	103	42	205	5.4		
9 6	1 7	17 35.9	-6 16	2.850	3.176	100	41	207	5.3		
9 9	1 1	17 34.3	-6 6	2.867	3.142	96	40	210	5.3		
9 12	0 56	17 33.0	-5 56	2.884	3.108	93	40	212	5.3		
9 15	0 50	17 32.0	-5 47	2.901	3.073	90	39	215	5.2	-7	268
9 18	0 45	17 31.1	-5 37	2.918	3.038	87	38	217	5.2	14	237

Morning, Sun at -18 degrees.

1997 UNIV.

Date	Time	R.A.	Dec.	Delta	r	Elong	h	Az	m1	h	Az
11 2	23 39	17 41.0	-3 11	3.050	2.491	48	25	243	4.4		
11 5	23 37	17 42.9	-2 58	3.046	2.454	45	24	245	4.4		
11 8	23 34	17 45.0	-2 45	3.039	2.418	43	22	246	4.3		
11 11	23 32	17 47.2	-2 31	3.030	2.381	41	21	248	4.2	-8	256
11 14	23 30	17 49.6	-2 16	3.020	2.344	40	20	250	4.1	19	227
11 17	23 28	17 52.0	-1 60	3.007	2.307	38	19	251	4.1	41	187
11 20	23 27	17 54.6	-1 42	2.992	2.269	36	18	253	4.0	43	133
11 23	23 26	17 57.3	-1 24	2.974	2.232	35	16	254	3.9	25	92
11 26	23 25	18 0.1	-1 5	2.955	2.195	33	15	256	3.8	-1	65
11 29	23 24	18 3.1	-0 44	2.933	2.157	32	14	258	3.7		
12 2	23 24	18 6.2	-0 22	2.909	2.119	31	12	259	3.6		
12 5	23 24	18 9.4	+0 2	2.882	2.082	29	11	261	3.5		
12 8	23 24	18 12.7	+0 27	2.854	2.044	29	9	263	3.4		
12 11	23 25	18 16.1	+0 54	2.823	2.006	28	8	265	3.3	-2	248
12 14	23 26	18 19.7	+1 23	2.790	1.968	27	7	266	3.2	30	221
12 17	23 27	18 23.4	+1 53	2.754	1.930	27	5	268	3.1	53	176
12 20	23 28	18 27.2	+2 26	2.717	1.892	27	4	270	3.0	47	117

[Ed.:To be continued in a later issue]

NOVAC File Service

From jstewart@telenet.com

Subject: Re: New NOVAC File Service Available.

A number of files containing information about or from NOVAC are available by E-mail. The files are loosely grouped into 3 categories: NOVAC information, Astro information, and "Miscellaneous".

Files Containing Information About NOVAC

File Name	Contents
astro_day	Astronomy Day Star Party: You're invited!
about_novac	Jon's description of NOVAC.
application	NOVAC membership application: print, fill in, mail.
crockett	Schedule and observing rules, C. M. Crockett Park.
crockett_directions	Directions to C. M. Crockett Park.
dinner_info	Come to the Santa Fe Cafe before the meeting.
fan_mountain_tours	Information re: UVA's Fan Mountain Observatory
help	Synonym for index
index	This file also available as info and help.
info	Synonym for index.
novac_calendar	A calendar of NOVAC events.
novac_info	Information about NOVAC.

parsells Schedule and observing rules, Parsells Field.
savage Schedule and observing rules, Savage.

Files Containing Astro Info

File Name	Contents
astro_calendar	Calendar of astronomical events.
astro_history	Significant dates in Astronomical History.
galilean_moon	Jeff's Galilean moon event calendar.
limiting_magnitude	How to determine limiting magnitude.
messier_marathon_long	Long version of the Messier Marathon search order.
mir_info	The most recent version of Jeff's Mir message.
mm_checklist	A one-page Messier Marathon checklist.

Files Containing "Miscellaneous" Astro-related Info

File Name	Contents
astrophoto_ready	Astrophotography Readiness Evaluation
first_telescope	Thinking about buying your first telescope

[Ed.:To be continued in a later issue]

Minutes of the March and April General Meetings

Minutes of the March 20, 1996 General Meeting of the Northern Virginia Astronomy Club.

The meeting was called to order at 7:30 PM by Club President Brenda Clements Jones. She welcomed 79 members and guests to the meeting held at the Arlington Planetarium.

Announcements:

1. Brent Archinal presented slides showing the path of Comet Hyakutake. He noted that the comet had been discovered on January 30, 1996 - the second comet discovery by Mr. Hyakutake in less than a month. The comet was expected to reach naked eye visibility as it approached close to earth on March 25. Brent explained that it should remain visible through March and April.

2. Brenda Jones introduced Steve Kuster, who with Marta Krause also handles the library duties.

3. Brenda Jones reminded club members that the Kalmbach Publishing discount program was being coordinated by Nicole Mastej, giving club members an opportunity for a 20% discount on astronomy related books.

4. Brenda Jones announced that the Washington Post reporter Joel Ascendance would be interviewing club members concerning their reasons for interest in amateur astronomy.

5. Brenda Jones distributed sign up sheets to assist with parking for the public comet observation nights, and flyers for Astronomy Day on April 20, 1996.

6. Brenda Jones announced that Astronomy Magazine had requested pictures of astronomy clubs in action.

Officers Reports:

Vice President Doug Jackson noted that Drew LePage was scheduled to make a presentation concerning SETI at the May 1996 meeting.

Bill Jensen noted that he had sent press releases to all the local TV stations, The Washington Post, and several radio stations for the public comet observation on March 22nd and March 23rd.

Ken Pettijohn reported that due to his press of business during the April 15th tax season, he would appreciate any club related dues payments or subscription renewals to be sent prior to April 1, 1996 for prompt handling. He also reported that in his opinion, club dues were not tax deductible as charitable donations, nor were BBS related contributions.

New Business. It was announced that the club may receive a donated World Wide Web site.

Observing Report:

Jeff Stetekluh gave the observing report for March, and Sandy Sanders conducted the sky

tour using the planetarium projector.

Show and Tell

1. Ron Ferris, immediate past vice president, presented Bob L'Hommiedieu with a plaque and a gift certificate for his service as club president.

2. Jon Stewart-Taylor noted he had made copies of the bibliography of books discussed at the "Starting Astronomy Right" presentation. He also noted the change in the e-mail service.

Question and Answers

Members discussed the use of a film canister for collimation of telescope optics, and how such alignment is necessary for peak optical performance.

March Program

Pete Gural presented a program titled "Getting Started in Meteor Observing." Mr. Gural explained the nature of meteors. He noted that most penetrate to an altitude of 80 kilometers. Some explode at lower altitudes, being described as bolides. If one actually hits the ground, it is called a meteorite. Mr. Gural also described the history of meteor observing and the origins of meteoroids, including cometary dust, asteroidal collisions, and interstellar dust. He highlighted meteor observation techniques and gave a summary of the eight major meteor showers. Although some people use sophisticated equipment, one only needs the naked eye to observe meteors.

The meeting adjourned at 9:22 PM.

Respectfully submitted,

Bill Jensen

Secretary

Minutes of the April 17, 1996 General Meeting of the Northern Virginia Astronomy Club.

The meeting was called to order at 7:30 PM by Club President Brenda Clements Jones. She welcomed 78 members and guests to the meeting held at the Arlington Planetarium.

Announcements:

1. Brenda Jones thanked all who assisted in the club's two public comet observation parties held at C.M. Crockett Park. She noted that the park counted 58 cars entering on March 22, and 395 cars on March 23. She also noted that using these estimates, over 1,350 people viewed the comet through the parties. She also noted that the park did not begin counting cars prior to 8 PM, and stopped well before midnight, yet many people arrived before and after those times, so the park estimates were less than the actual attendance. Some estimated

that over 2,000 people attended. All who did saw the comet with a tail extending over 35 degrees, as visible from that site.

2. Brenda Jones advised that the Arlington Planetarium was sponsoring programs for children and classes for adults concerning astronomy from April 26 to May 19.

3. Brenda Jones reminded club members that April 20, 1996 was the public star party at Crockett Park for Astronomy Day. She asked for assistance in parking duties.

4. Brent Archinal advised that he had information concerning the occultation of an asteroid on April 18.

5. Bob Bunge asked for volunteers to serve as web masters for a world wide web site for the club, since Professor Wallin of George Mason University offered space on the university's computer to host the web page.

6. There was a request for volunteers for helping the Girl Scouts program "Keepers of the Night" in Clarksburg on May 18.

7. Bill Burton announced that Craig Tupper and Rich Kaiser earned Messier Marathon certificates from the club.

8. Craig Tupper announced that the Cassini space craft was carrying signatures on its mission, and invited club members to add their signatures to the list being sent to Saturn.

Officers Reports:

Brenda Jones noted that Vice President Doug Jackson had arranged for Drew LePage to make a presentation concerning SETI at the May 1996 meeting, and the June meeting would consist of a swap meet.

Bill Jensen reviewed the monthly mail received, including offers to club members for trips to observe the solar eclipse and a star party in New Jersey.

Observing Report:

Jeff Stetekluh gave the observing report for April, and Craig Tupper conducted the monthly sky tour using the planetarium projector.

Show and Tell

1. Brent Archinal, Bob Bunge, Bill Burton, and Bob Bolster showed slides, sketches and photographs of Comet Hyakutake from Skyline drive to Florida, much to the delight of the audience. The tail was measured to be over 60 degrees from the slides and observations.

April Program

Jack Trombka, Team Leader of NASA's XGRS Management team gave a presentation on the Near Earth Asteroid Rendezvous (NEAR) mission. Mr. Trombka noted that the mission was the first in the low cost Discovery series, and

(Continued on page 9)

Highlights of the March and April General Meetings

(Continued from page 8)

was designed to arrive at the asteroid Eros on February 5, 1999. He noted that the reasons for studying asteroids included research into the planetary evolution, and to determine the relationship between asteroids, meteors, and comets. He said that asteroids can provide clues to planetary evolution, since planetismals are the first step in the planet forming process. By circling the asteroid in ever decreasing altitudes over a year, the NEAR mission hopes to determine the baseline chemistry of asteroids, and determine the degree of heterogeneity of comets and asteroids. He described the instrumentation on the orbiter, and concluded his presentation with a question and answer session concerning the mission and NASA's future explorations.

The meeting adjourned at 9:35 PM.

Respectfully submitted,
Bill Jensen
Secretary

Samplings

(Continued from page 5)

From: jstewart@telenet.com (Jon Stewart-Taylor)

Subject: Coulter is back, sort of.

Hi all. If this is old news and I missed it before, my apologies.

Apparently a Florida company (MURNAGHAN Instruments) has bought what's left of Coulter, and intends to make a go of it. They've got a Web page:

<http://www.magicbbs.com/murni/coulter.htm>

For those of you without web access the product line is:

6" f/8	\$280 + \$39 shipping
8" f/4.5 or f/7	\$400 + \$49 shipping
10.1" f/4.5	\$500 + \$69 shipping
13.1" f/4.5	\$800 + \$79 shipping

All claim to be "1/8 wave or better", prices have gone up, a 6" scope has been added, and the 17" seems to have disappeared.

The most interesting thing is:

"To Order: SEND NO MONEY! A Deposit is NEVER required to put you in queue for production. Pay when shipment is made." which shows they're trying to learn something from the debacle. Has anybody bought or seen one of these yet? Although they're no longer extremely cheap, they sound like a reasonable competitor to the Orion/Mead/Celestron Dobs. The contact information is: Coulter Optical, Div. of MURNAGHAN Instruments, 1781 Primrose Ln. W. Palm Beach, FL 33414 Ph. (407) 795-2201 Fax: (407) 795-9889 Email: murni@bix.com

Subject: 1997 Eclipse Expedition to Mongolia

From: Sandy Sanders

To: Jon Stewart-Taylor

Subject: Re: 1997 Eclipse Expedition to Mongolia (fwd)

In-Reply-To:

<9603151546.AA10136@deneb.telenet.com>

Jon, Thanks! (But you didn't say you'd go! Be a sport!) I got info on an English expedition to Mongolia 1997 for 1395 Engl. Pounds from London. Anyone interested contact Sandy the Eclipse man!

On Fri, 15 Mar 1996, Jon Stewart-Taylor wrote:

Article: 30837 of sci.astro.amateur

From: espenak@lepvox.gsfc.nasa.gov (Fred Espenak)

Subject: 1997 Eclipse Expedition to Mongolia

Organization: NASA Goddard Space Flight Center -- Greenbelt, Maryland USA

1997 Eclipse Expedition to Mongolia

The Astronomical League has organized an expedition to Mongolia to observe the total solar eclipse of 1997 March 9. The tour includes side trips to China and the Great Wall. Expeditioners may choose from either a 9 or 11 day tour. SITA will again be handling the travel arrangements since they did such an excellent job for us in India for the 1995 eclipse. Ken Willcox is the expedition leader and has lead three previous eclipse tours for the Astronomical League.

WHEN: March 4 - 12, 1997 9 DAY
\$3418/person (double occupancy) March 4 - 15, 1997 11 DAY \$3995/person (double occupancy)

WHERE: Darchan, Mongolia
Longitude: 105 degrees 56' W; Latitude: 49 degrees 28' N; Elev: ,200'
Duration of Totality: 2 minutes 23 seconds
Sun Altitude: 13 degrees

PRICE INCLUDES:

International air fare on United Airlines to Beijing - Intra-China and intra-Mongolia flights. - All transportation by motorcoach inclusive of baggage handling and portorage. - Sightseeing as listed with a Licensed Guide inclusive of entrance fees. - Assistance by SITA representative at all airports and hotels. - Breakfast and Dinner daily in Mongolia and Hong Kong - Breakfast and Lunch daily in China. - Special welcome in Beijing and Farewell Dinner in Hong Kong/Beijing. - Reserved site for viewing the eclipse.

ITINERARY:

Mar 04 Tue Los Angeles/Tokyo

Mar 05 Wed Tokyo/Beijing

Mar 06 Thu Great Wall Excursion/Ming Tombs

Mar 07 Fri Beijinh/Ulaanbaatar/Darchan

Mar 08 Sat Darchan

Mar 09 Sun TOTALITY - From Darchan, Mongolia

1st Contact: 6:50 a.m.

2nd Contact: 7:49 a.m.

3rd Contact: 7:51 a.m.

4th Contact: 8:58 a.m.

Mar 10 Mon Ulaanbaatar

Mar 11 Tue Ulaanbaatar/Beijing

Mar 12 Wed Beijing/Tokyo/Los Angeles

Or if you take the 11 Day tour:

Mar 12 Wed Xian/Guilin/Hong Kong

Mar 13 Thu Hong Kong

Mar 14 Fri Hong Kong/Los Angeles

Fred Espenak of NASA Goddard Space Flight Center will be accompanying us as a guest lecturer.

If you would like additional information e-mail Ken Willcox at (KWillcox@solar.stanford.edu), call or write to:

Ken Willcox
Rt 2, Box 940
Bartlesville, OK 74006

918-333-1966 (home)
918-661-3217 (work)
918-662-2880 (fax)

Call for Articles

Here's your chance to see your name in print! Be the first one on your block. Write an article for the NOVAC Newsletter describing your observing experiences: good, bad, or indifferent. Tell us how you liked observing sites both local and distant. Tell of your experiences buying telescopes

and accessories.

Article submissions, in ASCII please, may be posted to the NOVAC Computer Bulletin Board (BBS) to Elliott Fein or to edfein@cpug.org. Questions? Call Elliott at (301) 762-6261 or contact him on the internet at edfein@cpug.org.

Dinner Before the Meeting Brent Archinal

The tradition of having dinner before the meetings continues. We celebrated our first anniversary of doing this in February and also had a very well attended dinner in March. All are welcome, whether NOVAC members or perspective members, guests or whoever - just be prepared to discuss a little astronomy, probably including the latest on Comet Hyakutake!

As usual, dinner will be held just before our regular meetings, on Wednesday, May 15 and June 19. The place continues to be the *Santa Fe Cafe* in Rosslyn. You should plan to arrive at 5:45-6 PM. This is a nice Mexican restaurant with reasonable prices, although credit cards are not accepted. Smoking is allowed in one part of this (large) one room

restaurant. If you do arrive first, we would appreciate it if you'd try to sit in the front in the non-smoking section. There's also always plenty of space, so don't worry about finding room with us.

Directions: The *Santa Fe Cafe* is located at 1500 Wilson Blvd, in Rosslyn, with entrances off of both Wilson Blvd. and Clarendon Blvd. This restaurant is easily found, just west of "downtown Rosslyn", on the southwest corner of Wilson Blvd. and N. Oak Street, where Wilson splits becoming Wilson one-way west and Clarendon one-way east. From I-66 east, take the Rosslyn exit to Lee Highway, and turn right at the second light onto Fort Myer Dr. Go two blocks and turn right onto Wilson, and the restaurant will be one block ahead on your left

(on the corner across Oak/Clarendon from a big outdoor sculpture). On street parking is usually available in front of the restaurant, or around the block to the left on Clarendon just before it ends. The restaurant is also quite close to the Rosslyn metroraill station. As before, reservations are not necessary, although it does help to know who's coming so we'll know how big a table to get. In any case if you need a ride to the meeting and back to the metro, or for more information or directions please give me a call (evenings) at 703-448-7466 or e-mail me at baa@casa.usno.navy.mil.

See you at dinner!

- Brent A. Archinal

Notices Notices Notices



Notices Notices Notices

NOVAC Notices and Benefits

Discounts on *Sky & Telescope*, *CCD Astronomy*, and *Astronomy*

As a member of NOVAC you can get astronomy magazine subscriptions at a discount. To obtain *Sky & Telescope* for \$24.00, make your check out to "SKY & TELESCOPE" for \$24. For *CCD Astronomy Magazine* at \$20 per year, make your check payable to "CCD Astronomy Magazine". You can subscribe to *Astronomy Magazine* for \$18.00 (one year) or \$36.00 (two-years). Make your check payable to Kalmbach Publishing Company.

In each case, note on the check: "new subscription" or "renewal." Send your check to Ken Pettijohn, 7916 Ivymount Terrace, Potomac, MD 20854.

You can also order any publication directly from Sky Publishing at a 10% discount. Just mention the Club Discount Plan and that you are a member of NOVAC.

There are no special 10% discounts offered on publications from Kalmbach Publishing, but read what follows.

Discount on Books

NOVAC is participating in the discount book sales program offered by Kalmbach Publishing. They will sell our members any astronomy related book for 20% off the list price when we send in a group order. Nicole Mastej is coordinating the sales. If you are interested, please see her at a meeting or call her at home (703) 476-1207 to place an order. Make your check payable to NOVAC for the price of the

book minus the discount when you place the order. We anticipate doing this 3-4 times a year if demand warrants.

Club Telescopes Available for Use

NOVAC makes available two six-inch (f/5) Newtonian reflectors for club members to check out free of charge and use for a limited time.

One scope is a Celestron model SP-C6 on a Super Polaris German equatorial mount and wood tripod. It will readily fit disassembled in any car and is easily transported and can be set up quickly at remote observing sites. The scope comes with an Orion Ultrascopic 10mm and Meade MA 25mm eyepieces with 1.25-inch barrel sizes. To borrow this scope you will need to show your NOVAC observing pass and leave a \$500.00 security deposit.

The other scope is a home-made six-inch reflector on a dobsonian mount and comes with a 25mm Kellner eyepiece. It is easy to transport to dark sky sites and easy to use. To borrow this scope you will need to show your NOVAC observing pass and leave a \$250.00 security deposit. If you are interested in borrowing either of these scopes, contact Bob L'Hommedieu at (703) 978-0946. He will schedule a time for you to pick the scope up at his home. Bob lives at 4415 Eastwood, Fairfax, VA.

Note: Checks must be made payable to NOVAC. Checks used as security deposits on telescopes are not deposited and will be returned to the originator when the scope is returned in the same condition it was checked out. The scopes may be checked out for two to four weeks at a time, depending on demand.

NOVAC Library

NOVAC has established a library at the Arlington Planetarium for use by NOVAC members. Books may be checked out and returned only at the monthly meetings. Members may check out books for one month at a time. To borrow books, see NOVAC Librarian Marta Krause, or Deputy Librarian Steve Custerer at the monthly meeting. The NOVAC library seeks book donations to the library. If you have any astronomy books or materials you are thinking of discarding, please consider a donation to the NOVAC library. A complete list of all library holdings is available upon request.

NOVAC Observing Schedule for 1996 Observing at Savage Farm and C.M.

Crockett Park

See Back Cover of this newsletter.

Observing at Parsells Field

Any evening.

General Membership Meetings

General Membership Meetings are held at the Arlington Planetarium, 1426 N. Quincy Street, Arlington, VA., on the third Wednesday of every month. Trustee Meetings are held the Tuesday before the week of the General Membership Meeting. Non-Trustees interested in attending should contact a Club Officer or Board Member for further information.

NOVAC On-line

NOVAC maintains an e-mail mailing list. Messages sent to the list include reminders about scheduled observing sessions, announcements for unscheduled sessions, requests for quick observing session summaries, MIR observability predictions, etc..

(Continued from page 10)

For more information, send a message to Chewning Toulmin, pct@his.com.

NOVAC Observing Site Rules C. M. Crockett Park

Any night that NOVAC observes at Crockett Park, the observing session will be open to the public. The gate will be locked and will not be unlocked unless a NOVAC member enters the park, at which time the gate should remain unlocked until 10 o'clock (or some other prearranged time) when David Petty, Assistant Park Manager, will come out and ask members of the public to leave. The gate will then be locked and should remain locked through the rest of the evening. NOVAC members may remain until they are finished with their observing session.

There is now a 2-week lead time requirement for permission to observe at Crockett Park on nights other than those listed on our schedule at the back of this newsletter. Gary Kwolek recommends that anyone interested in observing in that area on unscheduled nights drive out to the Crockett Park gatehouse, turn left and drive down to the cul-de-sac where you can set up your telescope on the public road. If any NOVAC member out observing at Crockett Park notices any member of the public violating Park policy, he or she is requested to notify David Petty, who lives in the house adjacent to the end of the parking lot.

During EDT, set up on the large field to the left. During EST, set up on the paved cul-de-sac 200 yds. past the gate. No loud radios, alcoholic beverages or loose pets. Do not leave trash or debris behind. We are guests of the park and park management may revoke our observing privileges at any time due to the carelessness of one person.

Parsells Field: In addition to scheduled nights, NOVAC members may observe at Parsells field ANY evening, with no prior notice. You must park and set up only in the parking area; do not go onto the field itself. Please park to the left near the entrance and set up to the right away from the entrance. The usual NOVAC observing site rules apply: no loud noises, alcohol, or loose dogs, and pick up after yourself. We are guests of the Dulles Little League, and could have our access to this site revoked at any time if it is abused.

Savage Farm Site: The Savage Farm site is reserved for NOVAC use on the same nights as Crockett Park plus all the major meteor showers. For non-scheduled observing sessions, call the park manager, Paul McCray, at (703) 729-0596 at least 24 hours in advance and leave a message with your phone number. You MAY use the site for that session

UNLESS you receive a call from Mr. McCray stating otherwise. No loud radios, alcoholic beverages or loose pets. Pick up after yourself and do not leave any trash behind. Make sure the gate is locked whenever you are in the park, and when you leave. We are guests of the NVRP and could have our access to this site revoked at any time if it is abused.

Directions to NOVAC Observing Sites

C. M. Crockett Park: From the Washington DC/Northern Virginia area, go west on I-66 to the 47-a exit. This is 234 South to Manassas. Continue on 234 for 2.8 miles then turn right on Godwin Drive at what was previously the *Po Folks* restaurant. Follow Godwin Dr. for 1.8 miles to where it merges with Rt. 28 West. Once on Route 28, continue driving for another 13.7 miles through the towns of Nokesville, Catlett, and Calverton until you turn right on Rt. 643 toward Warrenton. There is a small country store (*Mayhugh's*) on the corner of the intersection. Go on about a mile up Rt. 643 to the Park Entrance road. Look for a small sign for C.M. Crockett Park on your right directing you to turn left. Once on the park entrance road, go one-half mile to the park gate.

Parsells Field: From the Northern Virginia area go West on the Dulles Toll Road until you reach Route 28. Go North on Rt. 28 for 2.8 miles to Route 625, Waxpool Rd. (You may also take Route 7 West to 28, then go South to Waxpool). Turn West on Waxpool, and go 1.8 miles to the Waxpool/Farmwell intersection. Turn left on Route 625, Waxpool Rd. (!), and go 1.6 miles to the Waxpool/Ryan/Shellhome intersection. Continue on Waxpool for about another 1.6 miles to the field. Turn left and follow the blue parking signs to the parking area.

Savage Site: Use some combination of Routes 7, 267 (Dulles toll road), and 28 to get to the Route 7 Leesburg bypass. Go around Leesburg on the bypass until you reach "regular" Route 7 again. From the intersection of the bypass and "regular" Route 7, continue on Route 7 west 18.5 miles to Route 601, at the top of Snicker's Gap. Turn left onto Route 601 south and go 2.4 miles to the park entrance. The park entrance is past the driveway whose gatepost reads *Ben Lomand*. The park entrance is the next driveway on your left. There will be a sign on a tree saying *Wildlife Sanctuary*. If you come to gateposts on the left that say *Belle Allee* and *Ball Alley 1875*, you have gone too far. You may also take I-66 west to Route 17 North. Stay on Route 17 North until it intersects with Route 50 at Ashby Gap. Turn left onto Route 50 and go 1.0 mile and turn right on Route 601. Continue on Route 601 (Blue Ridge Mountain Road) and go two miles past the main gate of the FEMA installation. Turn right at the park entrance after passing the gateposts

with *Belle Allee* and *Ball Alley 1875* on your right.

The park entrance on Route 601 is marked by a small brown and white NOVAC sign. The neighbors periodically pull up the sign, so it may not be there. As you turn into the park, go straight ahead until you reach the gate, which is secured by both a keyed padlock and a combination lock. These locks are located to your left behind the gate as you face it from the outside. The combination is on your NOVAC observing pass. ALWAYS lock the gate behind you. The NOVAC lock MUST be locked to the keyed lock, not to the chain, to allow emergency access by the fire department. Drive to the observing area (the stone patio next to the house). There is very limited parking at the observing area itself, so please park in the parking area on the right as you face the patio. □

The **NOVAC Newsletter** is the official publication of the *Northern Virginia Astronomy Club* and is published six times per year at 5 Carter Court, Rockville, MD 20852-1005, edfein@cpcug.org, telephone (301) 762-6261, Elliott D. Fein, Editor and Publisher. The NOVAC Newsletter is sent to members of NOVAC as a regular membership benefit.

Membership in the Northern Virginia Astronomy Club is \$18.00 per year and is open to anyone interested in astronomy or the sciences. Contact Ken Pettijohn, Treasurer, 7916 Ivymount Terrace, Potomac, MD 20854, telephone 301 983-3199. All notices of change of address should be sent to Ken Pettijohn. Please include both old and new addresses.

NOVAC does not knowingly accept advertising for products of inferior quality nor does it accept the responsibility for the quality of advertised products.

NOVAC members are invited to contribute materials of interest for publication consideration in the NOVAC Newsletter. The editor reserves the right to edit all materials submitted.

Article submissions, in ASCII please, may be posted to the NOVAC Computer Bulletin Board (BBS) to Elliott Fein or to edfein@cpcug.org.

Deadline for submissions is three weeks in advance of publication, e.g., June 10 for the July/Aug. Newsletter.

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1996 NOVAC Observing Dates

<p>C.M. Crockett Park May 10,11,17,18 June 7,8,14,15 June 15 NOVAC Picnic July 12,13,19,20 August 9,10,</p>	<p>August 11 and 12 Perseids August 16,17 September. 6,7,13,14 September. 21 Northern Virginia Telescope Meet October 4,5,11,12</p>
<p>Savage Farm May 6 Eta Aquarids May 10,11,12,17,18,19 June 7,8,9,14,15,16 July 5,6,7,12,13,14,19,20,21 August 9,10,11 August 12 Perseids</p>	<p>September 6,7,8,13,14,15 October 4,5,6,11,12,13 October 21 Orionids November 1,2,3,8,9,10 November 17 Leonids December 1,6,7,8,13,14</p>



The Northern Virginia Astronomy Club
 c/o Nicole Mastej
 2241 Lovedale Lane, Unit J
 Reston, Virginia 22091



Inside:
 -Comet Hale-Bopp
 -Comet Hyakutake
 -Upcoming meetings
 and much more!

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