

Time For PAC Club Officer Nominations

ITS RAILROAD TIME AGAIN! Yes, once again, nominations for club officers are open from now until the night of the election on October 26th. If you can think of anyone who would be interested, place their name in nomination at the

If you can think of anyone who would be interested, place their name in nomination at the next club meeting

next club meeting (you can nominate yourself if you like). For those of you interested, here is a run-

down of the major duties of each officer.

PRESIDENT:

1. Presides over monthly and executive board meetings, setting the agenda in each.
2. Represents the club in contacts with other groups, or appoints others to do so.
3. Appoints persons to fill vacant office positions, observing chairperson, site manager, and other committee heads.
4. Provides leadership and direction for the club in its activities.

VICE PRESIDENT:

1. Substitutes for the President at meetings when the president is unable to attend or officiate.
2. Becomes President until the next scheduled election if the current President resigns or becomes unable to function in office.
3. Acts as club publicity officer.



The President presides over monthly and executive board meetings, setting the agenda and tempo of each...

SECRETARY:

1. Takes down proceedings of the business meeting and any executive board meetings.
2. Provides meeting notes and correspondence records to members upon request.
3. Assists with correspondence with other clubs and organizations.

TREASURER:

1. Handles routine financial dealings (dues *(Continued on page 2)*)

RASC Observer's Handbook Orders...

Comes time again for orders to be taken for a 1994 item: RASC Observer's Handbook 1994.

Single copy price if ordered from Royal Astronomical Society of Canada would be \$15.89.

The club price is \$10.50. Our group order should be placed by October 15 to assure delivery in late November. (After that, packages start getting lost in the trek across the border.) **PAYMENT MUST ACCOMPANY ORDER**, so if you want one, you'll need to fork over the cash at the September meeting or send it to the club P.O. box by October 15.

I haven't got the 1994 price for Wonders of the Universe calendar or the 1994 Ottewill Calendar yet. We'll let you know. □

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collection, site key fees, magazine subscriptions, sales, ect.)

2. Pays club bills from club accounts as approved by the membership.
3. Provides a complete financial report at least once a year, with monthly updates as needed.

SECOND VICE PRESIDENT:

1. Sets up and manages the program portion of the monthly meetings.
2. Provides assistance for those who are presenting meeting programs.

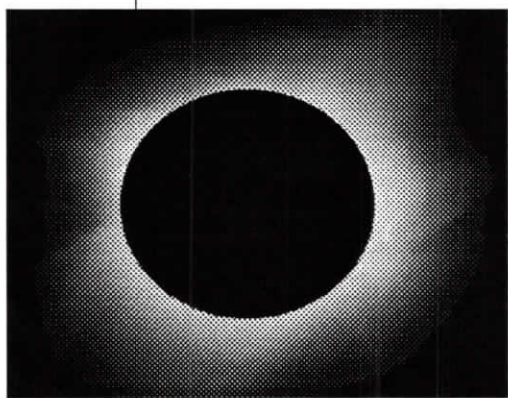
IMPORTANT NOTE: These five officers make up the Executive Board, which can meet at any time to make club decisions, spend money, or solve club problems as they arise **WITHOUT ASKING FOR A VOTE OF THE CLUB MEMBERS AT A REGULAR MONTHLY MEETING.** Executive board meetings are open to club members, but only board members can vote during board meeting sessions. In essence, the board runs the club, so if you are concerned about the way the club is operating or where it is headed in the future, consider running for a club office.

ANNOUNCEMENT: Starting this month, the

club will be holding an informal coffee get-together after each meeting at the Village Inn restaurant at 66th and "O" streets in Lincoln. To get there from the observatory, take 70th street north to "L" street (just north of St. Elizabeth Hospital),

then go west to Haverford Drive and then northwest to 66th. This is a chance for people to socialize or get a quick bite to eat. Last month, about ten of us got together for a trial run, and we decided to make it a monthly event. SEE YOU AT THE MEETING (and the coffee).

Dave Knisely



The Prairie Astronomer is published monthly by the Prairie Astronomy Club, Inc., and is free to all club members. Membership status and expiration date are listed on the mailing label. Membership dues are: Regular Members...\$10/yr, Family Memberships...\$12/yr. Address all new memberships, renewals, or questions to THE PRAIRIE ASTRONOMY CLUB, INC., P.O. BOX 80553, LINCOLN, NE 68501. For other club information contact one of the following: Dave Knisely (Beatrice) 223-3968, Ron Veys (Lincoln) 486-1449, Lee Thomas (Lincoln) 483-5639, John Lortz (Omaha) 496-1122. All newsletter comments and articles should be sent to Newsletter Editor JOHN LORTZ, 11684 MEREDITH AVE., OMAHA, NE 68164 no later than 10 days before monthly club meetings. Club meetings are held the last Tuesday of each month at Hyde Observatory in Lincoln, NE.

...so if you are concerned about the way the club is operating or where it is headed in the future, consider running for a club office.

Membership Booming!!!

We must have achieved some kind of record in the number of new members who signed onboard during a single month in August: six! Welcome to the PAC:

Tom Klyder
Roger B. Mitchell
Roger D. Mitchell
Dr. Emil Pierson
John Say
David Stooksbury

You know your organization is getting pretty big when your membership list sports people who have nearly identical names. We now have two Roger Mitchells (B. and D.), two Dunns (Jack and Dennis), three Johnsons (John, Rick and Holly), two Millers (Tim and Tom-- so, it doesn't work to address something to "T. Miller"), and two oundalike but spelled differently Pearson, Erik and Pierson, Emil.

Raw count memberships now totals 72 separate households. But 15 of those 72 are family memberships, meaning two voting members each. So, in fact we have 87 individual members!

Don't expect to see them all together at one time, though, because we have diehard members who have long since moved away from Lincoln, but have stuck with the club anyway:

Norma Coufal in California, Greg Redfern and Brian Schaaf in Virginia (you guys ever run into

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Observing Chairman's Report

THE NEXT SCHEDULED STAR PARTIES WILL BE HELD OCTOBER 8th AND 15th AT THE ATLAS SITE. Autumn skies offer some of everything to the patient observer. In western Pegasus about 3.5 degrees west and 2.3 degrees north of Epsilon Pegasi is the bright globular cluster M15. Visible in binoculars, this object appears as a moderate sized fairly bright fuzzy ball in a 2.4" refractor, with a six inch partially resolving it. An eight inch will reveal many hundreds of faint stars with the central brightness rising rapidly to a tiny bright core. Another good globular is M2, located 4.75 degrees north and a half east of Beta Aquarii. It is similar in brightness and resolvability to M15, but is more even in form, with no distinct core.



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each other?) Others in outstate Nebraska have joined because we're the closest club to them (or they moved out there from Lincoln). So, Beatrice, Cedar Bluffs, Columbus, Crete, Douglas, Hickman, Holmesville, Kearney (twice), Peru, Plymouth, and Spencer are all represented. In addition, we have three members in Omaha.

Twenty-four members now have rented Atlas Site keys, generating \$360 dollars a year for the site. In addition to fixed costs of insurance and taxes running a little over \$300 per year, this key revenue has been sufficient to cover some upkeep expenses, meaning that the club's general fund has been tapped mainly for improvements to the site.

We're still about three months away from the annual Financial Report, but I thought this good news was worth reporting up front!

Lee Thomas

A New Club to the West...

I received a call from Wade Beins, a student at Chadron State College looking for information on how to form an astronomy club. They've received a two-year \$50,000 NSF grant for construction of an observatory with 25-inch telescope, and they have at least ten people interested in starting a club. I sent off our club brochure, bylaws [which Ron Veys embarrassingly discovered are somewhat out of date], and we're adding him to the mailing list so he can get an idea of what we're up to. All of this on the condition, of course, that when they get up and running we can organize an expedition to Chadron and check out the telescope and dark skies!

Farther north along the milky way is the large bright open cluster known as "The Coathanger", or Collinder 399. Located in Vulpecula about ten degrees south of Alberio, this group is best seen in binoculars or rich field instruments, appearing as an east-west row of stars with a hook of stars off its southern side. Those with six inch and larger apertures may see the very faint open cluster NGC 6802 on the Coathanger's east end. It shows up as a faint elongated fuzzy patch at low power, with high power on an eight inch revealing many very faint stars arranged in three or four sub-groups. On a good night, a ten will show about 40 faint members in a hazy background of unresolved stars.

In eastern Cygnus is the prominent supernova remnant known as the Veil Nebula. The section running through 52 Cygni, NGC 6960, is visible in a six inch as a faint streak which broadens towards the south. Using a Lumicon UHC or OIII filter and an eight inch will reveal much fine filamentary structure in this nebula. The other portion of the Veil, NGC 6992, lies almost two degrees east and a half north of 51 Cygni, and is vaguely visible in a pair of 10x50 binoculars as a small faint arc of light. Telescopes equipped with nebular filters make this object easy to see, with a wealth of detail being visible. Also in Cygnus is the large but faint nebula NGC 7000, better known as the North American Nebula. Located about three degrees east and slightly south of Deneb, this object is visible to the unaided eye as a moderate sized hazy area. A four inch RFT equipped with a nebular filter will show the North America form well, with larger instruments revealing

In eastern Cygnus is the prominent supernova remnant known as the Veil Nebula.

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MIDCON '93 Wrap Up

Here are some numbers from this summer's MIDCON 93 convention that I thought you might find interesting.

WE had a total of 83 paid registrants, with 103 tickets sold to the Saturday night banquet. Since we had based our budget on an assumed attendance of 70, we wound up making a profit of \$646.41, half of which goes to the Astronomical League treasury. Undoubtedly, our special guest banquet speaker, Jack Horkheimer (the "Star Hustler" himself), had a lot to do with the high attendance.

During the course of the convention, we gave away 56 door prizes with a total retail value of \$1,434.00!! That means that 67% of the attendees won a prize, the average value of which was \$25.60!! (Not a bad return on their \$25 registration fee!)

During the course of the convention, we gave away 56 door prizes with a total retail value of \$1,434.00!!

The 83 registrants came from Nebraska, Iowa, Kansas, Missouri, Arkansas, Oklahoma, Colorado and Minnesota. (Guess that's why they call it a "regional" convention, eh?)

Clubs and Societies were represented as follows:

Prairie Astronomy Club	27
Astronomical Society of Kansas City	18
Des Moines Astronomical Society	5
St. Louis Astronomical Society	3
Salina Astronomy Club	3
Northern Colorado Astronomical Society	3
Southeast Iowa Astronomy Club	2
Northeast Kansas Amateur Astronomers	2
Astronomy Club of Tulsa	2
Kearney High School Astronomy Club	2
Central Arkansas Astronomical Society	1
Central Missouri Amateur Astronomers	1
Sioux Valley (MN) Amateur Astronomers	1
Omaha Astronomical Society	1
NOAA	1
No Club Affiliation	11
Total	83

Our club's attendees represent about 44% of our membership, which is not bad. But what was that other 56% doing? I was quite disappointed in the Omaha Club's showing. (Especially since the one Omaha club member who attended was

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some detail, but without a filter, this object is difficult to see at all.

On the Cygnus-Cepheus border are two very interesting Deep-Sky objects. The first is one I like to call "The Seacrest Cluster", NGC 6939, and is located 1.25 degrees south and just under two degrees west of Eta Cephei. It is visible in a four inch as a moderate sized triangular-shaped hazy patch with a few stars visible in the group, while an eight or ten inch reveals a rich group with several neat rows of stars, making them look a bit like a set of stadium lights. The other object, NGC 6946, is a faint spiral galaxy located less than a degree south of NGC 6939, and is visible in a six inch as a moderate sized diffuse hazy patch in a rich star field. An eight inch will show its slightly brighter center and tattered oval outer haze, while a twelve inch will reveal its broken spiral structure similar to that of M33.

M29 is a bright and easy object for small telescopes, located 1.5 degrees south of Gamma Cygni. It is a moderate sized group of 10 to 15 fairly bright stars, with larger telescopes bringing out a few more members along with a rich background. M39, located three degrees north and a half west of Rho Cygni, is also quite easy and bright, showing 15 to 20 fairly bright stars in a rich Milky Way background. It is very good object for the small telescope.

For you planetary nebula lovers, take a look about 1.3 degrees due west of Nu Aquarii for NGC 7009, also known as "The Saturn Nebula". It is visible in small telescopes as a faint fuzzy star, while a six or eight inch will show its oval disk and distinct bluish green color. High power will make each end of the oval look slightly pointed, while a ten inch will often reveal small puffs of light on each point.

David Knisely

A Special Letter to the Editor...

My husband, Mark, is a member of the Prairie Astronomy Club. He is a frequent volunteer at Hyde Observatory. Occasionally, the kids and I go out with him to enjoy the stars.

We took Mark to Hyde for a special outing the night before Father's Day. I am a poet, so I wrote my observations in a poetic form, called haiku sequence, and gave it to him the next day as a Father's Day gift. He suggested that others in the club might like to read it.

I could have sent the poem to a literary journal, but I'd rather share it with other people who like to watch the night sky. Please use it in your newsletter if you think it is appropriate.

Sincerely yours, Sarah Fairchild

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Roger Besch who lives here in Lincoln!!) Apparently, astronomical interest in Omaha is at a new low. I hope they can regenerate and become active again like they have been in the past.

These conventions really are a lot of fun, and our turn to host another one here in your hometown won't come around for another ten years or so.

You do have the opportunity to attend the National A.L. convention next year in Kansas City, July 28-30. Don't miss this chance!

Ron Veys



Observing Notes 7/20/93
For Mark

the lake shimmers
orange and brilliant black
this sundown

clear
in the west
small clouds hug the
horizon like mountains

cloud cover rolls east
tearing open the sky--
a few bright stars

pointing out the sky
Jupiter Mars
Antares
firefly

waiting to view Jupiter's four moons all lined up

no one
can point to
the new moon

below the stars
lake glow and
city shine

cricket crossing
neon constellations
on the observatory sign

--Sarah Fairchild

Notes on the Mars Observer

NASA's 31-year-old program of planetary exploration suffered a major setback on August 21 when communication with the Mars Observer spacecraft was lost as it neared Mars. If recovery efforts fail, then Mars Observer would be the first post-launch failure of a NASA planetary spacecraft in 26 years, since Surveyor 4 in 1967. The following summary was prepared by Curt Roelle from NASA press released between August 19 and August 31, and from other sources.

The Mars Observer (MO) lifted off from the Kennedy Space Center at 1:05 p.m. EDT on September 25, 1992, aboard a Titan III launch vehicle with a Transfer Orbit Stage (TOS) booster, which later injected the spacecraft on its path to Mars. On the journey to Mars the spacecraft deployed several antennae, four of its six solar panels, and two booms on which science instruments were mounted. The purpose of the mission was to map the surface of Mars from a nearly polar orbit at an altitude of 378 km (234 miles) over the course of one Martian year, or 687 Earth days. The spacecraft was built under contract to NASA by Martin Marietta Astro Space Division (formerly General Electric Astro Space) near Princeton, NJ.

"At about 5:21 p.m. (PDT) on Saturday, we turned off the transmitter," said Dr. Sam Dallas, mission manager. "At that point in time, we lost all communication with the spacecraft, in terms of downlink capability."

The Mars Orbit Insertion (MOI) maneuver was scheduled for Monday, August 24 at the end of a 450-million-mile journey through space. The engine firing, lasting nearly 29-minutes, would slow the spacecraft and place it into an orbit with a period of three days. Seven additional engine firings over the next 76 days would place the orbiter into a circular orbit, inclined 93 degrees to the planet's equator, with a period of 118 minutes. On each

orbit, MO would have crossed the equator at about 2 p.m. local Mars time, always seeing the surface of Mars in mid-afternoon on the daylight side. This "sun-synchronous" orbit puts the sun at a standard angle above the horizon in each image, casting shadows that make surface features stand out.

At 9:00 p.m. EDT Saturday, August 21, communications were confirmed lost during an activity in which the tanks in the propulsion system were being pressurized, known as the bipropellant system pressurization sequence. The mission plan called for a propulsion system firing three days later on Tuesday, August 24 in order to slow the spacecraft's speed and allow it to be captured into Mars orbit. "At about 5:21 p.m. (PDT) on Saturday, we turned off the transmitter," said Dr. Sam Dallas, mission manager. "At that point in time, we lost all communication with the spacecraft, in terms of downlink capability."

At the time communication was lost controllers had no reason to believe that the system had not been pressurized properly. Engineers and mission controllers at NASA's Jet Propulsion Laboratory (JPL), Pasadena, CA, responded with a series of backup commands every 20 minutes instructing the spacecraft to turn on its transmitter switch to a wider beam low-gain antenna, and radio its status back to JPL.

The biopropellant system pressurization sequence automatically turned the transmitter off for the pyro firing event, as planned. According to Aviation Week Magazine for August 30, the transmitter was turned off prior to pressurizing the fuel tanks to protect the filament in the transmitter. This is a common practice for any high-shock event and was recommended by Martin Marietta. Following the pyro firing the flight team had no indication that the transmitter was autonomously re-enabled by the on-board sequence. A telecommunications recovery sequence was generated to

reconfigure the telecom system using hardware commands to override any potential software faults in the onboard computers. Throughout the day Sunday the flight team remained optimistic toward their effort to reestablish a spacecraft downlink.

One reason for optimism was that on Friday, August 20, a sequence of stored commands had been pre-loaded into MO's onboard computer memory prior to shutting off the spacecraft transmitter. This stored command sequence was timed to execute the MOI maneuver at the proper time on Tuesday afternoon. Assuming that the spacecraft would be operating properly, the on-board sequence was designed to assure that the spacecraft would be captured into Mars orbit even if ground controllers could not communicate with MO.

In a statement released prior to the loss of contact with the spacecraft Dallas had expressed his confidence in the MO command system. "Since launch, we have sent more than 500 command files to the spacecraft, containing instructions to be carried out by the spacecraft and its payload," Dallas said. "The spacecraft has executed these instructions flawlessly, except on two or three occasions when minor errors occurred. The spacecraft and payload hardware have had no failures thus far."

While the Flight Team worked around the clock to reestablish communications with MO, another effort was underway with Martin Marietta Astro Space Division engineers at East Windsor, New Jersey, and the Verification and Test Laboratory at JPL, to investigate possible on-board failure scenarios and their ramifications. In the meantime the Flight Team up-linked more commands on Monday afternoon to recover communications with the spacecraft. By then the analysis had focused on the possibility that the spacecraft's real-time clock may have become stuck. If the real-time clock was not operating, then the computer would not know when to perform the stored command program. As a result MO would sail past Mars without performing the MOI maneuver, and would remain in solar orbit.

At 6:39 p.m. EDT on Monday, August 23, commands were sent instructing the spacecraft to switch from its master clock to a backup unit. Flight controllers then sent commands to reset the engineering data formatter, a spacecraft process that formats data sent to the ground, in case a problem with it was preventing Mars Observer from sending data. In addition, commands were sent to switch from the spacecraft's main command computer to a backup, to switch transmitters, to switch from transmitting on the high-gain antenna to the low-gain antenna, and a second command to switch the spacecraft's master clock. In the event MO's signal was heard, a new command block to carry out the MOI burn was also developed if it was required to be sent to the spacecraft on Tuesday, the following day. As of 11 p.m. EDT, no signal from the spacecraft had been received. Nevertheless, the Flight Team did not rule out the possibility that even if no signal was heard, MO might automatically execute the block command sequence to carry out the MIO burn on Tuesday.

On Tuesday, August 24, efforts continued to ensure that the Mars Observer spacecraft was in the proper configuration for

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execution of the braking maneuver that would allow Mars' gravity field to capture it. The Flight Team switched emphasis from attempting to command the spacecraft's transmitter on to reestablish communications with the ground to ensuring that the command sequences stored in on-board computer memory would properly execute the MIO burn. Efforts were complicated by the fact that no downlink telemetry had been received since Saturday evening.

A media briefing that had been scheduled to occur following MIO was rescheduled earlier for 1 p.m. EDT to discuss the status of the Mars Observer mission and attempts to regain communication with the spacecraft. On the basis that the spacecraft was healthy with the exception of the capability to transmit its status back to Earth, the Flight Team staffed for MOI and the expected sequence of events. The on-board insertion sequence would have started maneuvering to perform the burn by halting its cruise normal 1 revolution per 100 minute rotation and turning to the correct attitude relative to Mars at 3:43 p.m. EDT. The nominal burn would start at 4:24 p.m. with an expected duration of about 28 minutes and 45 seconds. Engineers at all three Deep Space Network (DSN) stations and at JPL closely monitored receivers as the post-MIO time for reacquisition of telemetry approached. The nominal signal acquisition time passed with no indication of downlink at any of the three stations. The DSN was requested to continue its search into the evening.

According to Aviation Week magazine, attempts were made to view MO's thruster firing with two infrared telescopes in Hawaii, but the attempts were thwarted by cloud cover. The Hubble Space Telescope was also considered, but it was on the wrong side of the Earth and would have had to point closer to the Sun than was desired.

By Wednesday, August 25, the Flight Team's efforts had been redirected toward the expected expiration of the five day Command Loss Timer (CLT). If MO senses that no commands have been received from the ground for five days, it is programmed to autonomously begin activities leading to invocation of fault protection routines, and to enter its defined Contingency Mode state, sun coning and switching to Low Gain Antenna operations. Indications of that occurrence were due to be received on the ground at about 5:56 p.m. EDT. In anticipation a news conference was scheduled to discuss the outcome of the CLT timeout and possible plans to continue transmitting command sequences in an attempt to force the spacecraft to respond.

The spacecraft's signal was not received at the expected time. "Each passing day erodes our prospects for the success of this mission," conceded MO project manager Glenn Cunningham. "We will need to reestablish communication with the spacecraft to proceed with the rest of the mission", said Cunningham at the news conference, stating the obvious. "That's the bottom line."

On Thursday there was renewed hope that MO would be heard from. According to Dennis Potts, deputy flight engineering office manager, if the spacecraft was still unable to receive a command from Earth 24 hours after expiration of the command loss timer, it has been programmed to switch autonomously to a contingency mode, a benign, self-protective mode that would point the low-gain antenna at Earth. With a direct line to its low-gain antenna, ground-controllers could then detect its radio signal.

In the meantime JPL Engineers and Martin Marietta Astro Space engineers were considering issuing the "power-on/reset" command which would "cold boot" the primary onboard command computer. They decided to delay that decision until Thursday afternoon.

Project officials remained unconvinced that the propulsion tanks leaked or exploded at the time of their pressurization. Their analysis indicated that the probability that the pressure in the tanks

would increase to the burst level within the 9 minutes that the radio transmitter was programmed off is less than 0.1%.

Engineers continued sending commands to the spacecraft during the afternoon to power on its transmitter, assuming that it would have oriented itself in a sun-pointed attitude to begin listening for signals from Earth through its two low gain antennae. Command transmission was complicated by the fact that it was still not known whether MO was in orbit over Mars, or had streaked by without performing the MOI maneuver. Therefore, these commands had to be sent repeatedly to both points in space. Furthermore, if MO was in orbit, the commands had to be sent so that they would reach MO, located 19 light-minutes from Earth, while the spacecraft was on Mars' near side.

Also on Thursday, NASA Administrator Daniel Goldin named Dr. Timothy Coffey to head the Mars Observer investigation board. Dr. Coffey is currently director of research at the Naval Research Laboratory in Washington, D.C. It is NASA's standard policy to implement an independent review when there is cause to believe that a mission's primary objective cannot be met.

On Friday morning at 4:07 a.m. EDT the "power-on/reset" command was transmitted to the fly-by predicted position, and at 4:30 a.m. to the on-orbit coordinates. The result of that command would have triggered a Safe Mode in which it would listen for commands from the ground for 64 hours. The decision was made not to send a command to power on the spacecraft transmitter, and to let Safe Mode clock out for its waiting period.

The 64 hour Safe Mode waiting period, expired on Sunday, August 29, at about 11:20 p.m. EDT with no spacecraft transmitter carrier or telemetry received at the flyby predicted coordinates. The in-orbit position was scanned by the DSN after midnight looking for transmitter carrier.

Early on Monday morning, August 30, the Flight Team responded by radiating commands to power-on and select (SCP-1 Standard Control Processor #1), followed by commands to reset the engineering data formatter and to power-on transmitter 1. Those commands were sent to both the fly-by and on-orbit predicted locations. That activity was completed at 7:07 a.m. EDT. After two way light time elapsed, no indications of carrier or telemetry were seen.

On Tuesday morning, August 31, a decision to "cold boot" SCP-2 with the "power-on/reset" command was deferred. Analysis by Flight Team elements indicated greater risk in doing so that was deemed necessary in terms of potential effects on other spacecraft telecommunication subsystem components. had the command been sent, then another 65 hour waiting period would have been observed. On Tuesday afternoon a command conference took place in order to discuss and approve switching redundant radio crystal oscillators (RXO's) from the backup to the primary and repeating telecommunication subsystem restoration commanding.

If the spacecraft had flown past Mars without performing MOI, then it would remain in orbit about the sun, in between the orbits of Earth and Mars. Opportunities to enter Mars orbit may occur 10 months to 2 years from now, provided the spacecraft can be recovered, according to Aviation Week.

"I must stress that we are not going to give up," Cunningham said. "We will continue to explore all of the possible scenarios and attempt new command sequences to prompt the spacecraft to respond."

The author, Curt Roelle, is a software engineer and a member of the Westminster Astronomical Society of Maryland. He worked on the Mars Observer program in 1990 during spacecraft fabrication under contract to what is now Martin-Marietta Astro-Space Division in New Jersey. He is also a past-member of the Prairie Astronomy Club.

A Note from Starman...

WANTED:

Favorite astronomical objects from all PAC members and from any other clubs that receive our newsletter. Draw, if you will, the constellation and mark the position of your object. I'm making special charts with Telred references which should make it very easy to move around the sky.

Saturday's (August 14th) picnic and star party was very windy, making the large sky atlas hard to use. So I'm making charts 8x10 in size to eliminate the wind problem. With input on your favorite targets combined with mine, we can develop a great set of charts. Please bring yours to the next meeting or mail them to the club.

Ron Debus

A Note from the Editor

Change is the spice of life, and so for the third time in my career as newsletter editor, I've decided to change the format of the Prairie Astronomer.

As computer hardware technology advances with leaps and bounds, so does the software we run on computers (although, a bit more slowly). Whereas with my old desktop publishing system I was required to paste down every line, box and graphic using my own imagination, my new program automatically creates a pre-designed layout that some high-tech graphic artist has already put together. I simply choose the format I want, and then fill in the blanks.

Ok, so it took me about 5 hours to layout this month's newsletter, but it was my first shot at using the program and I did have to make a few small changes in design. Next time it will go faster.

To those of you who save the newsletter and have a spiral ring notebook that's just the perfect size, I regret that the new format will disrupt your storage system. I hope that as a consolation you'll find the newsletter more attractive and easier to read. I know that I'm already having more fun putting it together!

Finally, my sincerely apology for missing last month's newsletter. I was out of town on business and just plain forgot to do it. No excuses. I'll do my best to not let it happen again!

John Lortz



The Prairie Astronomer
c/o The Prairie Astronomy Club, Inc.
P.O. Box 80553
Lincoln, NE 68501



First Class Mail

Next Meeting
September 28, 1993

93007 04/94 RS
John Johnson
15606 Woolworth Ave.
Omaha NE 68130-2517

Please Notice: If there is an asterisk on your mailing label it is time for you to renew your PAC membership!

inside...

Membership Booming!!!
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