THE NEKAAL OBSERVER

May 2004 VOLUME 12, ISSUE 4

PO BOX 951, TOPEKA KS 66601
(785) 806-1177 **www.nekaal.org**
The official newsletter of Farpoint Observatory and the Northeast Kansas Amateur Astronomers' League

The *NEKAAL Observer* is the official publication of the Northeast Kansas Amateur Astronomers' League and Farpoint Observatory. NEKAAL, Inc. is an educational and scientific nonprofit corporation approved by the federal and state governments.

Your articles and other contributions to this newsletter are welcome and encouraged. Please get them to the editor at least 6 days prior to the next scheduled meeting.

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Member of the Astronomical League
www.astroleague.org

FROM THE PREZ: By Graham Bell

Nasa Grant:

We have been informed that Goddard has the paperwork for our grant, and will be contacting us any day now. I am working with Ervan Steuwe in Alma on a press release. It is possible that we will have a press briefing at Farpoint with Lindley Johnson in attendance. He will be in Council Grove for a few days this month, and might be able to visit Farpoint.

Late Publication of the Observer:

I apologize for the late publication this month. It should have been out several weeks ago, but I let other things (such as my granddaughter) disrupt my priorities.

Notice that this is the May issue, there is no April issue. This is not a result of being late, but a decision to use the May date to reflect that the calendar and sky highlights are for May. Apparently this was the method used some time ago, but that got changed prior to the beginning of my tenure as editor.

Grants, Grants and More Grants:

In addition to the telescope grant, we have applied to NASA for an Educational/Public Outreach Grant. This E/PO grant would provide funds to acquire a mobile telescope, laptop and projector, and a building addition to house an additional 14 inch telescope.

At the May 16th board meeting we will be discussing a grant being made available by SBC. We are interested in applying for this grant to support a wired (as opposed to wireless) connection to the MVHS internet service.

Mike Ford is working with one of the casinos in an attempt to get a grant which we would use to buy computers and software.

Update to Facilities Report

On May 1st a small crew preformed some necessary maintenance at Farpoint. The deteriorated exterior trim on the entrance door was removed, replaced and painted. One of the supports for the walkway had settled. The walkway was jacked up, the support augmented, and we now have a walkway which should last for some time. The steel supports for the roll off roof were painted. A dimmer switch in the observatory was replaced. The stop control to limit how far the roof can roll off was fixed to assure that the roof does not run into the supports. Thanks to Bill Leifer, Dan Tibbets, Gary Hug, Russell Valentine and Jim Koch for their efforts.

Tombaugh

Tombaugh — the name of our 27-inch telescope. We have let Jerry Foote of ScopeCraft know that we are ready to move forward with the Tombaugh Telescope. Gary has ordered the CCD camera, which should ship in about 3 months. We have tentatively arranged for a focal reducer which will take to telescope from f5.5 to about f4.0.

As you know by now, Clyde Tombaugh was the discoverer of Pluto. You are also probably aware of the controversy a couple of years ago about the status of Pluto; is it a planet, a minor planet (TNO), or both? Take a look at the official Pluto announcement (page 5) to see what the discovery team thought. The reference is to 'a solar system body, probably trans-Neptunian.' Sounds like a TNO to me.

Also note that the NASA article this month is about Pluto —- the double planet.

In this issue...

SKY HIGHLIGHTS FOR MAY: by *Janelle Burgardt - Astronomy Program Director*

May 4 Full Moon Known as the Flower, Milk or Planting Moon.
May 5 Peak of the Eta Aquarid meteor shower
Jupiter halts retrograde
May 11 Last quarter moon
May 14 Mercury at greatest elongation
May 19 New moon
May 27 First quarter moon.

Comet and comet and comet—*oh my!*

Three naked eye comets are now visible. *Comet NEAT* is visible at sunset in Monoceros, rising higher into Cancer by the end of the month; the higher it rises, the dimmer it becomes. *Comet LINEAR C/2002 T7* is just below the Circlet in Pisces early in the month. Newly discovered *Comet Bradfield* is further east in Pisces.

The Planets This Month

Mercury -- Visible shortly before sunrise around mid-month.

Venus – Still at maximum brightness (-4.5) and 40° above th e horizon, the Venus skyshow is coming to a close. Setting 3½ hours after sunset on the 1st, Venus plummets toward the sun throughout the month. By the 15th, it is only 27° above the horizon and sets 2½ hours after sunset; ont the 31st, only 9° up, and sets it late twilight.

Mars – At magnitude +1.7, Mars continues to fade. On the 24th, it is only 1.6° from Saturn.

Jupiter – Holding court to the east of the other planets, shines at -2.2 in Leo. The end of May will afford a prime opportunity to observe interactions among the Galilean satellites.

Saturn – Its rings at near maximum tilt, Saturn is at +0.1 magnitude in Gemini.

Note

The monthly Sky Highlights are created from several sources, including Sky & Telescope , the Abrams Planetarium Sky Calendar, and whatever else looks interesting. It was originally requested by those who don't have access to the magazines and internet sources used by many. If there is any additional information that would be useful, just let me know.~*Janelle*

FAR SOUTHERN STARS: by *Dr. Edwin Woerner*

Shortly after coming to the Middle East, in fall, 1997, I went for an evening walk in the desert. Jupiter and Saturn we autumn objects at that time, but two bright stars, south of Fomalhaut that I didn't recognize caught my attention. What could those stars that I didn't recognize be?

Using Norton's Star Atlas from the university's library, I learned that they were Alpha and Beta Grus. This constellation is a crane, a water bird, and part of the large group of water-related constellations including Pisces, Pisces Australis, Aquarius, Capricorn, Cetus, and others. From a dark site Grus shows not one but two naked eye double stars, and for a double star aficionado like me that's great to know.

Further investigation revealed that the two bright stars pointed eastward to Pavo the Peacock. Finding Pavo was a great luck because it features both a naked eye Cepheid (I like variable stars too!) and a naked eye globular cluster. NGC 6752 is at –60° declination, but the cluster is obvious in binoculars, and in my 6-inch Newtonian it is well resolved, and about as coarse as M13.

But these successes led me to wonder just how far south I could actually see. As a rule of thumb I use –60° as my southern limit, but I can get below –65°. This doesn't help with the Coal Sack, the Magellanic Clouds, or 47 Tucanae, but it does include well over 90 percent of the entire sky (a fact I ask my calculus students to prove).

Pictures showing the disk of glowing dust surrounding Beta Pictoris have been published often. Professionals think that this disk is related to a solar system currently forming around this star, and that our own sun would show a similar disk if viewed from afar under the right circumstances. But where is Beta Pictoris? Actually, it's a little west and south from Canopus in our sky. It clears the horizon by about 2° in Dubai and takes binoculars to identify.

On the other hand, Epsilon Eridani, one of the nearest stars to our solar system and home to a Jupiter-sized planet revolving rapidly very near to the star's surface, turned up during a three day binocular tour of the river Eridanus. By the way, Eridanus has nine stars labeled tau (t). I was expecting a nice open cluster, but it didn't happen.

What is the difference between the constellations Hydra and Hydrus? Hydra is a

(Continued from page 2)
mighty serpent from myth, a springtime constellation stretching from Procyon to Virgo and intertwined with Corvus, Crater, and other minor asterisms, all easily visible evenings this time of year from Topeka. Hydrus represents a small common aquatic creature in far southern skies. I've seen 3.5 magnitude Alpha Hydri barely clear the horizon.

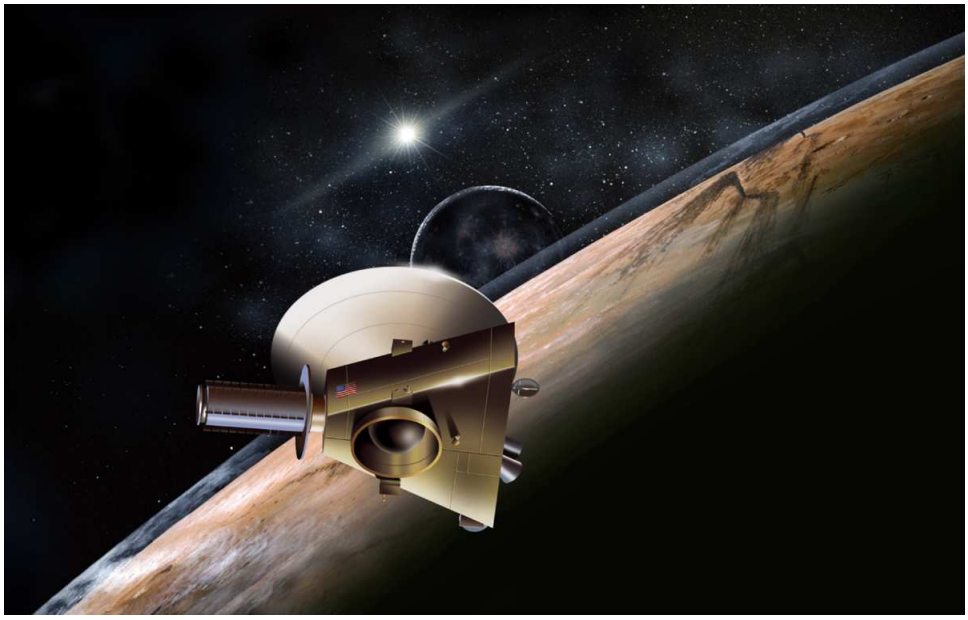
For only seven constellations does no part whatever rise from my latitude of 25° North. Which of the rest is toughest to see any part of? I vote for Triangulum Australis, but Beta Tri. Aus. does rise for a very brief time right behind Alpha Centauri.

Of course, working the horizon is a game observers can play anywhere. It's a good way to learn about new areas of the sky, and you end up seeing objects that others have missed. For example, last summer at Farpoint I saw all of Corona Australis. This constellation is more of a script "C" shape than a symmetrical "C" like its northern counterpart. Nevertheless, it contains a nice section of the summer Milky Way below Sagittarius and several nice clusters, including bright globulars NGC 6541 and NGC 6496.

Look for it yourself.

VOYAGE TO A DOUBLE PLANET: by Patrick L. Barry and Dr. Tony Phillips

Download a "nine planets" screensaver for your computer with spectacular photos of our solar system, and you'll notice that one planet is conspicuously missing: Pluto. Icy and mysterious, Pluto is the only planet never visited and photographed by NASA space probes.



Artist's idea of the New Horizons spacecraft flying by Pluto and its moon, Charon (Credit: Dan Durda.)

In fact, the clearest image we have of Pluto is a tiny, pixelated blob of light and dark patches taken by the Hubble Space Telescope in 1994. It's tantalizing Š but not much more. Earth-based telescopes have succeeded, however, in discovering one amazing fact: Pluto is not a lone world, but a double-planet system. Its companion, measuring about half the size of Pluto itself, is named Charon.

Work is underway to launch a robotic probe to visit and photograph Pluto and Charon. The project, called New Horizons, will map both worlds. Sensors will chart surface minerals and ices, and catalog the gases that make up Pluto's wispy atmosphere.

"It's the second epoch in the exploration of the planets," says Alan Stern, the principal investigator for New Horizons at the Southwest Research Institute in Colorado. "We're going to the very edge of the solar system."

The probe is scheduled to launch in January 2006. Its journey will be a long one. Pluto is more than 30 times further away from the Sun than Earth is! Even with a speed boost from a flyby of Jupiter, the probe won't arrive at Pluto until July 2015. Afterward, the probe will venture on to explore the Kuiper Belt, a distant "halo" of small, frozen objects surrounding the solar system, from which comets originate.

Aside from sheer curiosity about these distant worlds, scientists are motivated by questions about the formation of the solar system. Orbiting in the deep freeze far from the sun, Pluto and Charon have undergone less change than the inner planets during the solar system's 4.5 billion year history. These two worlds will provide a glimpse into the past.

Pluto could also shed light on the origin of our own Moon. Earth, with its single, large moon, is unusual. The Pluto-Charon system is the only other pair like it in the solar system. In fact, some astronomers consider Earth and the Moon to be a double planet, too. So knowing more about Pluto and Charon could give clues about how the Earth-Moon system formed.

And, of course, the spectacular, up-close photos of Pluto and Charon are going to look great as a screensaver! *This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration*

HERE ARE SOME PRICES FROM THE NEKAAL STORE:

S&T	**$32.95**	
Astronomy	**$29.00**	
hats	**$8.00**	**marked down**
Tshirts	**$8.00**	**marked down**
Sweatshirt	**$10.00**	**marked down**

Name tags	**free**
Tote bags	**$8.00**
Coffee Mugs	**$10.00**

Please contact Walter or Nancy Cole to acquire any of these items.

FACILITIES REPORT: by Bill Leifer

Supplies and Maintenance were performed for March. A few sizes of fuses were low and will be replaced, including 1, 3, 5, and 10 amp. What was once a decent supply of cookies has already been depleted by me and a group of 6th Graders from Cair Paravel.

The roof cable has stretched over time and needs tightening.

The grass seed that Marshall and Waldean Miller sowed appears to be germinating.

Moles are taking over the FPO grounds. They might be fugitives from the chaos of the elementary school construction. The mounds of dirt they are leaving are a potiential hazard for tripping on very dark moonless nights. We might consider toxins or high explosives. Tactical nuclear devices are not an option at this point. Reminds me of "Caddy Shack".

The exterminator has done an inspection and finds no evidence of insect problems. (Maybe I should ask him to walk into the shed in mid summer.) A bid for termite treatment was very expensive. In the absence of obvious problems, the board has opted not to waste money on that.

Fixit weekend has been set. Please see the list of projects and the call for volunteers in this issue of the Observer.

The floor of the computer room looks really bad. I will try concentrated cleaner on it, but replacing the linoleum or actually just living with it may be necessary.

We are still waiting for an unexpired bee sting allergy kit from Jerry Majers.

Gary has wisely suggested that the outdoor molding be replaced with molding actually designed for outside, such as plastic or metal.

We are awaiting possible new computers donated from the casinos, via Mike Ford. These will be essential for doing good astrometry with the Tombaugh Telescope. Even if these computers have a row of three cherries or oranges that come up whenever they are booted, we will accept them gladly.

Editors Note: An Update!

The May 1 work session went well. See the 'From the Prez' article on oage 1 to seee what else Bill and crew have accomplished at Farpoint. We still have to seal the deck, replace the bee sting kit, and paint the shed door trim.

FINANCES: by Nancy and Walter Cole

Nekaal-Bank,Cash,CC Accounts **4/8/04**

NEKAAL Cash Flow Report
1/1/04 Through

Category	
INFLOWS	
Contributions	140.00
Contributions-In Kind	33.77
Dues 2004	595.00
Int Inc-Interest Income	0.97
TOTAL INFLOWS	**769.74**
OUTFLOWS	
Computer:	
Internet access-dial up on line	33.77
TOTAL Computer	33.77
FPO Utilities	258.47
Repair & Maint	57.33
Subscriptions:	
Magazine Subs	32.95
Subs.payments recd	-32.95
TOTAL Subscriptions	0.00
Telephone-Telephone Expense	72.42
TOTAL OUTFLOWS	**421.99**
OVERALL TOTAL	**347.75**

Nekaal-Bank,Cash,CC Accounts **4/8/04**

Cash Accounts
As of 3/31/04

Acct	Balance
ASSETS	
Cash and Bank Accounts	
Money Market	570.40
Money Market 2-Telescope Fund	3,398.00
Nekaal-checking	1,691.77
TOTAL Cash and Bank Accounts	**5,660.17**
TOTAL ASSETS	**5,660.17**
LIABILITIES	**0.00**
OVERALL TOTAL	**5,660.17**

Your Observer Article?

This space is reserved for your article, which I did not receive. Next month, you should provide a short article. Just email it to Graham Bell.

THE LOWELL PLUTO ANNOUNCEMENT:

LOWELL OBSERVATORY

Observation Circular

THE DISCOVERY OF A SOLAR SYSTEM BODY APPARENTLY TRANS-NEPTUNIAN

The message sent last night (March 12) to Harvard Observatory for distribution to astronomers read as follows:

"Systematic search begun years ago supplementing Lowell's investigations for TransNeptunian planet has revealed object which since seven weeks has in rate of motion and path consistently conformed to Trans-Neptunian body at approximate distance he assigned. Fifteenth magnitude. Position March twelve days three hours GMT was seven seconds of time West from Delta Geminorum, agreeing with Lowell's predicted longitude."

(For ease in finding object was referred to Delta Geminorum.
Position March 12.14 G.M.T. R.A. 7h 15m 50s Dec. 22° 6' 49")

The finding of this object was a direct result of the search program set going in 1905 by Dr. Lowell in connection with his theoretical work on the dynamical evidence of a planet beyond Neptune. (See L. O. Memoirs, Vol. I, No. 1, "A Trans-Neptunian Planet," 1914). The earlier searching work, laborious and uncertain because of the less efficient instrumental means, could be resumed much more effectively early last year with the very efficient new Lawrence Lowell telescope specially designed for this particular problem. Some weeks ago, on plates he made with this instrument, Mr. C. W. Tombaugh, assistant on the staff, using the Blink Comparator, found a very exceptional object, which since has been studied carefully. It has been photographed regularly by Astronomer Lampland with the 42-inch reflector, and also observed visually by Astronomer E. C. Slipher and the writer with the large refractor.

The new object was first recorded on the search plates of January 21 (1930), 23rd, and 29th, and since February 19 it has been followed closely. Besides the numerous plates of it with the new photographic telescope, the object has been recorded on more than a score of plates with the large reflector, by Lampland, who is measuring both series of plates for positions of the object. Its rate of motion he has measured for the available material at intervals between observations with results that appear to place the object outside Neptune's orbit at an indicated distance of about 40 to 43 astronomical units. During the period of more than 7 weeks the object has remained close to the ecliptic; the while it has passed from 12 days after opposition point to within about 20 days of its stationary point. Its rate of retrogression, March 10 to 11, was about 30" per day. In its apparent path and in its rate of motion it conforms closely to the expected behavior of a Trans-Neptunian body, at about Lowell's predicted distance. There has not been opportunity yet to complete measurements and accurate reductions of positions of the object requisite for use in the computation of the orbit, but it is realized that the orbital elements are much to be desired and this important work is in hand.

In brightness the object is only about 15th magnitude. Examination of it in the large refractor—but without very good seeing conditions—has not revealed certain indication of a planetary disk. Neither in brightness nor apparent size is the object comparable with Neptune. Preliminary attempts at comparative color tests photographically with large reflector and visually with refractor indicate it does not have the blue color of Neptune and Uranus, but hint rather that its color is yellowish, more like the inner planets. Such indications as we have of the object suggest low albedo and high density. Thus far our knowledge of it is based largely upon its observed path and its determined rates of motion. These with its position and distance appear to fit only those of an object beyond Neptune, and one apparently fulfilling Lowell's theoretical findings.

While it is thus too early to say much about this remarkable object and much caution and concern are felt—because of the necessary interpretations involved—in announcing its discovery before its status is fully demonstrated; yet it has appeared a clear duty to science to make its existence known in time to permit other astronomers to observe it while in favorable position before it falls too low in the evening sky for effective observation.

—V. M. SLIPHER.

Flagstaff, Arizona
March 13, 1930

Clyde W. Tombaugh

BOARD MINUTES (APRIL 4, 2004) by Bill Leifer

Members present: Gary Hug, Graham Bell, Walter Cole, Bill Leifer, Janelle Burgardt, David Costales, Dan Tibbetts, Russell Valentine. Members Absent: Julee Fisher, Jerry Majers, David Ryan.

The meeting was called to order by the President, Graham Bell, at 3:45 PM on April 4, 2004.

Previous Minutes - The minutes of the previous meeting were accepted.

FINANCIAL REPORT - Walter Cole:
The financial report was distributed. Total inflows were $769.74, total outflows were $421.99, and balance is currently $5660.17. Walt also mentioned that he has received notice of the annual meeting of the electric CO-OP on April 7. NEKAAL board members are welcome to attend.

FPO Facilities Report – Bill Leifer:
Preventive maintenance and supplies were performed for March. One additional problem reported by Russ and Graham is additional drill holes for the antenna mast that were created and need filling. Current pending projects are 1) Fill antenna mast drill holes, 2) Exterminator inspection, 3) Replace outside door molding, 4) Raise sunken walkway support, 5) Tighten slack from steel roof cable, 6) Finish wireless internet connection. The area on the east side has been smoothed and seeded with grass by Marshall and Waldean Miller. Additional seeding might be needed next fall.

OLD BUSINESS/PREVIOUS ASSIGNMENTS:

The replacement of the outdated bee sting allergy kit is still pending.

Russ is waiting for Roger Stumpf at MVHS to allow access for completing the antenna installation set up at the high school. Graham agreed to contact Mr. Stumpf to see when this can be arranged.

The 2004 goals list was circulated. It currently includes establishment of Night Sky Network, addition of two new computers plus ACP2, building and installation of the 27" scope, establishment of the wireless internet connection with MVHS T-1 high speed service, EPO grant, astrometry curriculum and program, and fundraising. No additions were made to this list at the meeting.

Updating of position descriptions remains incomplete. We still need input from Jerry Majers on the VP position, Walt Cole on the Treasurer responsibilities, and everyone on the general board member responsibilities.

The Night Sky Network implementation is underway. Janelle reported that a 6th grade group is interested in participating. Janelle will also be creating a section of the web site devoted to NSN.

Janelle completed the EPO grant application, and it was postmarked on time at 11:42 AM on 3/39/04. Congratulations and thank you to Jan and her team for this huge and important effort. We will await response from NASA.

Graham provided an update on the status of the NASA paperwork for the primary grant. He has left a message for Lindley Johnson at NASA, but we are waiting for a reply. The entire project, including beginning scope construction awaits the paperwork and funds.

Other possible grant sources were discussed. Security Benefit "Life" appears to be a "dead" end. Monies routinely are diverted back to stockholders rather than being applied for community grant projects. No progress is reported on the plan to obtain computers and software from the Casino source.

The plan to develop a checklist for key holders was discussed. It was decided that the size of NEKAAL membership makes a minimal plan appropriate. Some of the items to be included can be dovetailed into the FAST program curriculum and checkout. Bill agreed to develop a list for consideration.

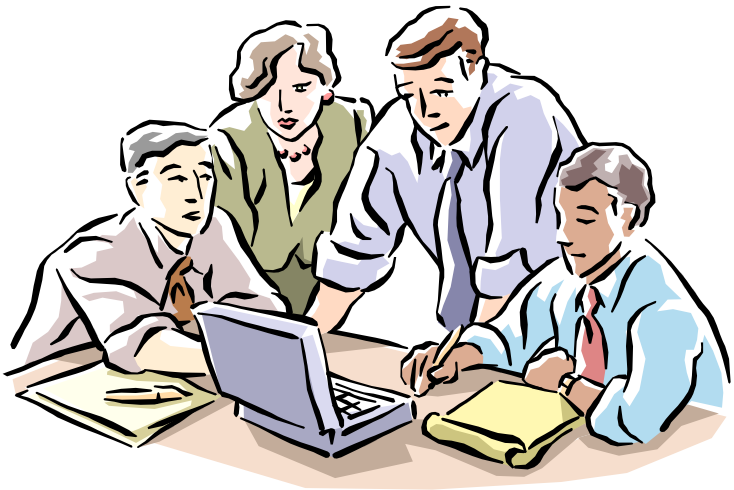
NEKAAL BOARD MEETINGS — OPEN TO ALL MEMBERS

This is just a reminder to let you know that our board meetings are open to all members. Please feel free to attend and participate in the discussions.

Some of the items which will be on the May 16 agenda include:

- The Tombaugh Telescope project — grant status, funding and construction progress.
- Availability of a grant from SBC, which could be used to further improve our Internet connectivity between Farpoint and MVHS
- Status of the grant to acquire new computers and software

If you have an agenda item, please let Graham Bell know.



May 2004

+Sun	Mon	Tue	Wed	Thu	Fri	Sat
						1
2	3	4 full 	5	6 Eta Aquarid meteors	7	8
9	10	11 last 	12	13	14	15
16 Board—3:30 Farpoint	17	18	19 new	20	21	22
23	24	25	26 1st 	27 **General Meeting 7:30**	28	29
30	31					

2004 NEKAAL MEMBERSHIP FORM

Please check appropriate membership type:

☐ Individual $30 ☐ Family $35
☐ Student $10 for first year, $15 each succeeing year

Name:

Address:

City State: Zip:

Phone Numbers:

E-mail:

Mail form and check to NEKAAL
PO BOX 951, TOPEKA, KS 66601

FARPOINT CONTRIBUTERS

Help us improve and maintain Farpoint Observatory. A $50 donation (membership dues not included) gets your name on a plaque on Farpoint's *Wall of Fame.*

☐ I am including an extra $10 for a one year subscription to the Observer

Contributer Name:

Address:

City: State: Zip:

Name on Plaque:

Donation is for ☐ Farpoint operating fund
☐ Telescope fund

Mail form and check to NEKAAL
PO BOX 951, TOPEKA, KS 66601

Meeting Schedule

NEKAAL meets monthly on the fourth Thursday, January through October, at Washburn's Stoffer Hall. The meetings are at 7:30 pm.

Guests are always welcome to join us for the General Meetings and/or observing at Farpoint.

April General Meeting
Thursday, April 22, 2004, 7:30 pm
Stoffer Science Hall, Room 103
Russell Valentine: *Farpoint Internet*

Whom do you contact:

Meetings, Speakers:	Graham Bell
Farpoint Functions, Scheduling:	Janelle Burgardt
Farpoint Maintenance:	Bill Leifer
Special Presentations, Groups:	Janelle Burgardt
Dues, Donations, Merchandise:	Walter Cole
FAST:	Gary Hug, Graham Bell
Web Content	Janelle Burgardt
Observer Articles	Graham Bell
Other Web Issues:	Russell Valentine
General Questions:	Any board member

Graham Bell	256-6281	gebell@mindspring.com
Janelle Burgardt	266-5624	sky_liebe@yahoo.com
Walter Cole	266-4911	w.i.cole@worldnet.att.net
David Costales	256-2327	dcostales@bigfoot.com
Julee Fisher	234-2826	
Gary Hug	836-7828	frogstar@intergate.com
Bill Leifer	478-4249	williamleifer@usa.net
Jerry Majers	862-8869	jmajers@cox.net
David Ryan	272-0177	dlryan@cox.net
Dan Tibbets		Ddtfp@aol.com
Russell Valentine	862-5046	russ@coldstonelabs.org

These numbers and email addresses are not to be shared with others. They are to be used by members only!

"The *REAL MEETING*" Gathering

Please join us for post-meeting eats at Perkins Restaurant, 1720 SW Wanamaker. Some members refer to this as "the real meeting" which follows our general meeting each month.

Open House Dates for 2004

February 13	7:30	July 23	9:30
March 12	7:30	August 20	9:00
March 26	7:30	September 18	8:30
April 30	9:00	October 23	8:00
May 28	**9:00**	November 20	7:30
June 25	9:30		

Club Observing Dates for 2004

January 23-24	July 16-17
February 20-21	August 13-14
March 19-20	September 10-11
April 16-17	October 15-16
May 21-22	November 12-13
June 18-19	December 20-21

Farpoint Observatory
W. Long. 96°00'08.6" Elevation = 406 m
N. Lat. 38°53'24.9" = 1320 Ft.

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PO BOX 951
TOPEKA, KS 66601

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