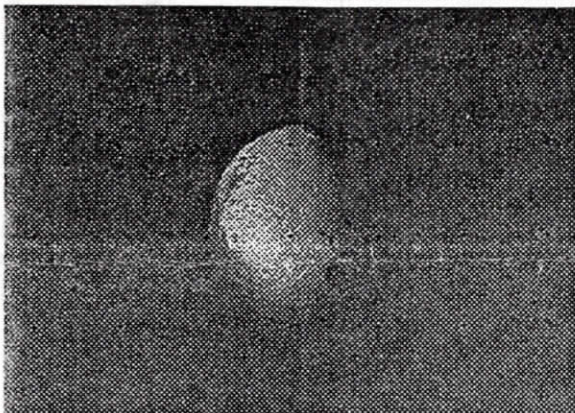
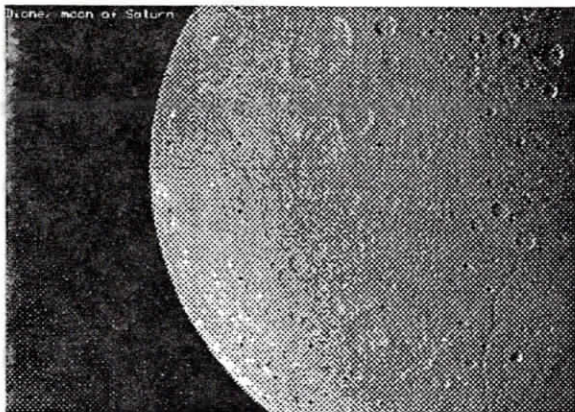


The Picture Gallery



The Prairie Astronomer

c/o The Prairie Astronomy Club, Inc.

P.O. Box 80553

Lincoln, NE 68501

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Duane Hutchinson
3445 Touzalin Ave.
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Next Meeting April 28, 1992

First Class Mail

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EXPLORE WITH VOYAGER

by Rick Johnson

Until recently the Voyager picture data base was so enormous only large research institutions could afford the cost of this data base. Certainly it was out of the reach of any amateur astronomer. Not any more. The data base is now available at the unheard of bargain price of less than \$1 per 100 megabytes of data! While the data base is some 16 gigabytes in size, the total cost is only about \$125 plus tax. Considering a paltry 600 meg hard drive costs over \$1500 how is this possible? Thank the audio CD that is putting records out of business.

Using the exact same duplication process that makes music CDs, a CD-ROM computer disk can be manufactured for \$10 that holds more data than the \$1500 hard drive. Those of you at the February meeting heard Jim Rains report on this data base's availability right here in Lincoln. It was greeted with a very small yawn. I guess no one realized what this meant. Now the data that used to be available only to institutions with millions of dollars to spend on computer resources is now available to anyone able to afford a telescope. Even if you don't have a computer at all, you can purchase a computer from any of several places in Lincoln powerful enough to fully enhance all images in the data base, the CD-ROM drive to access the data base and the data base itself for about \$1300. If you have the computer but no CD-ROM drive,

one can be purchased for as little as \$280 here in town and a bit less mail order.

While most any computer will work, a 16meg 386sx machine with supervga board is the minimum for anything but snail paced processing. SuperVGA boards by ATI, Everex, Orchid, Paradise and Trident are supported by the software provided. Such boards are often included in the base price of new computers though you will need to add 256k of memory to them at a cost of about \$20-\$80 depending on the type of memory used. Many generic boards are made by these manufacturers as well but you must be certain of compatibility before purchasing these. I do know Compuadd's own superVGA board is fully compatible with the Orchid board as that is what I am using.

The software that comes with the data base is version 4.4 but Jim tracked down version 7.4 which he and I now use. It is far more powerful. Combined with another free program called PICEM you can create excellent slide shows from this data base.

The data base comes on 12 CD-ROM disk you can purchase in Lincoln at CD-ROM WORLD, 3140 "O" St., Lincoln, NE 68510, 402-434-2904, BBS 402-435-5105. All images are on the disks twice. Once as a compressed 800 by 800 pixel image exactly as relayed from Voyager and again as a 200 by 200 uncompressed browse image. The program can scan through the browse images to allow you to select the images that seem worth further review. Since this is nearly all the images returned, even those that missed their target,

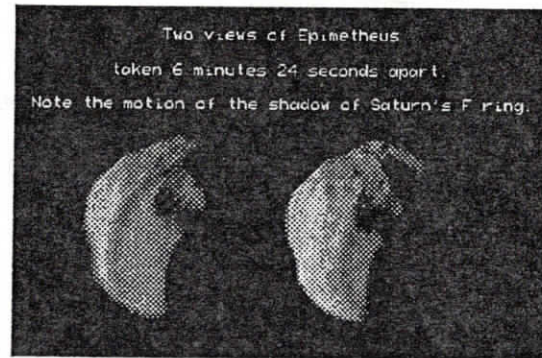
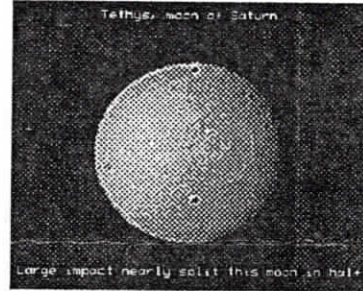
many are of little visual beauty or interest though valuable scientifically. All data about the photograph is available, the filter used, the camera used, the exact instant it was taken, exposure time, pointing angles relative to Voyager, etc. Unfortunately, no data on the trajectory is provided nor is any software provided that can figure this out from the numerous navigation frames showing star fields and planets or moons.

Once you have selected images for further review the 800 by 800 image can be moved from the CD-ROM to your computer. The image must be decompressed as you do this as it is stored in a highly compressed format to save space on the CD-ROM. Once decompressed on your hard disk it is about 678k in size! Now you can start processing the image. This is necessary as many of the best images are nearly invisible in the raw data. About the only thing the software can't really do is recreate the full color images NASA has released. If I had a full 24 bit video board it might be done but that is the next step. Centering, sizing, rotating and matching each of three images is a bit beyond my abilities at present. Color balance would be a guess at best. In the meantime black and white enhancement or pseudo-color processing will keep me busy for many years to come. I've only looked at a few hundred of the 4025 images from the Saturn encounter and this is the smallest data base of all!

Once enhanced, the image can be stored in a GIF file for permanent storage or slide show presentations. For the latter the software allows

text messages to be superimposed over the image. These GIF files are far smaller than the raw data. Still 30 or more megabytes of hard disk space can vanish in a weekend when working with these images.

For this month's program I'll demonstrate what little I have been able to explore of the data base. Anyone wanting GIF file images, enhancement software and maybe a raw image or two to play with can bring a few disks to the meeting and I'll make copies for you. The software and data base are public domain so no laws will be violated. Sorry, no 360k disks, as the files are bigger than the disk! ■



Observing Chairman's Report by Dave Knisely

THE NEXT SCHEDULED STARPARTY WILL BE HELD FRIDAY, MAY 1st AT THE ATLAS SITE. Galaxies abound in the spring sky, with a few visible even in high-powered binoculars. An easy starting point is the bright spiral M51, located 1.75 degrees south and one west of 24 Canum Venaticorum. It can be seen in binoculars as a tiny fuzzy spot of light, with a 2.4 inch refractor often showing its companion galaxy, NGC 5195 near its north side. The spiral structure is difficult to see, but can be glimpsed in an eight inch aperture under good conditions. In ten inch and larger apertures, higher powers may be used to good advantage to reveal some of the patchy detail in the spiral arms.

Another interesting spiral is M63, located 1.25 degrees north of 19 Canum. It appears as a faint fuzzy oval in small instruments, with larger ones adding little detail. A ten inch will show a star-like nucleus and inner rectangular halo that appears mottled. A somewhat more interesting galaxy is NGC 4631, a nearly edge-on spiral which can be found 5.75 degrees south and 2.5 degrees west of Alpha. Smaller apertures will show it as a faint fuzzy cigar-shaped patch, while instruments eight inches and larger will sometimes reveal some patchy detail in the galaxy. A ten will show the tiny elliptical companion NGC 4627 near the northwest side, along with a few star clouds and some patchy dark detail.

About a degree east-southeast of NGC 4631 is the peculiar galaxy NGC 4656. It is difficult in a six inch, appearing as a small faint fat streak. An eight inch will make it look longer, and will reveal a faint hook like feature on the northeast end. A ten inch shows variations in brightness along the hook and a dark spot between the hook and the main body of the galaxy.

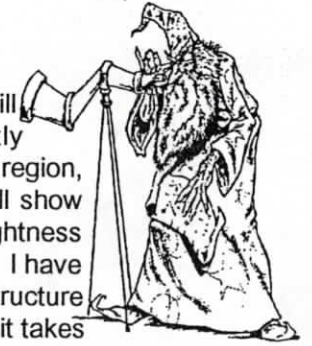
Up in Ursa Major are a number of interesting galaxies. M101, located about five degrees east and a half south of Alcor, is large, so its surface brightness is quite low. Small telescope users will find it to be roughly circular and extremely

faint. A six inch will show the slightly brighter nuclear region, while an eight will show variations in brightness in the outer haze. I have seen the spiral structure in a ten inch, but it takes a good night, and the arms are quite vague.

If you look 3/4 degree south and 1.5 degrees east of Beta Ursa Majoris, you will find the faint edge-on spiral M108. A four inch will show it as a broad fuzzy streak with a faint star near the center. An eight inch may reveal hints of dark detail, while a ten will reveal a dim irregular dark lane down the middle of the galaxy. Nearby is the famous "Owl" nebula, M97, located 1.5 degrees south and two east of Beta. This planetary nebula is a bit easier to find than M108, appearing in a four inch as a circular dim fuzzy spot. Larger instruments add little detail, except for the hint of one dark spot off center when viewed in an eight inch. Nebular filters do help a bit in defining the "eyes", but they are marginal features.

If you are tired of looking at galaxies, try the bright globular cluster M3, located about six degrees east of Beta Comae Berenices. Visible in small binoculars, M3 will show a few stars on its fringes in a four inch. An eight inch at high power resolves it almost completely to the core, with the field of view filled with faint stars.

As a final target, look 3.75 degrees south of Chi Virginis for the small but bright galaxy, M104. I have seen it in a pair of 10x50 binoculars, and small telescopes should show it as a small spindle-shaped fuzzy patch with a brighter center. A six inch under good conditions may show the narrow dark lane down the middle, although larger apertures make the dark lane much easier to see. In a ten inch, the galaxy looks a bit like short exposure photographs.



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: Junior Members and Newsletter Only Subscribers...\$10/yr; Regular Members...\$26/yr; Family Memberships...\$29/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 officers: Dave Knisely (Pres)223-3968, Eric Hubl (V.Pres)423-6267, Ron Veys (Sec)486-1449, Lee Thomas (Tres)483-5639, Jack Dunn (2nd V. Pres)475-3013. All newsletter comments and articles should be sent to Newsletter Editor JOHN LORTZ, 12023 PARKER PLZ #105, OMAHA, NE 68154 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.

Another Far-Flung Member is Heard From!

Bryan Schaaf dropped the PAC a line to say he's alive and well...

May of this year will mark the end of my initial enlistment in the navy. I have 2 years remaining for a total of 6 years (Yes, I was deployed at the gulf war). Although I've had some good experiences in the navy, I will gladly return to civilian life when the time comes.

I have continued my interest in astronomy, admittedly as a arm-chair astronomer most of the time. I currently own two ODYSSEY dobsonians; one at my Virginia Beach, Virginia location and the BIG ONE at Lincoln.

Twice a year I visit friends and family in Lincoln. Even so, I've managed to miss all the PAC meetings. I hope to change that next year or December of this year. Regretably, during my vacation this month which begins April 14, I will have a previous engagement and I'll miss the meeting again! Maybe I'll get over to Hyde on a Saturday night for observing with the public. I hope to see someone I know.

Also, some day I would like to participate in a star party at the Atlas site. That will be another "next year" event for me.

I'll get there someday! Meanwhile, as Jack Horkheimer says, "Keep looking up!" ■

The PAC Makes the News...

The Prairie Astronomy Club was recently profiled in the Astronomy Network News, a small newsletter that contains news articles and information that clubs can use in their own newsletters. The profile included a nice

copy of the club logo, information on what the club does, the types of telescopes owned, and a paragraph on the Atlas site.

The News is published by the people that give us Astronomy Magazine, and is sent to newsletter editors and clubs all around the country. ■

Share the Sky with "Loner Scopes"

From the Astronomy Network News

Does your club have more members than telescopes? Perhaps you should think about designating one or more instruments as loaner telescopes.

Perusing your newsletters revealed several clubs offering members the use of a telescope for free or a nominal charge (\$5/month). Some guidelines: Require a signed responsibility agreement to insure the telescope is kept in good working order. Set a specific amount of time (two weeks if demand is high) and allow members to renew the contract if on one else has made a request. Include eyepieces and a star atlas for a complete observing package, perhaps even a tutor to spend the first night helping the borrower get accustomed to operating the telescope.

Loaner telescopes constitute a club benefit that is especially attractive to new members who may not have access to a telescope. Offering a variety of instruments-reflector, refractor, Schmidt Cassegrain-and configurations-Dobsonian, equatorial, etc.-new and seasoned members can experience firsthand the differences of each.

Making a telescope or acquiring funds specifically for this purpose makes a great project which will benefit the entire club membership. ■

President's Message

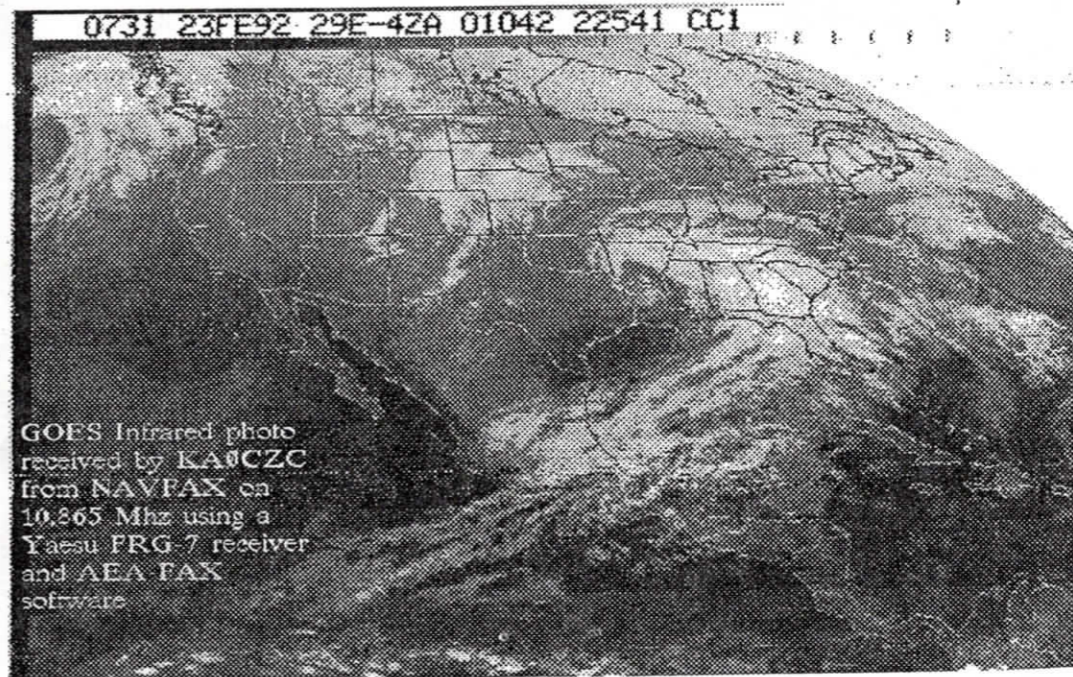
by Dave Knisely

REMEMBER ASTRONOMY DAY, SATURDAY, MAY 9th AT MUELLER PLANETARIUM. Setup will begin around 8:30 or so, with the exhibit open at 10:00. Teardown will start at 4:00 p.m., so plan accordingly. This is our big public event of the year, so bring your telescopes, computers, pictures, models, and, most importantly, yourself, to the planetarium.

IN OTHER NEWS: Ever want to know what the weather will be or what the cloud cover is without having to listen to the blatherings of the local weather person? Then take heart, for you can receive weather maps, satellite pictures, and data, directly from NOAA, via shortwave radio and a method called WEFAX, (WEather FASimile). All you need is a PC (IBM or compatible) with VGA capability (color or monochrome), a shortwave radio capable of receiving single sideband (SSB) transmissions, and the new AEA-FAX unit from Advanced Electronic Applications, of Lynnwood, Washington (\$99.95). With it, you can display and

save interesting weather charts and maps, along with splendid satellite pictures which look nearly the same as those on the 6:00 news. You can even put the pictures in a loop like the Weather Channel does, and watch storm systems move and swirl around the country.

I use AEA-FAX for deciding whether it will be clear for observing, and for my other "hobby" of severe weather spotting. The weather maps are usually clear but rather complex, making them difficult to interpret unless you have some experience in meteorology. Still, it's fun to develop your own skill at weather forecasting. You can also pick up news photos and other facsimile transmissions on the shortwave bands. So, instead of looking up all the time, try a look down at our planet with AEA-FAX. You may hate clouds, but at least now, you can watch them from above when they spoil your nighttime view. ■



PRAIRIE ASTRONOMY CLUB ACTIVE MEMBERS
As of 4/20/92

LAST NAME	FIRST NAME	ADDRESS	CITY	STATE	ZIP	EXPIRE MONTH	STATUS	KEY	PHONE	CARD NUMBER
Alberts	Russ	2315 So. Canterbury Ln.	Lincoln	NE	68512	92/09	R	05	423-6590	91047
Bell	Doug	3721 Timberline Ct.	Lincoln	NE	68506	93/05	R		489-8197	92008
Benes	Michael	722 Hill St.	Lincoln	NE	68502	92/12	R		476-9175	91051
Bornemeier	Steve	1820 F ST., #7	Lincoln	NE	68508	92/11	RA	06	435-0007	91032
Brown	Michaela	1016 Starview Ln.	Lincoln	NE	68512	92/08	F	22	423-9031	91022
Bruce	John	900 Dale Dr.	Lincoln	NE	68510	93/03	RA	15	483-0389	92002
Clothier, M. D.	John	355 So. Cotner Blvd.	Lincoln	NE	68510	92/09	R		488-4602	91025
Coufal	Norma	218 E. LaFrance Ave.	Alhambra	CA	91801	93/05	R			92006
Debus	Ron	1014 Knox St.	Lincoln	NE	68521	92/10	RA	12	435-5688	91046
Dunn	Dennis	5131 Jade Ct.	Lincoln	NE	68516	93/05	FA		423-8096	92012
	Jack	1340 F St., Apt #101	Lincoln	NE	68502	92/03	F		475-3013	91002
Fairchild	Mark	3607 B St.	Lincoln	NE	68510	93/02	R	07	488-8681	92003
Fitzgerald	Jeff	12600 W. Bluff Rd.	Malcolm	NE	68402	92/10	R		796-2418	91036
Franey	Harlan	5523 So. 73rd St.	Lincoln	NE	68516	92/12	R		489-5234	91054
Frerichs	Norman	623 No. 9th St.	Beatrice	NE	68310	92/08	R		223-2509	91041
Gancarz	James	P. O. Box #742	North Platte	NE	69103	92/05	R			91010
Gibb	Cedric	4647 Mohawk Cr.	Lincoln	NE	68510	92/07	R		488-5370	91021
Gowin	Francis	1742 Pepper Ave.	Lincoln	NE	68502	93/02	RAT		435-5282	91056
Hartley	Dick	320 Wedgewood Dr.	Lincoln	NE	68510	92/10	R		489-4105	91030
Hetzel	Bev	2946 Cable Ave.	Lincoln	NE	68502	92/07	RD		483-2119	91015
Hubl	Erik	624 So. 51st St.	Lincoln	NE	68510	92/06	F	13	488-1698	91024
Hutchinson	Duane	3445 Touzalin Ave.	Lincoln	NE	68507	92/10	R		466-4988	91031
Johnson	John	15606 Woolworth Ave.	Omaha	NE	68130	93/04	RT			92005
	Richard	1860 Pawnee St.	Lincoln	NE	68502	92/09	RAD	09	423-6726	91028
Killion	Pamela	3425 N St.	Lincoln	NE	68510	92/12	F		477-1780	92010
Kiple	Dave & Joan	3 Mockingbird Ln.	Lincoln	NE	68512	92/10	F	14	423-6377	91045
Knisely	David	1616 No. 14th St.	Beatrice	NE	68310	92/12	RT	04	402-223-3968	91057
Kohles	Roger	2912 So. 59th St.	Lincoln	NE	68506	92/11	R		483-1561	91042
Koutnik	Kevin	3261 29th Ave., Apt. #1	Columbus	NE	68601	92/10	R		563-4277	91027
Lamborn	John	3910 No. 62nd St.	Lincoln	NE	68507	92/12	R		466-2878	91048
Leavitt	Bob	1500 Crestline Dr.	Lincoln	NE	68506	92/10	R	25	488-5335	91038
Littrell	Rick	5325 Linden St.	Lincoln	NE	68516	92/09	F		489-5811	91040
Lortz	John	12023 Parker Plz. #105	Omaha	NE	68154	92/06	RADT	11	496-7157	91019
Losee	Robert	7810 Cherrywood Dr.	Lincoln	NE	68510	93/04	F	16	483-6126	92007
Manthey	Dr. Robert A.	6855 South St.	Lincoln	NE	68506	92/09	R		489-3237	91052
Marcum	Mildred	P. O. Box #314	Spencer	NE	68777	92/08	R			91043
Miller	Tim	RR#1, Box #23	Holmesville	NE	68374	93/03	R			92009
	Tom	3400 No. 102nd St.	Lincoln	NE	68527	92/10	R	23	466-4145	91035
Moore	Carroll	1140 No. 79th St.	Lincoln	NE	68505	92/09	RA		486-1886	91044
Moser	Earl	P.O. Box #162	Hickman	NE	68372	92/09	F	08	792-2260	91026
Motycka	Delmar	4546 Newton St.	Lincoln	NE	68506	93/06	RA	03	489-2520	92011
Myatt	Holly	607 Cedar Ave., #21	Norfolk	NE	68701	92/08	R		379-4648	91023
Neville	Daniel	410 So. 28th St.	Lincoln	NE	68510	92/11	RAT	02	476-7772	91050
Pfeiff	Bill	941 So. 50th St.	Lincoln	NE	68510	92/04	R		488-6078	91004
Prell	Philo	4425 Randolph St.	Lincoln	NE	68510	99/99	H		488-3457	90049
Rains	James	4731 Old Cheney Rd., #22	Lincoln	NE	68516	93/03	R		423-9482	92001
Redfern	Greg	PSC 455, Box 164 NAVSTA Guam	FPO	AP	96540	92/08	R			91029
Rydz	Rev. Zygmund	Marianna Dr. 25, Box 25R	Cedar Bluffs	NE	68015	92/09	R		402-628-5895	91039
Stahl	Jason	6111 So. 31st St.	Lincoln	NE	68516	93/01	R		423-4912	91055
Stelling	Morton	5300 Fairdale Rd.	Lincoln	NE	68510	92/10	R		488-2212	91033
Thomas	L. Lee	5827 LaSalle St.	Lincoln	NE	68516	92/09	RAD	01	483-5639	91020
Traudt	Steve	2338-1/2 A Rattlesnake Ct.	Grand Junction	CO	81503	93/01	R		303-245-6700	92004
Urwiller	Mark	RR #2 Seven Hills No. 7	Kearney	NE	68847	92/08	RADT		308-234-6536	91037
Veys	Ronald	3320 Willow Wood Cr.	Lincoln	NE	68506	92/12	RAT		486-1449	91049
Williams	J.	P.O. Box #4656	Lincoln	NE	68504-0656	92/07	R	24		91017
Winemiller	Johnson	2749 W ST.	Lincoln	NE	68503	92/07	F	10	477-0587	91016
Wolfe	Kay	2 East 35th St.	Kearney	NE	68847	92/10	F			91034
Woudenberg	Donna	5340 Oldham St.	Lincoln	NE	68506	92/07	R		489-5995	91018
Wright	Kevin	RR #1, Box #69	Peru	NE	68421	92/12	R			91053