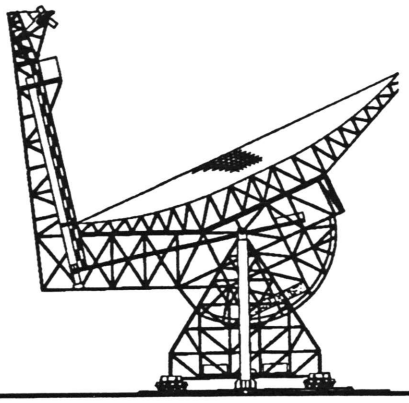


The Green Bank Tattler

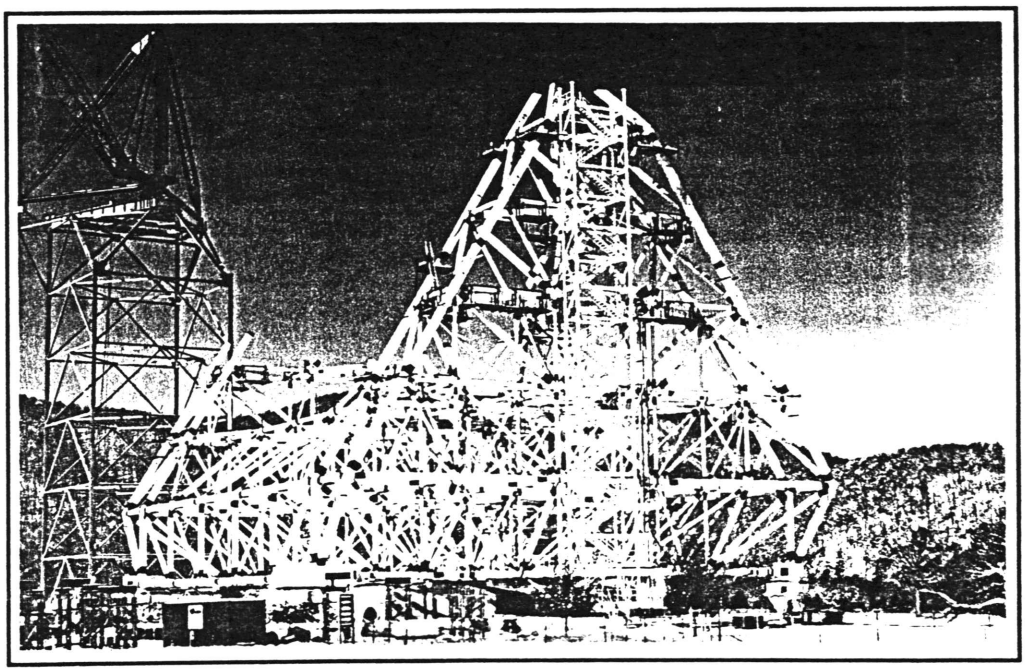
You better read it, we could be talking about you!

Volume 2, Number 1 February, 1994

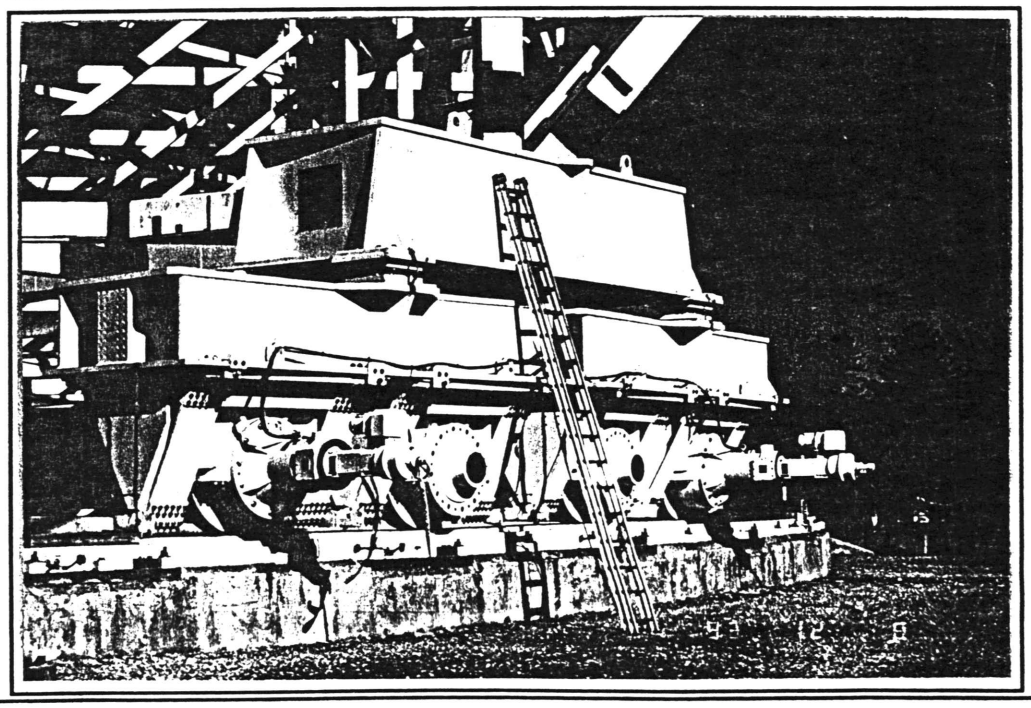
GBT Construction Takes a New Twist

Jay Lockman

A milestone in the GBT construction was reached on December 20 when the telescope first turned under its own power. The photo at right shows the telescope after the move. The taller tower is now on the east side. The GBT structure has risen so high that the top can be reached only by the large derrick and not by the mobile crane. From now on, the telescope will be periodically rotated to bring the necessary side in range of the derrick.



Several wheels now have electric motors and gear boxes mounted on them, just as they will have on the finished telescope. In the second photo you can see the motors extending out from the hub of two wheels, and an aluminum ladder to give a sense of scale.



During the winter months a lot of work has been done on the telescope wiring and in installing electrical equipment. As soon as the weather improves construction will resume at full speed.

Technical Seminar Series Begins

Jay Lockman

Starting Friday Feb. 11, we will begin a series of technical seminars to be held every other Friday at 1 PM in the Jansky Lab basement auditorium. The series will give us all a chance to learn about the technical activities at the Observatory and the work that our fellow employees are doing. I hope that the seminars will improve communication among engineers, particularly those working in different groups, and keep everyone abreast of the new technology, equipment, and techniques being used and developed here.

The seminars are not supposed to be highly formal -- a good example was set by the excellent presentations on the INTERNET by Aron Benett and Ed Meinfelder.

To make the introduction of a seminar series as painless as possible, the nominal length of the presentations will be 20 minutes with 10 minutes for discussion. The seminar will meet every other Friday at 1 p.m., with one speaker per meeting. Everyone is invited to attend. (The first seminar has been rescheduled for Thursday at 10:00 AM)

The schedule for the first few months is:

Feb. 17 at 10:00 AM : Jay Lockman on The Radio Astronomy Done at Green Bank.
Part I. An introduction to the kinds of experiments that visiting astronomers do here, and the information that they hope to obtain. This will include an introductory discussion of the objects in the universe that emit radio waves and some of the technical challenges that we face in measuring them.

Feb. 25: Tim Weadon on something great involving the GBT.

March 11: Bill Shillue: Orbiting VLBI Earth Station Optics and Receivers.

March 25: Mark McKinnon: Instrumental Polarization.

Distance Education Project Update

As you may know, our distance learning center is now hooked up and ready to go. That is, if you are interested in taking college courses, the equipment is available. Now what you may be asking?

Lots of different colleges and distance learning centers offer classes in a variety of subject areas. Many (but not all) of these courses are listed with the National Distance Learning Center (NDLC). This should be your first stop when looking for a listing of courses. And guess what? You can access the NDLC via Internet!

Here are a few directions to get you started. (If you don't have access to Internet, ask Shirley Curry for help. She is our coordinator.)

- make sure you can emulate a VT-100 terminal
- telnet to ndlc.occ.uky.edu
- when prompted for a login name enter: ndlc
- when prompted for terminal emulation enter: vt100
- follow prompts to register as a new user
- choose a database level in which to search. Information on courses for college credit are found in level 2.
- navigate through lists by typing the first letter of any menu item or by using the *space* bar to highlight items, then pressing *enter* to select that item.
- choose the *Provider* option to see a list of degree granting institutions. Once you have selected a provider, you can then search for subjects or audience level. From there you can see a listing of courses available ....or
- choose the *Standard* option to see a list of subjects, etc. fromm all providers on the NDLC system.
- when you are finished, log off by choosing the 0 option from the very first NDLC menu. To get to that menu, keep choosing *Out* from each menu until you get to the one that asks you to choose a database level.

If you can't find what you are looking for here, ask Shirley for help. There are providers who are not registered with the NDLC. If you want to know more about what it is like to take a course via satellite, ask Dave Seaman. He is currently taking some engineering courses.

Sue Ann Heatherly is the editor for the Green Bank Tattler. Comments, questions and submissions can be sent to her via mail, fax, e-mail, phone, or face to face.

Recreation Association News

Survey Results are In...

A couple of weeks ago the NRAO-GB ERA budget committee asked you to suggest projects, equipment, outings and entertainment that could be sponsored by the Rec. Association. Results from the poll are in. We received 22 responses - I'm assuming the rest of you think we're doing ok!

All of the activities and sporting trips that we currently sponsor were listed in survey responses as well as some interesting new ideas. In the category of equipment, the following "new" suggestions were made:

- to enlarge the space for the exercise room
- add equipment to the exercise room: a Nordic Track, multi-station weight lifting apparatus, better stairstepper.
- to fix and maintain the driving range
- to resurrect the 3-hole golf course
- to improve the volleyball area by moving it to one of the obsolete tennis courts filled with sand.
- to fix basketball courts at the Rec. Area
- to purchase tae kwon doe training equipment

Some expensive, if interesting suggestions:
- to refurbish the REc Area ski lift
- to build a bowling alley
- to put in an 18 hole golf course with clubhouse and bar!

In the category of sports/events, new ideas were:
- ski trips to Snowshoe and Canaan
- trail ride followed by a campfire/barbecue
- sled riding party with bonfire
- start a golf league with weekly trips to Marlinton
- start a cross country ski club
- hold a beginners golf trip with lessons
- mountain bike trips
- have a bowling trip, separate from league play
- billiards tournament

In the category of entertainment new suggestions were:
- teen dances
- teen evening pool parties
- New Years Eve adult dance
- country line dancing class
- local PC users group
- secure different groups to perform such as jump rope performers, folk singers, etc.

Of the activities that we currently support, bingo, children's parties, rafting, roller-skating, bowling and golf tournaments were most often mentioned. Adult dances, our newest activity, received an enthusiastic endorsement!

To those of you that returned surveys, thank you! As the budget committee meets over the next few days, your suggestions will be important!

Meet your new Officers:

During our January meeting, the following officers were elected:

Ron Maddalena: President
Chuck Beverage: Vice President
Bob Simon: Secretary
Steve White: Treasurer

Many thanks to Aron Benett, Ray Creager and Dave Parker for their work as officers during the past year. Continued thanks go to Steve for his diligence as our treasurer.

Take Your Tattler Home !

The Tattler has to large extent replaced those individual notices announcing events and happenings at the Observatory. Though the Rec. Association will continue to place announcements on all of the bulletin boards, this newsletter may be the only personalized notification that you receive. So take it home! Share it with your spouses! And mark your calendars!

Upcoming Events! Mark your Calendar

- **Roller-skating Party**

Meet at Skate World on Rt. 28.
Saturday, February 26 from 1:00 - 4:00 PM

Everybody who has participated in these parties will tell you: It's really **FUN**! You don't have to be a kid to enjoy roller-skating. We have the place to ourselves for the afternoon, and its free - so be there! Guests are welcome - and need only pay a small fee to rent skates.

- **Ski Trip!**

The Recreation Association will subsidize a ski trip to Snowshoe/Silver Creek! The amount of subsidy depends on the number that sign up.
Sunday, February 27th
12:30-4:30 PM
We have extended the deadline for sign up to **FEB. 15! See Bill Shillue or Sue Shears to sign up.** Don't miss this opportunity!

- **Another Roller-skating Party**

Skate World on Rt. 28 toward Canaan
Saturday, March 26 from 1:00 PM - 4:00 PM

- **Children's Spring Party**

Sat., April 2nd at 2:00 PM, NRAO Tour Center

This year, the New World Theater Company from Berkeley Springs, WV will perform "Hot and Cold Running Circus"

Look What's Cookin'

Becky Warner

Wanted: Healthy Appetites and Recipes

The cafeteria staff appreciates serving each and every one of you that uses our dining room. We would like to see more employees eat at the cafeteria. In various ways, we have tried to be more health conscious. We have cut back on fat and have experimented with different recipes. We want to please. Any suggestions would be very much appreciated. Any new items or recipes that you would like to see us offer let me know. Write down your suggestions or ideas and put them in my mailbox or feel free to talk to me about them. Thanks!

Familiy Pizza Night

Sue Ann says the best pizza in this end of the county can be found at the NRAO cafeteria! Everyone who eats in the cafeteria for lunch loves pizza day! Now your whole family can enjoy NRAO pizzas during Family Pizza Night, February 17th from 4:30-6:30 PM.

You need to order your pizza in advance so that the ladies will know how many to fix. Pizza orders should be placed to the cafeteria by 4:30 PM on Tuesday, February 15. (Call 456-2252) Don't forget! If this pizza night is successful, it will happen again folks!

Cafeteria Hours

Most of the time, the NRAO cafeteria is available to all employees, their families and guests. During breakfast hours and on weekends, when there are fewer cafeteria staff on duty, the cafeteria is open to those NRAO employees who are working and the residence hall guests only. (Starred times below indicate restricted access)

We ask for your patience at times when service may seem slow - particularly during the dinner hour. When several people come in at once and order a wide variety of food, it takes quite a bit of preparation time! If you know that you need to get in and out of the cafeteria quickly, you can place your order ahead of time.

Weekday Cafeteria Hours:
Breakfast 7:30-9:30 *
Lunch 12:00-1:00 PM
Dinner 5:00-6:30 PM

Saturday hours:
Breakfast in lounge *
Lunch 12:00-1:00 PM*
Dinner 5:00-6:00 PM *

Sunday
Breakfast 8:00 - 9:00 *
Lunch 12:00-1:30 PM
Dinner 5:00-6:00 *

Sunday Menu for Feb. 20th:
Fried Chicken,
Macaroni and Cheese,
Green Beans and Carrots

Proposal for the 140-ft telescope for the 21st Century

by Frank Goose

Introduction

The venerable 140-foot telescope at Green Bank is due to be shut down by 1996. NRAO can no longer support it after the new 100-meter telescope is finished. NASA had planned to take over the operation of the 140-foot to Search for signals from Extraterrestrial Intellegent civilizations ("SETI"). But Congress, in a rare moment of sanity, has canceled the SETI project. The time is ripe, therefore, to consider new and creative uses for the 140-foot. Several possibilities are listed below.

Apple Sauce Maker / Juicer

With the addition of a hydraulically operated parabolic press, the 140-foot can make sauce and juice from any fruit on a giant scale. This job would require a convex parabolic structure 30 to 50 feet in diameter which is suspended from the prime focus mounting by powerful hydraulic cylinders. To make sauce, simply fill the dish with apples till it is about half full. Then operate the press, and the sauce and juice is forced through the panel gaps and the Cassegrain hole, and is collected by a funnel system installed on the deck. The commercial potential of such a venture is enormous.

Ski Jump

During snowy weather, the 140-foot telescope can be set at an elevation angle of 45 degrees to make a fabulous ski jump. One enters the dish falling almost vertically at the upper edge of the dish. One rapidly picks up speed and rises up again at the lower edge where one is gently launched across the landscape at a breathtaking speed.

Swimming Pool

In the summer, the cracks and holes can be covered so that the dish becomes a giant swimming pool. The high dive from the prime focus is a particular thrill. The great dish can be gently rocked back and forth to produce waves, thus satisfying the primal need for surf. The addition of a boardwalk around the rim completes the effect of a seaside vacation.

Skateboard and roller skating rink

Imagine the thrill of skateboarding or roller skating 70 feet down a slope toward the center of the dish followed by the rapid ascent up the other side. For the experts, the dish can be slewed during the ascent for maximum effect. Or, when the dish points to the zenith, one can skate rapidly around the edge.

Omni theater projection screen

With the antenna tipped over in service position, it becomes an excellent projection screen for omni or other wide-screen projection. The receiver service tower can be the projection booth, so the only additional construction needed is a grandstand for the audience.

Stage for summer outdoor dramas

With the antenna pointed at the zenith, seats can be installed around the outer parts and a stage can be put in the middle, suitable for theater in the round, an excellent arrangement for plays and concerts. This can form the focal point of summer festivals. Another possible theater arrangement would put the audience in a nearby grandstand as mentioned in the previous paragraph. In this case, the entire 140-ft building and dish are a giant stage, all parts of which can be used. Imagine the balcony scene from Romeo and Juliet played on the 140-foot deck! With this giant multi-part stage, monumental dramas and pageants can be produced. We should commission an historical drama to be written about the founding of NRAO and present it every summer.

Bungee Jumping for sissies

Although the serious bungee jumper will insist on plunging from the heights of the 100-meter GBT, the 140-ft can still provide good jumps either from the deck, or from the prime focus to the ground (200 feet) for those whose need for thrills is

continued next page

Tattler Tales

Plans to Build Reber Lab Back in the Works? ..... The Tattler hears rumors that the Navy will fund our new building after all. More on that when we get word.

Fond Farewells to our Latest Retirees:
Winston (Boogs) Cottrell
Winfred (Winnie) Sheets
Bob Viers
Chuck Brockway

Notice - to whom it may concern:
Even though Mike Masterman thinks highly of Chuck Brockway, he does not wish to be called Chuck Jr.

Thanks, Hands - On - Science Leaders!
The winter session of the after-school science for fun program: HOS begins this Thursday. Thanks to volunteers: *Shirley Curry, Ron Maddalena, Karen Weadon, Kathy Norrod, Mark McKinnon, Ray Creager and Rich Lacasse* we are able to hold 4 HOS classes this year instead of 3!

Education Grant MAY Become a Reality ..... Well, that is if we can cut a few hundred thousand dollars from our request! NOW, I know how Congress feels!

Welcome to the World! Erin Holliday White, born of Steve and Kathy January, 1994.

NRAO Employees Star in Love Letters
I'm sure you've all been reading about **Love Letters** in the Pocahontas Times. Did you know that NRAO folks had major billing in these productions? Aron and Dawn Benett performed at the Four Seasons Restaurant on Saturday, Feb.12 and Carol Zeigler performed at the Rosewood Cafe last Friday. Ron Maddalena and Sue Shears performed at the NRAO Tour Center Sunday (Feb. 13) night. All productions of **Love Letters** were directed by Lou Macknik.

Because Inquiring minds want to know....
From Webster's New World Dictionary - Third College Edition: Keister or keester n. {prob < Ger kiste, chest, case, (slang) rump < OHG < L cista, chest.} [Slang] 1. a satchel, suitcase, etc. 2. the buttocks, rump

First Facts: 1993 Deer Hunt

Thanks Mike Holstine for providing the Tattler with these interesting facts:

- 700-900 hunters total for the 15 day hunt period.
- 75 deer of all ages, sizes and both sexes were killed.
- Several very old deer were taken. One was 8.5 years old. The average life span of a deer is 7 years.
- Most deer killed were 2.5 years old.
- Though the deer were smaller than average, they were relatively free of disease. No herd health problems were detected.

The Tattler will carry a full story on the hunt when the DNR sends its report.

Classifieds

Ed Childers has a Sears porta potty for sale, excellent condition $35.00

Jane Lacasse is looking for a fencing tutor. Please call her at 456-4651.

Proposal-140 cont'd

tempered with a modicum of caution.

Parabolic basketball

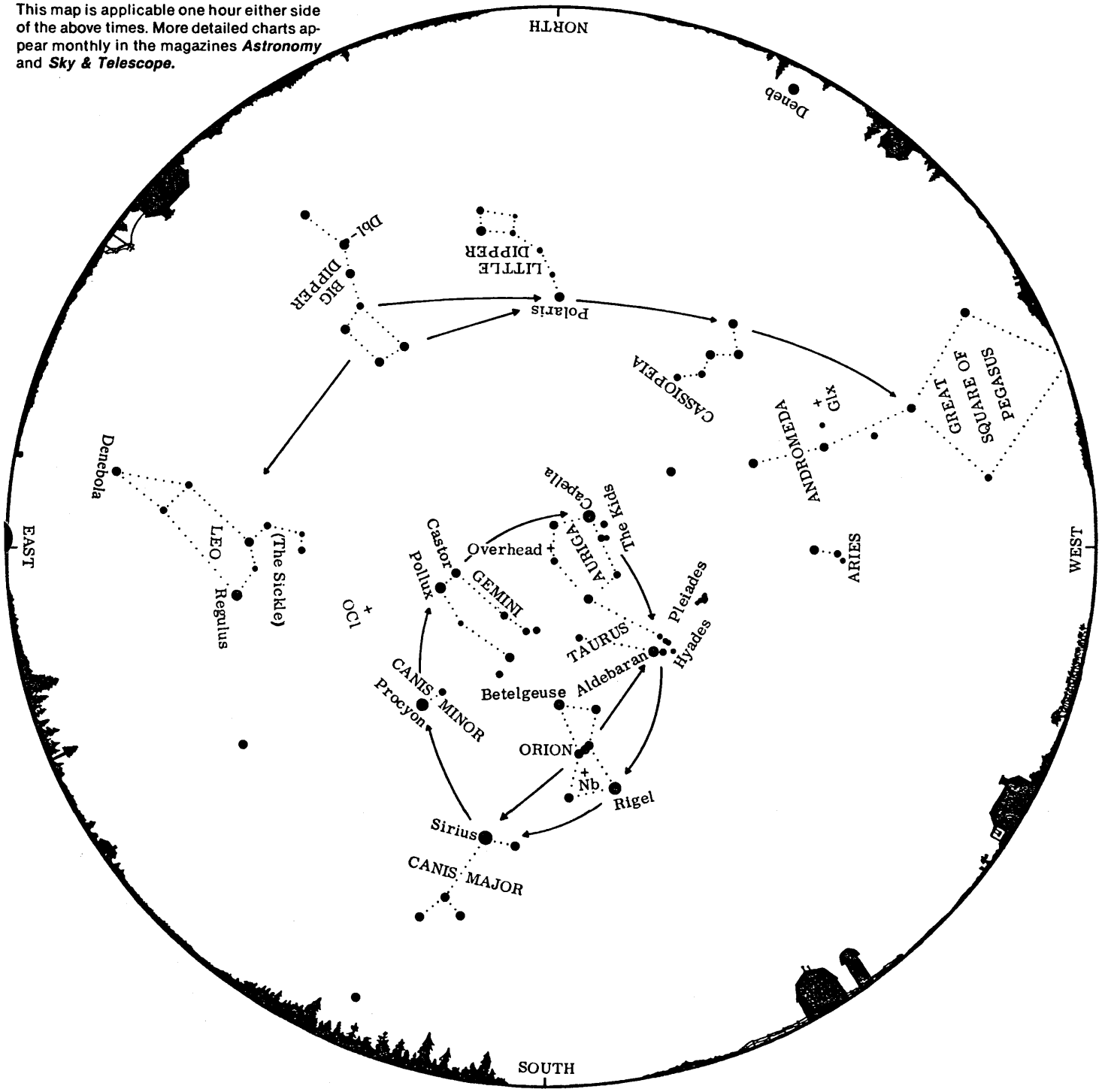
The skills necessary for playing basketball on a parabolic surface are unique and will be well worth the efforts needed to learn. The home court advantage will be awesome.

February Evening Skies

This chart is drawn for Latitude 40° North, but should be useful to stargazers throughout the continental United States. It represents the sky at the following local times:

Late January	10 p.m.
Early February	9 p.m.
Late February	8 p.m.
Early March	7 p.m.

This map is applicable one hour either side of the above times. More detailed charts appear monthly in the magazines ***Astronomy*** and ***Sky & Telescope.***



No planets appear above the horizon at chart time in February 1993. At chart time 9 stars of first magnitude or brighter are visible. In order of brightness they are: Sirius, Capella, Rigel, Procyon, Betelgeuse, Aldebaran, Pollux, Deneb, and Regulus. In addition to stars, other objects that should be visible to the unaided eye are labeled on the map. The double star (Dbl) at the bend of the handle of the Big Dipper is easily detected. The famous Orion Nebula, a cloud of gas and dust out of which stars are forming, is marked (Nb) in that constellation. The open or galactic cluster (OCl) known as the "Beehive" can be located between the Gemini twins and Leo. The position of an external star system, called the Andromeda Galaxy after the constellation in which it appears, is also indicated (Glx). Try to observe these objects with unaided eye and binoculars.

—D. David Batch

SKY CALENDAR FEBRUARY 1994

An aid to enjoying the changing sky

PLANETARIUM BUSINESS OFFICE
(517) 355-4676
CURRENT SKY INFORMATION:
Call (517) 332-STAR

Use this scale to measure angular distances between objects on diagrams below.

0° 10° 20°

Last month we previewed Mercury and Venus for the year. Now we preview Mars and Jupiter.

Mars was in conjunction with the Sun on December 26, 1993. Mars' emergence as a morning "star" in 1994 will be very gradual, owing to its rapid motion against the stars (exceeding 3/4° daily until late May), and also to the shallow angle that the ecliptic makes with the horizon at dawn in winter and spring. Both factors keep Mars rising only shortly ahead of the Sun for several months; not until mid-June will Mars rise in a dark sky just before the start of morning twilight. Sharp-eyed viewers from S states equipped with binoculars might first spot Mars in morning midtwilight as it passes Saturn on March 14 (see next month's calendar). Viewers in N states will have to wait until April, when the 1.2-magnitude planet will be very low in the east, to Saturn's lower left.

As months pass, Mars rises progressively earlier in the night, and begins to brighten sharply near year's end, when it rises in late evening. Opposition, closest approach to Earth, peak brilliance, and all-night visibility will come on February 11, 1995.

Against the stars in 1994, Mars will overtake the Pleiades on July 3, Aldebaran on July 17, Pollux on Sept 22, go through the Beehive on Oct 17, and pass Regulus Dec 10. Mars will pass Regulus twice more in 1995, on Jan 21-22 and May 24, completing a triple conjunction.

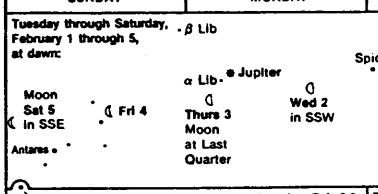
Jupiter in February is already a visible morning "star", rising in the middle of the night and reaching the south to SSW at dawn. Jupiter rises about half an hour earlier with each passing week, and by April 30 will reach opposition and peak brilliance at magnitude −2.5. Then visible all night, Jupiter will rise in the east-southeast around sunset and set around sunrise.

In the following months, Jupiter is an evening "star". If you look for it at dusk, you'll see it drift over to the south by June, and to the west-southwest by October, when it sinks into the twilight glow. Venus swings within 7° of Jupiter in late September.

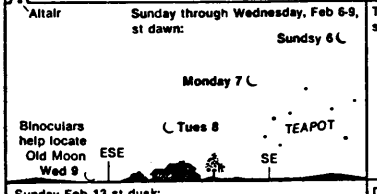
Jupiter will pass conjunction with the Sun on Nov 17 and emerge as a morning "star" in ESE at dawn in early December.

SUNDAY

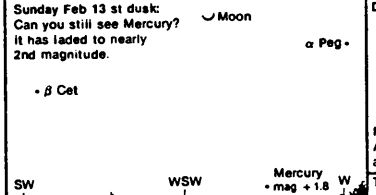
Tuesday through Saturday, February 1 through 5, at dawn:



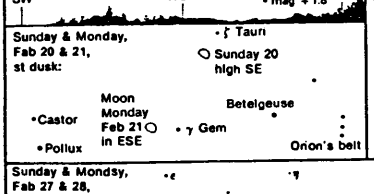
Sunday through Wednesday, Feb 6-9, at dawn:



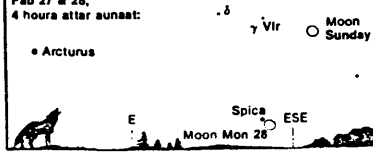
Sunday Feb 13 at dusk:
Can you still see Mercury? It has faded to nearly 2nd magnitude.



Sunday & Monday, Feb 20 & 21, at dusk:



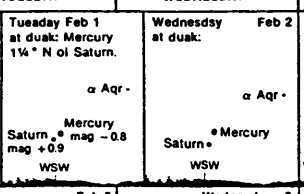
Sunday & Mondsy, Feb 27 & 28, 4 hours after sunset:



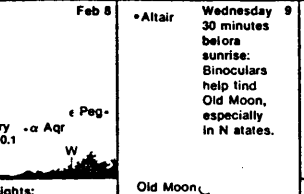
MONDAY

TUESDAY

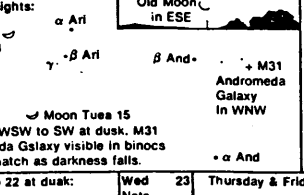
Tuesday Feb 1 at dusk: Mercury 1¼° N of Saturn.



Tuesday Feb 8 at dusk:

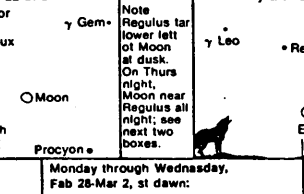


Dusk, 2 nights:



Moon in WSW to SW at dusk. M31 Andromeda Galaxy visible in binocs as hazy patch as darkness falls.

Tues Feb 22 at dusk:



WEDNESDAY

Wednesday Feb 2 at dusk:

Wednesday 9 30 minutes before sunrise: Binoculars help find Old Moon, especially in N states.

Wed 23 Note Regulus far lower left of Moon at dusk. On Thurs night, Moon near Regulus all night; see next two boxes.

THURSDAY

Thursday Feb 3 at dusk: Use binoculars to observe Saturn until last possible date.

Thursday 10

New Moon 9:30 a.m. EST (6:30 a.m. PST); only date this month Moon can't be seen.

Thursday through Saturday, Feb 17-19, at dusk: Face SE to SW. Moon past First Quarter by Friday evening.

Thursday & Friday, Feb 24 & 25, at dusk:

FRIDAY

Friday Feb 4 at dusk: Mercury at greatest elongation, 18° from Sun.

Friday 11 at dusk: Mercury fades rapidly this weekend.

β Leo (Denebola, the Lion's tail) Fri & Sat, Feb 25 & 26, at dawn:

SATURDAY

Saturday Feb 5 at dusk:

Saturday 12 at dusk:

Saturday 19

Regulus was at *opposition* yesterday, Mercury will be at *inferior conjunction* tomorrow, and Saturn will be at *conjunction* Monday, all resulting from a near-alignment of 5 objects in space. In order they are: Regulus, Earth, Mercury, Sun, and Saturn.

Saturday 26

20 minutes after sunset: Can you see Venus yet? Binoculars help pick it up in bright twilight.

Monday through Wednesday, Feb 28-Mar 2, at dawn:

Jupiter in SSW
Lib
Wed Mar 2
Tues Mar 1
Spica in SW
Monday 28
Jupiter begins retrograde 1.0° N of 3rd-mag Alpha Librae. Watch Jupiter go 10° west in next 4 months.

PLANETS AT DUSK

Mercury very low WSW in early February; fades sharply and disappears 2nd weekend.
Saturn, near Mercury Feb 1, disappears first weekend.
Venus, emerging, sets S of W after Sun by ½ hour at midmonth, ¾ hour at month's end.

PLANET AT DAWN

Jupiter is only bright planet visible in dark sky this month. Look well up in S to SSW at dawn. See dawn boxes for Feb 1-5 and Feb 28-Mar 2, and left margin notes.

Dusk & Dawn, as used on this calendar, indicate about ¾ hour after sunset and ¾ hour before sunrise.

Magnitudes:
Venus −3.9
Jupiter −2.0 to −2.2
Mercury see Feb 1-13
Saturn +0.9