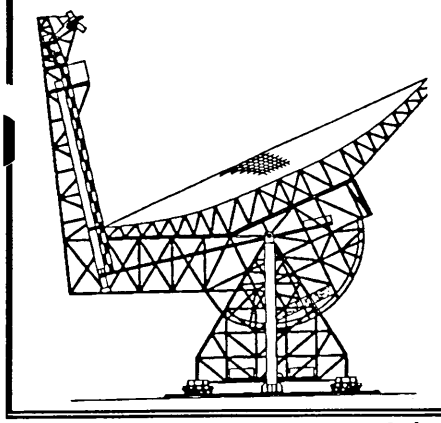

# The Green Bank Tattler

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

**Volume 3, Number 2** **July 1995**

Edited by F.Ghigo

## Annual Picnic

Undaunted by hot, muggy weather and threat of thunderstorms, an estimated 300+ people attended the annual picnic in the Green Bank Rec. Area Saturday July 15th. Thanks to Mike Hedrick and helpers for delicious beef and pork barbecue, and to the many others who organized the events. The evening fireworks were magnificent, with some extra help from nearby thunder and lightning. Many people distinguished themselves in the afternoon games, we apologize for incompleteness, but the following is a list of most of the winners.

**Greased** watermelon champs were Clinton Perdue in the adult division, and Christina Holstine and Jennifer Mahle in the children's.

**Mini-golf** champions were Dave Williams (1st) and Wendell Monk (2nd). The **golf drive** distance event was won by Chuck Beverage, and accuracy of drive by Dave Williams.

John Wayne and Dave Seaman took first place in the adult **water balloon** toss, with Kenny Lehman and Clinton Perdue in second. The over-35s were severely out-pulled by the under-35s in the **tug of war**. **Horseshoe** champions in the Men's division were Tim Gordon and Don Gordon (1st) and Russ Poling and Wendell Monk (2nd), and in the Women's, Libby and Edwina Childers took 1st place with Betty Gordon and Linda Monk in 2nd.

Dave Seaman was narrowly squeezed out of first place in the **pie-eating** contest by a voracious teen-ager, while Rachel Wayne won in the under-12 division. Thanks to Glen Langston for organizing the games and compiling the list of winners.

*Best wishes to Maxine and Zula in their retirement.*

**Regular activities:**

**Aerobics** every Tuesday and Thursday from 5:30 to 6:30 p.m. in the Tour Center.

**TaeKwonDo** every Monday at the Tour Center:
kids 5-12 at 6:00 to 6:30 p.m.
12 & up at 6:30 to 8 p.m.

**Softball** - Wednesdays at 5 p.m. in the Rec.Area.

## Calendar of Upcoming Events

July 27 (Thu) 3:15p.m. Colloquium: D Balser: "The quest for the cosmic abundance of 3He" (Lab basement)

July 31 (Mon) 3:15p.m. Colloquium: G. Verschuur: "The Zeeman Effect in HI Emission and Thermal OH sources." (Lab basement)

Aug. 7 (Mon) 7p.m. Garth Newell Students concert (Tour Center.)

Aug. 11 (Fri) 7:30p.m. Return of the Animation film festival - Tour Center.

Aug 12-19 Research Experiences for Teachers (Lab Basement)

Sep.4 (Mon) Holiday (Labor Day)

Sep.13-15 Business Managers' Meeting (Lab Basement)

Sep 28 GBT advisory committee (Tour Center)

Sep 29-30 140-ft birthday Workshop and Party. (Tour Center)

Oct.9 (Mon) Holiday (Columbus Day)

Oct 19-21 West Virginia Science Teachers Conference (at Snowshoe).

Oct 27 Jansky lecture in Socorro, by J. Bell Burnell.

Oct 31 Jansky lecture in Charlottesville.

Nov 23-24 Holiday (Thanksgiving)

## Sunday Menus at the Cafeteria

Jul 30 Chicken breast stuffed, broccoli&cheese, lima beans, baked potato, harvard beets.
Aug 6 Pepper steak, macaroni&cheese, stewed tomatoes, buttered peas.
Aug 13 Salisbury steak in gravy, mashed potatoes, broccoli spears w/cheese sauce, buttered corn.
Aug 20 Cubed steak in gravy, rice, green beans, cauliflower.
Aug 27 Meat loaf w/tomato sauce, macaroni & cheese, stir fry vegs., harvard beets.
Sep 3 Fried chicken, au gratin potatoes, brussel sprouts, carrots.
Sep 10 Hot roast beef w/gravy, mashed potatoes, parisian mix, spinach.

## NRAO to become a business partner with PCHS

by Jay Lockman

NRAO is in the process of becoming the formal business partner of the Pocahontas County High School under the sponsorship of the West Virginia Education Fund's Partnerships in Education Program. The Program, which has been in effect statewide for more than a decade, links local schools and businesses to work for the common good. A partnership is not a financial aid program, but rather a cooperation between a business and a school to exchange resources for the benefit of both.

As examples of what might be done, the Observatory might help in science or vocational education programs, or provide some special educational materials. We could be the host for student interns through a mentorship program, or introduce students to some aspects of the business world through site tours and information on job opportunities in science and technology.

The Observatory benefits from improvements in the school system, but also can benefit directly. For example, PCHS students could help out with tours or special site programs, or we could get the assistance of their photography or forestry clubs for special projects at the Observatory. We will soon form a small committee with several PCHS faculty members to develop specific partnership activities.

The Observatory has always been involved in education and the county school system, lending our help in areas ranging from assistance with computers to building soccer goals. This new, formal involvement between NRAO and PCHS is aimed at further developing the cooperation. It will be a good addition to our continuing involvement with science teacher education, summer tours, and other informal education programs.

## West Virginia Science Teachers Conference

by Rick Fisher

The West Virginia Science Teachers Conference will be held this year at Snowshoe on October 19-21. They have invited us to give a number of presentations on science topics of our choice. If you have or would like to develop a talk on some current topic in astronomy, your participation will be very much appreciated.

The conference is mainly attended by teachers of K-12, but there are a few state colleges represented. Attendance at the conference is expected to be between 300 and 400 teachers, but each presentation session is normally 20-40 people.

The Observatory will be hosting tours for limited numbers of Conference participants, so Sue Ann will be asking for volunteers to help with site tours, if she hasn't already.

The featured speaker at the Conference banquet Friday night is Russell Hulse of Nobel prize fame.

## NRAO TAE KWON DO CLUB

by Rich Hall

On Saturday May 13, five members of the NRAO Tae Kwon Do club traveled to Lewisburg to compete in the 6th annual Pil Sung Martial Arts Invitational Tournament. The competitors were divided into divisions depending on their rank, age, and sex. All of the students did an excellent job and received several compliments on their good sportsmanship from the tournament promoters and other instructors. Classes are held Monday evenings at the Tour Center and are open to any employee or dependent family member. Contact Rich Hall at ext. 144 for information.

The following is a list of students who competed and what awards they won.

| | |
|---|---|
| Brian Norrod | 3rd place in forms |
| Eli Sharp | 2nd place in breaking |
| | 1st place in forms |
| Edwina Childers | 2nd place in forms |
| | 3rd place in sparring |
| Nathaniel Sizemore | 1st place in breaking |
| | 2nd place in forms |
| | 1st place in sparring |
| David Gordon | 2nd place in breaking |
| | 1st place in forms |
| | 3rd place in sparring. |

## Plant Maintenance news
by Mike Holstine

Plant Maintenance has kept a busy schedule over the last few months, as always happens when the weather warms up. Some of the projects undertaken have been aided by our annual summer help.

**Landscaping and cleanup** of the fiber optic installation completed last fall has been ongoing throughout the site. Areas around the 20m, 45', 85-1, 140', and the Interferometer Control Building have been pretty well completed. The ditch line through the fields are yet to be done. New fiber optic cables were placed around the arc of laser monuments at the 140' for Dave Parker's crew. Cleanup of this site has been finished.

John Sparks and his crew have been doing a lot of **painting** in an effort to beautify and protect various buildings and electrical installations all around the site. The electronic gate area has been repainted and the key posts have been painted to match the gate. The switch gear housings throughout the site have been or are in the process of being painted, as well as the electrical boxes along the Interferometer cable tray.

The **Reber building** has been painted as part of its renovation into a museum for Grote Reber's materials. The pool and all of the buildings at the pool site have been painted as well.

The **Jansky Antenna** is undergoing a major enovation. The antenna has been scraped and pressure-washed in preparation for painting. Some of the structural members were found to be in need of repair and those requiring it are being replaced. Repairing those old Model "A" wheels is proving to be a challenge.

Many of you may have noticed some **surveying** work going on for the last couple of weeks. A surveying crew was hired to locate the new fiber optic conduit trench installed last year, however, the project lent itself to compiling much more information. The surveyor has also located most of the obvious structures at every antenna site that he passed, including the telescope bases or legs, the buildings, roadways, transformers, towers, fences and well houses. This information was acquired for the 45', 85-1, 20m, 40', ICB, and will be combined with previously surveyed information for the 140'. Additionally, the GBT site was surveyed for the physical location of all aboveground structures for the use of the GBT laser project. The new Jansky Lab Addition will also be tied into this survey to hopefully produce a finalized coordinate list of most of the site for mapping purposes.

As an interesting side-note to the survey info above, the **National Geodetic Survey** division of NOAA has been using one of our site monuments to tie the State of West Virginia into the national geodetic grid. Simultaneous GPS observations were run from our site and sites in Kentucky, Virginia, and Maryland to accomplish this national tie. Next week the NGS surveyors will be back on the site to begin the process of setting monuments throughout the State using our site monument as a base of reference.

Rusty and Steve have installed an ethernet cable and connection to the **Tour Center** for the use of a Sun workstation during the Tour and for other seminars or workshops.

Lastly, three of the site's buildings are in the process of being **reroofed.** The Paint Shop at the Works Area, the Outdoor Test building, and the 85-1 building are being reroofed with additional insulation and a new EPDM membrane roof similar to the roofing systems placed on other buildings over the past three years.

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## Observations Towards Pulsars
by Dana Balser

Mark McKinnon, Jay Lockman, and I made observations in the direction of pulsars with the 140 ft telescope in June. Pulsars are radio sources that emit radiation in short time intervals, and are thought to be highly magnetic, rotating neutron stars. Since their discovery in 1967 by Antony Hewish and Jocelyn Bell Burnell (1995 Jansky Lecturer) the study of these objects has turned into a major field of scientific endeavor.

The main goal of these observations was to use the pulsar as a background source and measure the absorption of radio emission from the pulsar by the gas between the stars (interstellar medium). When the pulsar is OFF we see the typical emission from the interstellar medium, but when the pulsar is ON we see the absorption. Comparing these two signals provides information about the interstellar medium in the Galaxy.

In some sense we don't care about the pulsar itself but are just using it like a flashlight, except we are more interested in the shadow than the light. In other words, one person's signal is another person's noise and vice versa.

## Bikes Stolen, Recovered, Thought to be Stolen Again! SARA Member Nearly Murderlized!

by S. Heatherly

You know why I live in Green Bank? It is probably the only place left around where an irresponsible person like me can get by. I leave my keys in the car so I won't lose them, I can't find the keys to my house, and I don't lock my bike. At least, I once left my bike unlocked.

During the first week of the 1995 summer teacher's institute, my bike was stolen from outside the NRAO dormitory. It was taken between 5 p.m. and midnight. This I know because I left the lounge (that is bread for another sandwich) at that time to head home and the bike was gone. Well, I thought someone had ridden it to the lab or the telescope and I assumed it would turn up the next day. It didn't. The next day after looking high and low I went to see Richard Fleming. I found out that two other personal bikes had been taken from Observatory property within the previous 2 week period.

Richard called the sheriff and reported the crimes, but to tell you the truth I didn't expect anything to come of it. I just thought my bike was gone. But I was wrong. Deputy Troy McCoy cracked the case! He spied one of the bikes being ridden around in Durbin, and from the rider located the other two right under our noses here in Arbovale.

That might have been the end of the story, but I'm a slow learner. I rode my newly recovered bike to work last week, parked it in the bike rack at the Jansky Lab unlocked, and when I came out to go home, it was GONE!!!! Stolen again, I thought. Those little perpetrators ( that is the police word for weasels) stole it again for spite before they were sent up the river! The only other idea I came up with was that one of you guys were playing a cruel joke and had hidden it. I apologize.

Once again I boarded a diesel and searched the site for my bike: the 300 foot, the 140 foot, the Works Area. No bike. Hysteria mounting, and also chagrin because I had, after all, left my bike unlocked, I prepared to call Deputy McCoy and report my missing bike. But before that embarrassing moment could take place, Mark Clark came in and reported that he had found my bike and his bike underneath the rear-ends of two SARA members. ( Society of Amateur Radio Astronomers - they held their conference here last week). I ran outside, and sure enough there was my bike coming up the road. I stopped the joy rider, retrieved my bike, and gave her just a little piece of my mind. You all know I'm not one to yell at people. She explained to me that she had been told that an bike NOT LOCKED was an NRAO bike, and sinc my bike was NOT LOCKED she thought it was up fo grabs.

You don't have to hit me over the head twice, you know. I can be trained. My bike is locked.

## Repeating Jansky's Experiment

by Jay Lockman

We have begun a project to repeat Karl Jansky's original experiment using the replica of his antenna. The experiment will be done over the next two years during the minimum in the solar cycle. It will be very interesting to see how much the sky has changed in the 50+ years since Jansky's work -- Cas A should be substantially fainter now than it was in 1932.

The project group currently consists of Sue Ann Heatherly, Glen Langston, Carl Chestnut, Naomi Bates (Franklin High), and Darrel Emerson (NRAO Tucson, who claims to understand the antenna completely).

If you are interested in participating in this adventure, please tell Sue Ann Heatherly.

## Jansky Antenna being restored.

by F. Ghigo

The restoration of the Jansky antenna (that's the large "box-kite" structure at the entrance to the observatory) has started with repainting and fixing of rotten timbers, as Mike Holstine described earlier.

Carl Chestnut and Omar Bowyer have made progress in finding a replacement chain that drives the "merry-go-round" action - it turns out that a Harley-Davidson motorcycle chain fits perfectly! Also they have found that it is still possible to order tires and tubes for the four Model-T Ford wheels that the antenna rides on.

## Progress on the GBT
by F.Ghigo

The large metal plates that have been recently put in place part way up the alidade will be the middle part of the elevation wheel. Beams will be assembled over the next few weeks to attach the plates to the elevation axle and box assembly. A giant wheel will gradually appear "way in the middle of the air." As the elevation wheel and feed arm are assembled, counterweights will be added to keep everything bottom heavy during the construction phase.

An area across the road from the GBT has been fenced off for storage of the feed arm parts as they are delivered in the coming months.

## Update on Mike's adventures in the Antarctic

Former employee Mike Masterman, now wintering at the South Pole, still keeps in touch by e-mail and sometimes comments on activities here at Green Bank.

On Fri, 9 Jun 1995, Mike Holstine wrote:

"Just a note to let everyone know that the pool will be open starting at 1pm tomorrow"

Mike replied: "Was It really necessary to tell ME about this??"

On Thu, 29 Jun 1995, Ron Maddalena wrote:

– "Because of mud, softball has been canceled for today."

Mike replied: "The other day we played a game of baseball outside at -60, now if we can play a game of softball at -60 deg F, you guys should be able to play in a little bit of mud."

### Know your safety committee!

If you think anything UNSAFE is going on around here, tell one of these safety committee members, and it will be checked into:
Dave Vandevender (Chairman), Louis Beale, Chuck Beverage, Frank Ghigo, Mike Holstine, Kenny Lehman, Jim Oliver, Russ Poling, Bill Shank, Herb Winchell.

## Summer Students

In case you may wonder who all the research and engineering summer students are, where they come from, and what they are doing, here are their vital statistics. We hope their summer is fruitful and rewarding!

Grace Buzanoski: Co-op, working with Dave Parker on programming for GBT laser ranging. From Newport, ME. Majoring in Electrical Engineering at Worcester Polytechnic Institute.

Katrina Koski: working with Glen Langston on the sky survey with the OVLBI antenna. From Lake Forest, IL. Majoring in Physics at Lake Forest College.

Daniel McCoy: working with Mike Stennes on the GBT LO distribution system. From Delbarton, WV. Majoring in Electrical Engineering at WV Institute of Technology.

Ryan Neaderhiser: working with Sue Ann Heatherly on improving the 40-ft telescope. From Topeka KS. Majoring in Electrical Engineering at Kansas State Univ.

Christopher Norris: Co-op, working with Wes Sizemore on the RFI monitoring station. From Poquoson, VA. Majoring in Electrical Engineering at Virginia Polytechnic Institute and State University.

Daniel Pisano: working with Jay Lockman on properties of unprepossessing HII regions. From Ridgefield, CT. Majoring in Astronomy at Yale University.

David Ward: working with Mike Holstine on engineering drawings and many site maintenance projects. From Oakland, CA. Majoring in Civil Engineering at San Francisco State Univ.

Douglas Williams: working with Rich Lacasse on the GBT active surface. From Moorefield, WV. Majoring in Electrical Engineering at Stanford University.

Thomas Wilson: working with Dana Balser on radio recombination line analysis of M17. From Las Vegas, NV. Majoring in Computer Engineering at the University of Nevada.


Green Bank, West Virginia

# August 1995

| Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
|---|---|---|---|---|---|---|
| | | 1<br>Scientific Staff Mtg. - 11:00 am Dir. Ofs. | 2 | 3<br>Safety Mtg. - 11:00 am - Bsmt. | 4 | 5 |
| 6 | 7<br>GBT Mtg. - Bsmt. - 9:00<br><br>Garth Newell Concert - Tour Cntr. - 7:00 pm | 8<br>GBT Coor. Mtg. Upst. - 9:00 am | 9 | 10 | 11<br>Animation Film Festival - Tour Center - 7:30 pm | 12<br>Research Exp. for Teachers - Bsmt. |
| 13<br>Research Exp. for Teachers - Bsmt. | 14<br>GBT Mtg. - Bsmt. - 9:00<br><br>Research Exp. for Teachers - Bsmt. | 15<br>Research Exp. for Teachers - Bsmt. | 16<br>Research Exp. for Teachers - Bsmt. | 17<br>Research Exp. for Teachers - Bsmt<br><br>A/D Mtg. - 11:00 Upst. | 18<br>Research Exp. for Teachers - Bsmt | 19<br>Research Exp. for Teachers - Bsmt |
| 20 | 21<br>GBT Mtg. - Bsmt. - 9:00 | 22<br>GBT Coor. Mtg. Upst. - 9:00 am | 23 | 24 | 25 | 26 |
| 27 | 28<br>GBT Mtg. - Bsmt. - 9:00 | 29<br>Division Head Mtg. - 11:00 am Dir. Ofs. | 30 | 31 | | |