



A large graphic consisting of numerous lines radiating from a central point at the top, resembling a starburst or a signal being transmitted. The lines are thicker and more densely packed towards the center and become thinner as they spread out.

THE POINT SOURCE

Volume 3, No. 4

Winter/Spring 1997

AUI Loses BNL Contract -- Will NRAO Be Affected?

by Paul Vanden Bout

On May 2 the Secretary of Energy, Federico Pena, announced the cancellation of the current contract between the Department of Energy (DOE) and Associated Universities, Inc. (AUI) for the operation of Brookhaven National Laboratory (BNL). A competition will be held to select a new contractor. AUI will continue to run BNL until that selection is made, presumably later this year. It is possible for AUI to submit a proposal for the new contract, and the AUI Board of Trustees is currently discussing which course of action should be taken with respect to BNL.

How does this affect us at NRAO? AUI has a cooperative agreement with the National Science Foundation (NSF) for the operation of the NRAO. In principle, the events at BNL have no effect at all on that cooperative agreement since it involves a completely different funding agency. AUI will continue to operate the Observatory as it has in the past and we should see little or no change in the way we conduct our business. Most importantly, this change will have no effect on staffing at the NRAO nor will any of our employee benefits be affected.

Longer term there could be some impact on the Observatory operations if AUI eventually loses all involvement with BNL and the NRAO becomes its only responsibility. It is far too early to judge how real this possibility is or what the impact on the Observatory operations might be if AUI restructures itself to run the NRAO alone.

I want to assure everyone that relations with our funding agency are very sound and there is no reason to believe that AUI's stewardship of the NRAO is in jeopardy. We will keep employees fully informed as AUI's future becomes more clearly defined.

Lyle H. Schwartz, New AUI President

Lyle H. Schwartz assumed his duties as the President of Associated Universities, Inc. (AUI) on March 17, 1997. Previous to this appointment, Dr. Schwartz was Director of the Materials Science and Engineering Laboratory at the National Institute of Standards and Technology (NIST). Dr. Schwartz succeeds Dr. Robert E. Hughes, who recently retired.

Dr. Schwartz has achieved positions of leadership in academia, government and professional organizations. Prior to his position at NIST, he was Professor of Materials Science and Engineering and Director of the Materials Research Laboratory at Northwestern University.

At NIST, Dr. Schwartz directed the technical activities of 350+ scientists and engineers at the Materials Science and Engineering laboratory (MSEL) and maintained oversight responsibility for the NIST nuclear research reactor.

He has played a significant role in shaping government policies on numerous materials issues. He currently chairs the multi-agency Material Technology Committee responsible for developing the materials agenda for Federal Government/Industry programs in support of automotive, electronics, aeronautic, building and construction, and environmental sustainability. Under his chairmanship, the pre-standards research organization (VMAS) of the International G7 was brought to fruition as a stand-alone continuing activity among the member nations.

Dr. Schwartz was elected to membership in the National Academy of Engineering in 1994, where he currently serves as elected chair of the Materials Engineering Section. He is recipient of the Presidential rank of Meritorious Executive on the government's Senior Executive Service and the Gold Medal Award of the Department of Commerce. He has been honored with the National Materials Advancement Award of the Federation of Materials Society and the Leadership Award of the Minerals, Metals and Materials Society.



CONGRATULATIONS!



CLARK, LACASSE, PORTER AND SERNA RECEIVE SCHOLARSHIPS!

Four outstanding high school students have been awarded AUI Trustee Scholarships. Congratulations to each student! Special congratulations to their parents and families as well. It takes a great deal of support and hard work on everyone's part to accomplish such a goal.

AUI scholarships are awarded annually to dependent children of regular NRAO and Brookhaven employees. These scholarships are awarded competitively on merit and provide the recipient with up to \$2,500 for each of four academic years to help defray costs of tuition, lodging, board, etc. The student must attend an accredited college or university and select a course of study leading to a degree. The Trustee Scholarship program began in 1964. To date, NRAO has received 72 scholarships, including this year's winners. This year, there were over sixty applicants competing for the AUI Scholarships from both NRAO and Brookhaven.



ELIZABETH M. CLARK

Elizabeth is a senior at Pocahontas County High School in West Virginia. Her interests range from theater to women's studies. She has been active in community theater including working lights for the summer tourist production *Cass, The Play* and performing a lead role in

Neil Simon's *The Odd Couple (The Female Version)*. Academic topics of interest have included the post-colonial history of Indonesia, a comparison of the mainstream and alternative press, and an investigation of why the Spanish Armada failed (written as a Spanish spy living in England). Highlights of her high school years have included a personal interview with Molly Ivins and attending the Girl Scout USA National Convention in Ft. Worth, Texas as a Black Diamond Girl Scout Council delegate. She will attend Hampshire College in Massachusetts this fall.

Elizabeth is the daughter of Mark and Marilyn Clark. Mark is a Senior Programming Analyst in Green Bank.



KATHLEEN S. LACASSE

Kathleen is a senior at Pocahontas High School in West Virginia. She was selected as a National Merit Commended Student while being involved in many extra-curricular activities. Kathleen has been involved in band, track, the State Science Bowl, the National Honor Society,

the French Honor Society, the Foreign Language Festival, and is currently President of the local Girl Scout Troop. Kathleen is a member of the high school Equestrian Club, has served as a counselor at the school's Teen Institute Camp, and was recently selected to All-State Band. This month, Kathleen is receiving her Girl Scout Gold Award.

Kathleen will attend Hiram College, and plans to double-major in biology and music. She is the daughter of Richard and Jane Lacasse. Richard is an Electronics Engineer in Green Bank.



BENJAMIN H. PORTER

Ben is a senior at Albemarle High School in Charlottesville. He is active in academics, school and community activities and sports. Ben's many academic achievements include membership in the National Honor Society, National Art Honor Society, the National

Math Honor Society, and the National Spanish Honor Society. He is an Eagle Scout and a peer counselor at school. He volunteers time through his church group on Service Saturdays at the Salvation Army, as well as missions and youth group activities. Ben enjoys golf and lettered on the AHS varsity soccer team.

Ben will attend James Madison University. He is interested in studying communications and pre-law in college. Bill and Sheila Porter of Earlysville are Ben's proud parents. Bill is the Business Manager in Charlottesville.



JULIAN L. SERNA

Julian is a senior at Socorro High School in Socorro. His scholastic achievements include Science Olympiad Awards, placing in physics and cell biology, New Mexico State University Scholar Award, National Honor Society, University of New Mexico Star Scholar Award,

and he received the University of New Mexico Presidential Scholars Scholarship. He has been a Student Council Class Officer, a member of Nova Club, a Renaissance Gold Card Member and was elected State Representative at Boys State. Julian tutors through the national Honor Society and volunteers for various San Miguel Catholic Church activities. He threw the discus and shot put in track and played football, earning 1st team All-district his senior year.

Julian plans to attend the University of New Mexico, majoring in Biochemistry. He is the son of Lewis and Vigil Serna of Socorro. Lewis is the Deputy Head of Engineering Services at the VLA.

Team Efforts at VLA Minimize Downtime by Lew Serna

On January 15, 1997 Transporter #2's Main Box Frame cracked while attempting to set down antenna #19 at station BE1. This was a very serious problem with the potential for delaying Array operations and observations. The frame had cracked in the same corner (over Truck #2), in April of 1981 and was repaired at that time. The crack appeared to be a continuation of an original crack only on the top 2-1/4" thick plate. The diagonal crack went all the way through the top plate, traveling from the outside corner to the box over truck #2. In addition the upper part of the vertical weld in that corner was cracked along with the gusset plate in the same area.

The transporter frame assembly consists of a rectangular box beam frame which rests upon four truck assemblies. The frame supports the antenna during transport, on three equally spaced mounting pads.

Antennas are carried along the array arms by transporters moving on two parallel sets of railroad tracks. Transporters are crucial equipment to the operations of the VLA. Transporter #2 is one of two special self-propelled vehicles weighing approximately 203,300 pounds. The height of the vehicle is such that it can move under the antenna lower structure while the antenna is located upon its foundation. The vehicle is 30 feet long, approximately 21 feet wide and just over 6 feet high to the floor plate at the centered position of suspension system.

During transit the vehicle supplies the antenna with electrical power to keep the receivers cooled and the electronics stable. When a transporter is fully loaded there are approximately 330 tons moving along the railroad tracks (an antenna weighs approximately 230 tons). A crew of at least 5 people per transporter is required to safely move an antenna. Normally two transporters are required to complete Array moves on time. Antenna moves cannot be conducted during adverse weather conditions. It was essential that both transporters participate during these January moves, to take advantage of good weather and in order to complete the moves in the time allotted. Unfortunately, we had already lost 2 days due to bad weather.

The following day a team was enlisted consisting of Steve Aragon, Martin Lopez, Ramon Molina, Nick Montoya, Melcolm Peralta, Jim Ruff, Guy Stanzione and John Thunborg. The team inspected the damage visually and with dye penetrant. All cracks found with this technique were located, identified and labeled. Suspected cause of failure was a bad directional hydraulic valve on the extend/retract

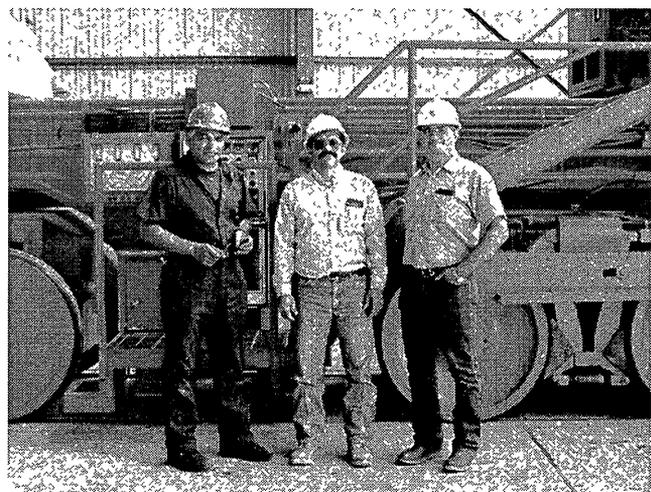
hydraulic line on truck #3, which would tend to unload truck #3 and cause bending and stress to occur over truck #2.

Repair of the transporter would consist of grooving the cracks and filling them in with welding rod. The team decided that once the grooving and welding process started, work would not stop, until the job was complete (to ensure minimal loss of heat during the welding process). Steve Aragon, Martin Lopez and Melcolm Peralta were selected to stay on the job until it was completed.

Repairs were completed by 11 PM that night. On January 17th (the next day), Transporter #2 continued to move the remainder of antennas on the east arm (4 each) with no problems with the frame or welds.

Congratulations to the ES Engineering staff, Transporter group, and the Welding group for their teamwork and professional demeanor. In spite of a major failure with Transporter #2, their team effort resulted in only one day lost during the antenna moves. The Array reconfiguration was completed on time.

Teamwork is an everyday occurrence at the VLA, however, equipment failures of this magnitude and consequence required exceptional players to pool their experience and knowledge to fix the problem. This team deserves recognition for their swift action. Special recognition is given to Steve Aragon, Martin Lopez and Melcolm Peralta, for the long hours they spent on the job and for a job well done.



Pictured in front of the transporter (from left to right) are Martin Lopez, Melcolm Peralta and Steve Aragon.

It's Later Than You Think!

by Tessy Schlemmer

On Thursday evening, Feb. 20, as part of the NRAO Education Series, the Charlottesville personnel office hosted a seminar for employees and significant others to better inform them about issues relating to wills, estate planning and living trusts. Speakers for the session: *It's Later Than You Think: Legal and Estate Planning* included attorney and organizer Stephen Streep, UVA Law Professor Mildred Robinson, paralegal Kate Galloway, and attorney Elizabeth Woodard. The purpose of the seminar was to provide attendees with guidelines, information and contacts to help them start or improve their personal estate planning process.

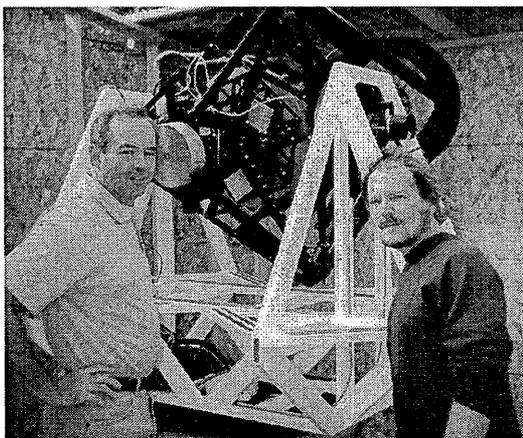
After Mr. Streep's brief introduction stressing the importance of estate planning, Ms. Robinson reviewed various estate planning considerations including probate versus non-probate assets and distribution options. Ms. Galloway introduced various tax savings and tax planning options available to individuals. Ms. Woodard discussed the basics of estate planning including the objectives involved in will writing and avoidance of probate expenses and uses of will substitutes and trusts.

Attendees left with valuable information to consider when planning their estates. We appreciate the fact that all the presenters volunteered their time to bring this valuable information to NRAO.

North Liberty VLBA Station Techs Lending a Hand by Jack Meadows

The University of Iowa Physics and Astronomy department, in their never ending quest for higher education, has hand built a .5 meter, optical telescope of F8 design incorporating a robotic azimuth and elevation rotation. This \$150k project is inspired and directed by Professor Robert Mutel. You may remember him from such great observations as BM074 and BM044! This "Educational Spectacular" is being temporarily mounted at the North Liberty VLBA station in an effort to remove any bugs and to see first light. From there it will be moved to Arizona where a permanent mount of regular observations will take place. In the meantime this hand crafted beauty will be housed in a 12x12x10 ft. telescope barn with roll back roof. Station techs Jack Meadows and D.J. Beard are lending a hand in every aspect from barn building to telescope trouble shooting. This telescope is dedicated to undergraduates for teaching and research.

Left: Jack Meadows,
Right:
D.J. Beard



NRAO's Hams Reviving Piece of History

by Dave Finley

NRAO's ham radio operators recently claimed a piece of radio astronomy history -- the former callsign of Grote Reber, the world's second radio astronomer. A new, loose-knit organization called the NRAO Amateur Radio Club has received an amateur radio station license from the Federal Communications Commission (FCC) with the callsign W9GFZ.

That was the callsign held by Grote Reber, a self-described "ardent radio amateur," when he did pioneering radio astronomy work in the 1930s and 1940s. After contacting many other amateur stations from around the world in the 1930s, Reber felt that "there did not appear to be any more worlds to conquer." He then read about Karl Jansky's 1932 discovery of cosmic radio emission. "In my estimation it was obvious that Jansky had made a fundamental and very important discovery." Reber began designing equipment to follow up on Jansky's work. In 1937, he built a parabolic dish antenna in his back year in Wheaton, IL, for his radio astronomy tests.

An avid experimenter, Reber worked with radio equipment that then was pushing the envelope of high-frequency performance. In the spring of 1939, he was able to detect cosmic radio emissions with his equipment. In 1941, he made his first survey of the sky at radio wavelengths. Reber's radio astronomy work continued for a number of years, and his results were published in the Proceedings of the Institute of Radio Engineers, the Astrophysical Journal, Nature, and the Journal of Geophysical Research.

Reber's original parabolic-dish antenna now resides at Green Bank where, along with a full scale replica of Jansky's antenna, it is part of a display of historical radio astronomy equipment.

Ken Kellermann contacted Reber, now living in Tasmania, about the plan to revive the callsign and Reber replied that he was flattered by the idea. Reber has not been active as an amateur operator for many years.

A number of recent rule changes at the FCC made it possible to obtain the club station license and then to change its callsign to W9GFZ. The NRAO-NM Personnel Recreation Association generously paid the application fee for the callsign change.

The NRAO Amateur Radio Club is quite informal. If you work at NRAO -- at any site -- and are a ham, you are considered a member. To date, there are 43 NRAO hams! Bill Brundage is the "official" president, and Dave Finley is trustee for the station license. The group hopes to put Grote Reber's call on the air for radio astronomy-related special events, such as the dedication of the Green Bank Telescope, and at other times.



. . . HELPFUL HINTS ON USING THE PPO . . .

FINDING A PPO PROVIDER:

The best way to determine if a doctor or provider is in the CIGNA PPO network is to check with CIGNA. In communities like Tucson and Charlottesville, where the growth of managed medical care programs has led to competing HMO and PPO networks--it is easy for the doctors or their office personnel to get the different programs confused. **Remember:** Individual providers are enrolled in their own name, not the name of their group practice. Groups are not enrolled. Just because one doctor or provider of a particular group is in the network does not necessarily mean they all are.

Check the CareLine or Website FIRST to save time.

1. **Most Reliable** - Call the CareLine at **1-800-982-8958** for the most recent updates from 8:30 AM to 8:00 PM Eastern time, Monday - Friday. The CareLine has the most current information.
2. Check the CIGNA Website: www.cigna.com/healthcare

NEW HEALTH CARE PROVIDERS:

Health care providers who want to join the CIGNA PPO must contact CIGNA directly by calling the CIGNA CareLine. The approval process is lengthy and may take up to nine months in some cases. NRAO is not involved in this process. CIGNA does not guarantee acceptance for potential providers.

PHYSICIAN REFERRALS:

If your doctor recommends that you consult a specialist for the first time you need to be sure that the specialist also is a member of the PPO network. Otherwise the charges will be considered out-of-network. The fact that your referring doctor is a network provider is no guarantee that the specialist will be. We recommend you get the names of more than one specialist, then check them out with CIGNA by using the CareLine or their website **before** making your appointment.

X-RAYS AND LABORATORY TESTS

It is your network doctor's responsibility to use in-network providers for all x-ray examinations and laboratory tests, including those sent out. If the doctor makes a mistake and uses a non-network facility, the charges will nevertheless be treated as in-network by CIGNA.

If the doctor **refers** you to another provider for x-rays or laboratory tests, it is **your** responsibility to find out whether or not that provider is in-network, or to find one that is.

MAIL ORDER DRUGS:

To ensure that your prescription order is filled with a brand name drug, you must submit a prescription which includes the statement "Brand Name Only" in the doctor's handwriting. Otherwise a generic substitute will be used if one is available. The State of South Dakota (where our mail order prescriptions are filled) has a law that requires the prescribing physician to indicate in his/her handwriting when a brand prescription is to be used. Simply marking the box for "brand name" is not sufficient, presumably because this box can be checked by anyone.

FILING CLAIMS IN-NETWORK:

If you're using a network provider you need only pay the \$10 co-payment at the time of your visit. Make sure you present your PPO card each time you go to a provider. Be sure the provider changes your insurance filing information in **THEIR** system. The provider then files the claim with CIGNA. After CIGNA makes their payment to the provider, you'll receive your copy of the EOB, "Explanation of Benefits". If you owe anything further to the provider, it will be listed on the EOB under "Patient Responsibility to Provider". Do not pay any bill you may receive from the provider until you have this information from CIGNA. It's your guarantee that the provider is billing you correctly. Call CIGNA's CareLine for assistance with the EOB, 8:30 AM until 5 PM Eastern time M-F. Note that the office providing EOB assistance is open only until 5 PM Eastern time.

FILING CLAIMS OUT-OF-NETWORK:

If you are using an out-of-network provider you must file your claim directly with CIGNA **at the address printed on the back of the insurance card.** These claims are not processed by the Personnel Office. You can pick up out-of-network claim forms from Personnel but you must mail in the claim yourself.

WHILE TRAVELING OVERSEAS:

Medical services obtained while overseas are considered out-of-network unless the situation is a true emergency. True emergencies will be considered in-network no matter where you receive care.

WHILE TRAVELING WITHIN THE UNITED STATES:

Use the CareLine to locate a PPO provider in the area where you are staying to ensure that charges will be covered in-network. If you visit a health provider who is not a PPO member, the charges will be considered out-of-network. True emergencies will be considered in-network no matter where you receive care.

DEPENDENT(S) COVERAGE:

Eligible dependents are covered up to their 19th birthday if they do not attend college or up to their 25th birthday if they are an unmarried, full-time college student. If the dependent loses eligibility, the employee may cover the dependent on COBRA for up to 36 months.

ALLERGY SHOTS:

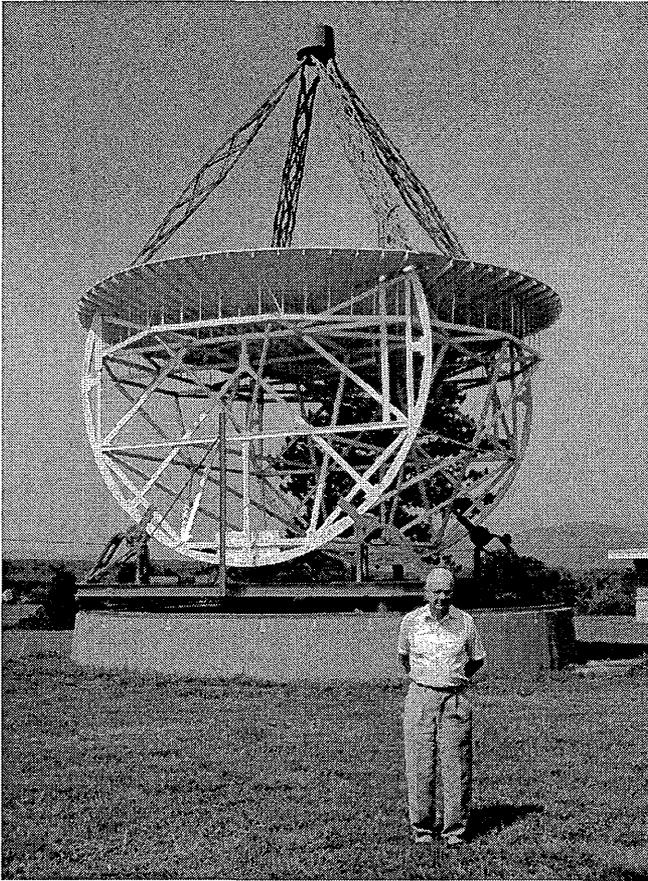
The medication and office visit are considered one charge of \$10.00 **or contract amount, whichever is less**, per visit per person.



QUESTIONS AND ASSISTANCE:

Billie Jo Mattox in the Charlottesville Personnel Office is the designated contact for all questions on the PPO program. Please contact her at: 804/296-0318 or bmattox@NRAO.edu.

**** NOTE:** RETIRED EMPLOYEES ON MEDICARE, ALL GREEN BANK EMPLOYEES AND EMPLOYEES AT THE FOLLOWING VLBA SITES: BREWSTER, OWENS VALLEY, FORT DAVIS, NORTH LIBERTY AND ST. CROIX ARE NOT ENROLLED IN THE PPO. THEY SHOULD CONTINUE FILING THEIR CLAIMS THROUGH NRAO. ALL SUCH CLAIMS SHOULD BE SUBMITTED TO BILLIE JO MATTOX IN CHARLOTTESVILLE.



Grote Reber in front of his antenna during a visit to Green Bank in 1995.

Planning Pays off During Move to GB Addition

By Michael J. Holstine

After two years of construction, which is not quite completed, the first floor of the Jansky lab addition is now occupied and operational. Occupying the office spaces in the addition are the Director, Administrative Services, MIS and Scientific Services as well as OVLBI, observers' computers and SETI. The conference room and the well equipped auditorium are also fully operational.

The move of these staff members into the new building proved to be a time-consuming and laborious endeavor. However coordination and pre-planning allowed the work to be completed as quickly as possible and with minimal disruption to Green Bank's operation. Plant Maintenance worked closely with Richard Fleming, Business Manager, who helped coordinate the entire move; the transition took about two months to complete.

It was critical that Administrative Services be moved as quickly as possible and as an intact group. These were the first offices to be relocated. Since members of Electronics were scheduled to relocate to the vacated administrative offices, it was necessary to remodel

these offices, as well as parts of the Electronics Lab and other offices on the Jansky second floor as the move progressed.

All ten members of the Plant Maintenance crew in Green Bank were involved in the assembly of new furniture, disassembly and movement of existing furniture, and the remodeling of the office spaces in the existing Jansky Lab prior to occupation. All of the work was performed under the supervision of the Plant Engineer, Mike Holstine, and Plant Maintenance Supervisor Rusty Taylor. Involved in the assembly and movement of furniture were Harley Carpenter, Max Gum, Willie Lambert, Daryl Shinaberry, John Sparks, Todd Wright, Mike and Rusty. Daryl, Todd and Willie spent many hours stripping and re-waxing floors of the vacated offices plus moving and arranging furniture. John, Daryl, Max and Willie did much of the painting and all were involved in the demolition and/or remodeling of the offices and Electronics Lab. Dharl McLaughlin and Carl Stone aided in the electrical and HVAC work, as well as other parts of the remodeling, while Rusty was responsible for the electrical demolition and installations. Every member of the Plant Maintenance crew performed whatever task was necessary at the time regardless of whether it was part of their "primary" trade.

During the transition period the Plant Maintenance group continued to provide ongoing service to the Observatory. Projects on tap for these same people were the installation of the GBT mock-up in the Jansky lab Conference room, the construction of a new electronics box (built primarily by Dave Vandevender and H.A. Taylor), as well as all normal maintenance activities. The fact that the complete move was accomplished relatively seamlessly -- and with minimal disruption to the site -- is indicative of the importance of teamwork, proper planning, coordination and the dedication of the entire Plant Maintenance staff at Green Bank.



*Front Row: John Sparks, H.A. Taylor, Rusty Taylor, Alan Wright, Willie Lambert
Back Row: Carl Stone, Dave Vandevender, Harley Carpenter, Daryl Shinaberry, Max Gum, Michael Holstine
(Not pictured: Dharl McLaughlin)*

The Trouble With Computers is . . . Part 3 by Jon Spargo



In this 3rd installment we'll talk about "Carpal Tunnel Syndrome" and then do a short summary review of the previous installments.

CARPAL TUNNEL SYNDROME

This syndrome is part of a class of ailments known as Cumulative Trauma Disorder or Repetitive Motion Syndrome. Before I go any further, I would like to give a good definition of the syndrome and talk a little about the symptoms.

The syndrome is the result of the compression of the "median" nerve as it passes through the bony and ligamentous "carpal tunnel" in the wrist. The problem is caused by repetitive motion while the wrist is bent. This causes the ligaments to swell and put pressure on the nerve. The symptoms can include a numbness or tingling in the hand, particularly in the fingers. In severe cases, the wrist can become quite painful.

Mild cases can be treated with wrist splints. More severe cases may require division of the transverse carpal ligament (surgery) which will relieve the pressure on the nerve. But, before you head off to the doctor's office, a word of caution.

Carpal tunnel can often be misdiagnosed, even by doctors. There are other nerves in your hand and wrist, e.g. the radial nerve. Pain in other parts of the hand and wrist can be due to strain on that nerve. While not as frequent, the symptoms can be similar. However, in that case, the problem is not with the carpal tunnel. As well, there is a condition where certain nerves in the neck, when compressed or strained, can cause your fingers to tingle! Often it is the result of poor posture. So the advice in Part 1 still applies, SIT UP STRAIGHT!

A good source of information on "Carpal Tunnel" is your friendly local Occupational or Physical Therapist. If you're unsure about your symptoms or if you doubt a doctor's diagnosis, you might want to consider visiting a therapist. These folks work with the problem on a daily basis and are well versed on all medical aspects of the syndrome.

As stated earlier, the problem occurs when there is repetitive motion with the wrist bent. This includes typing, or other repetitive hand activities at work or home. One of the keys here is the word "cumulative" as this syndrome can build up over a period of time. This is, indeed, one case where "an ounce of prevention is worth a pound of cure". The secret is really pretty obvious, don't bend your wrists!

To be specific, your arms, wrists and hands should be aligned such that there is a fairly straight line from your elbow through your forearm and wrist to your finger tips. This assumes that the average position of your finger tips is somewhere near the middle two rows of keys on your keyboard. Your arms should be at least parallel to the floor with perhaps just a slight elevation of the elbow. The most important thing to consider is to keep from bending your wrists

To achieve this arm position, there are two very helpful devices. One is a wrist support pad in front of your keyboard and the other is a chair with adjustable arm rests. Wrist pads are quite common and come in a wide assortment of styles. A type that I feel is very useful is one that is part of a system that supports the entire keyboard and allows for height adjustment of the pad and height and tilt adjustment of the keyboard. This combination makes adjusting to your keyboard easy.

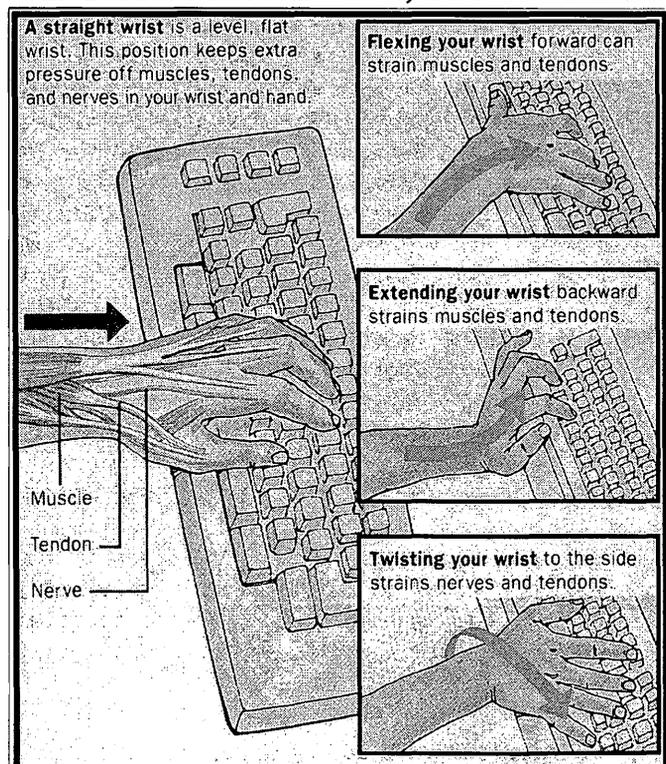
Many chairs now come with adjustable arms rests. I feel that this is essential. The better chairs now have arm rests that are also adjustable laterally. This allows correct position of the arm rests regardless of whether you are a wide or narrow body. Again, good chairs with these features can be purchased for under \$300. Shop around.

Recently there has been much made of the new so-called "ergonomic" keyboards. I've heard them both praised and cursed. Use of these type of keyboards is probably a matter of personal preference. I really don't think it matters much as long as you minimize the bending of your wrists while typing. So, go ahead and experiment. If you like the new keyboards, use them.

Before we leave this subject, don't forget the mouse! The same rules apply. The wrist needs to be kept straight while mousing. There are a variety of mouse wrist pads available, some are integral parts of the keyboard systems. Again, you should find what is most comfortable for you as long as your wrist is not bending.

(continued on following page)

KEYBOARD POSTURE courtesy Krames Communications



SUMMARY

We'll conclude part 3 with a brief summary of all 3 major aspects of your setup to provide for the most comfortable use of you computer. We'll start with two important pieces of general advice. The first is to experiment with your setup. Find out what is comfortable while allowing you to follow the basic ideas for setting up your computer as discussed here. The second is to remember to take frequent short breaks -- at least once an hour. Stretch you fingers then make a fist several times. Relax your eyes by looking off into the distance and following the outline of a far off object. Get up from your computer, stretch, walk around or do something different.

POSTURE

1. Sit up straight!
2. Adjust height of table, desk, chair and/or monitor (VDT) so that, with your head tilted slightly forward, you are looking at the top of the screen.
3. Use a chair or add on cushion that provides lumbar (lower back) support.
4. Thighs should be parallel to floor and lower leg and ankles perpendicular to the feet. If chair height makes this impossible, buy a foot rest and adjust accordingly.

VISION

1. Minimize glare and reflections by placing the monitor so as to avoid windows and strong point sources of light.
2. Room lighting should be from fixtures that diffuse the light.
3. Monitors in front of windows provide for harsh contrast. If windows can't be avoided, invest in a good set of blinds or curtains.
4. If reflections cannot be avoided, buy a polarized filter for you screen.
5. Adjust screen so that the characters and background match the document you are typing from. You may be able to increase the screen font size for easier reading.
6. Place documents on a holder attached to the VDT i.e., At the same height as you screen.
7. To minimize screen flicker, use a non-interlaced VDT with a refresh rate of 72 Hz or higher.

(continued on page 8)

Scoping the Sites . . .

Charlottesville

A Health Fitness Fair was held in the Edgemont Road auditorium on the morning of January 21, 1997. Many employees attended and had an enjoyable time. All of the information was very helpful and timely. The Fitness Fair was conducted by Martha Jefferson Healthworks and included various displays, discussions and exercises related to good health. Information stations ranged from foot and skin care to nutrition and exercise. Everyone walked away with great information!

A lunch presentation was given on March 5, 1997 in the Edgemont Road auditorium by Melissa and Jim Schmidt, two physical therapists affiliated with Martha Jefferson Hospital. The topic was back care, including stress reduction and injury avoidance. Back care was presented in very common sense terms with practical information provided about spinal column basics, proper seated positions at a workstation, and proper lifting techniques.

Green Bank

Martha Jefferson Healthworks presented the Health Fitness Fair in Green Bank on April 9, 1997 in the Tourist Center. The event was well attended and received rave reviews! The 5 minute-seated-massage was a big hit!

Check out the new menu choices at the Green Bank Cafeteria. The cafeteria staff is now offering a variety of low fat and vegetarian dishes that are quite tasty -- and good for the waistline!

Socorro

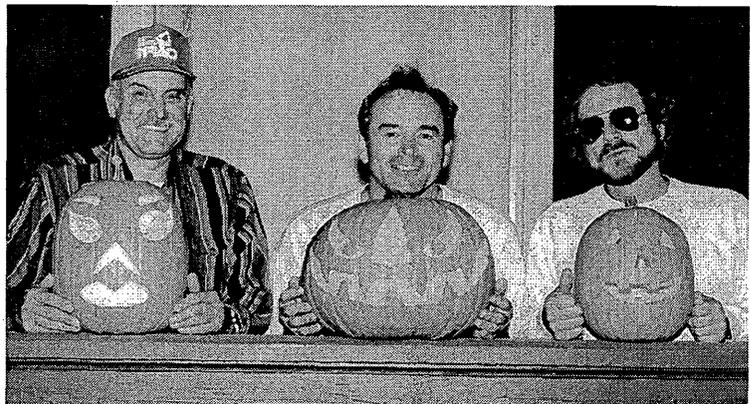
NRAO-NM sponsored a "Just for the Health of It" Wellness Program. The competition began last May and continued through September. Many employees began various activities such as walking, weight lifting, biking and to quit smoking. We are proud to say that Bill Brundage completed the program. Bill is an avid runner and was running an average of 26 miles per week. For his efforts NRAO has awarded Bill with a \$50 gift certificate. Thanks to Theresa McBride and Magdalene Romero for organizing the event!

The NMPRA/NRAO volleyball team won the City of Socorro CoEd Division "B" tournament in April. They were undefeated in the playoffs! Team members are: Dave Boboltz, Dale Frail, Marie Glendenning, Randy Jones, Skip Lagoyda, Julie Montoya, Magdalene Romero, Peggy Perley, Liese van Zee and Min Su Yun.

VLBA

On a recent visit to the North Liberty site, VLBA Field Group supervisor Paul Rhodes took time out from his safety inspection to take part in a pumpkin carving party, a traditional Halloween activity at the Meadows residence. As you can see in the photograph, Paul is obviously pleased with his creation.

Pictured from left to right, in the back row, are Paul Rhodes and site technicians, Jack Meadows and D. J. Beard.



**(Trouble with Computers . . .
continued from page 7)**

8. If your need to wear corrective lenses (contacts or glasses) have your eye doctor adjust your vision prescription for 24 to 26 inches. This is the average distance from your eyes to the screen, if you are seated properly.

CARPAL TUNNEL SYNDROME

1. DON'T BEND YOUR WRISTS while typing or mousing.
2. Use adjustable chair arm rests and wrist support pads to keep arms and wrists straight.
3. With arms level to floor or elbows just slightly elevated, there should be a straight line from your elbows through your forearms and wrists to your fingers when they are resting on the middle two rows of keys.
4. Consider using a wrist wrap support (available from most off supply houses), and keyboard/mouse wrist supports
5. If you experience a numbness or tingling in your fingers, visit your Doctor and/or an Occupational Therapist. Be sure of the diagnosis, get a second opinion if you are not sure or if the symptoms don't go away.

FINALLY

Don't be afraid to experiment a little. Realize that many of the thing above interact and you'll need to refine your computer setup to optimize your comfort.

Personnel News . . .

As a result of a recent change in the retirement policy, employees participating in the Supplemental Retirement Plan may now change the amount of their contribution on a monthly basis. Previously employees were limited to only one change per year. There have been no changes in the investment options available, frequency of changes in investment options, or procedures to change investment options. If you wish to change the amount of your current contribution to the Supplemental Retirement Plan please complete a new **Agreement for Salary Reduction** form and forward it to the personnel representative at your site.

In Addition . . .

Employee Benefit Statements were recently distributed to all employees eligible for benefits through NRAO. This is usually done on an annual basis to help you be more aware of your specific benefit provisions and to update your beneficiaries if necessary. We hope you find these reports helpful.

In Memoriam

Michael Little, VLBA technician at Ft. Davis, Texas died unexpectedly on January 14, 1997. He was with NRAO from October 1995 until the time of his death. He is survived by one son.

Promotions

(10/1/96 - 3/31/97)

Jeff Mangum to Deputy Assistant Director, TU
Toby Mann to Chief Accountant, GB
Roger Norrod to Deputy Assistant Director, GB
Jeff Uphoff to Scientific Prog. Analyst (AIPS++)

New Employees

CHARLOTTESVILLE

Tod Boyd, CDL/MAP Project
Robert Millner, Computing
Maya Proulx, Scientific Services/Library

GREEN BANK

Gary Anderson, Electronics
Tim Glaser, Electronics
Joe McMullin, AIPS++
Charles Niday, Electronics
Dan Pedtke, Electronics
Amy Petticrew, Electronics/Co-op
Steve Reeves, Telescope Services
Zula Taylor, Administrative Services

SOCORRO

Raymond Apachito, ES
Zach Barnes, Electronics/Co-op
Juan Cordova, Jr., OLVB
Frank Dobson, ES
Lisa Foley, ES
Johnny Gonzales, ES
Samuel Guerro, ES
James Herrnstein, Basic Research
James Julian, ES
Jimmy Lafasa, ES
Jeremy Martinez, ES
Walter McLain, ES
Dan Mertely, Electronics
Lawrence Minitrez, ES
Christopher Naranjo, ES
Adrian Piro, ES
Mary Ellen Sanchez, ES
Joe Sanchez, ES
Escolastico Torrez, ES
Higinio Vargas, ES

TUCSON

Christopher Heckler, Telescope Services

Departures

Mike Balister, retired 30 years
Cecilia Barnbaum
Stephane Beland
Elias Brinks
David Burgess, retired 6 years
Pat Chavez, retired 17 years
Evan Davis
Elizabeth Fraser
Eileen Lafasa
Jim Oliver, retired 35 years
Paul Shannon
John Sinnott
Robert Sumner
Michael Torres
Tonya Vandevander
Matt Waddel
Xiaobing Yang
Lisa Young

**THE POINT SOURCE is published quarterly by the
Personnel office for the employees of NRAO.**

Dorothy Tarleton, Editor
Patricia Smiley, Layout and Design

