BROOKHAVEN BULLETIN
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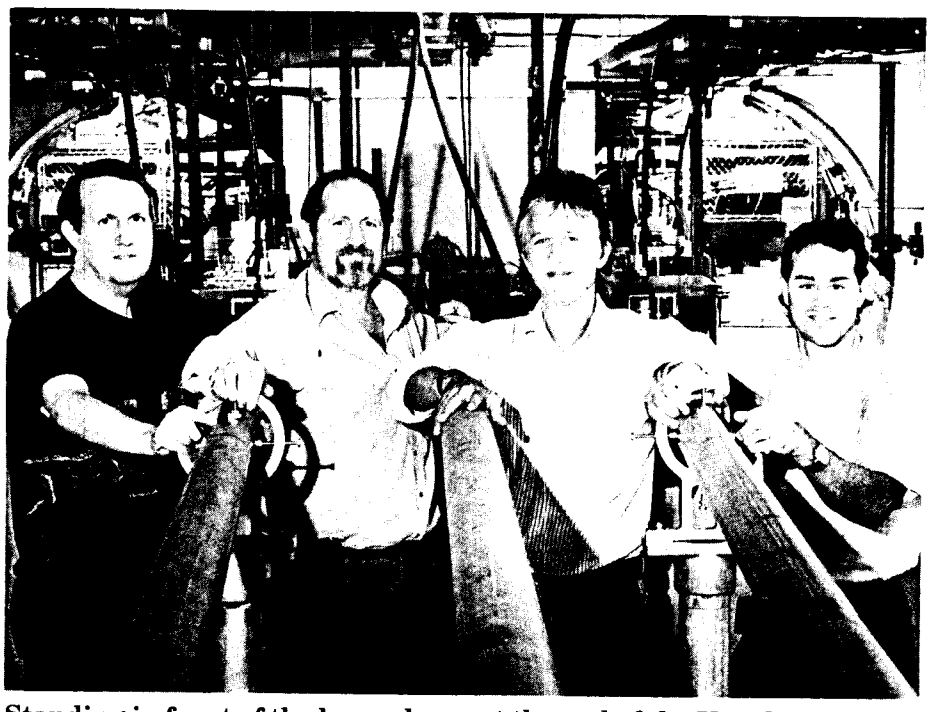
BROOKHAVEN NATIONAL LABORATORY

The Beam Stops Here: Gold Ions Transported Through AGS-to-RHIC Transfer Line

At 4:03 a.m. on Thursday, November 9, gold ions were for the first time transported through 400 meters of vacuum chamber and electromagnets built to transfer beam from BNL's Alternating Gradient Synchrotron (AGS) to the Relativistic Heavy Ion Collider (RHIC)—proving that RHIC is now officially linked to BNL's chain of accelerators, from the Tandem Van de Graaff through the AGS, which will provide it with the heavy ions needed to search for quark-gluon plasma.



Standing in front of the beam dump at the end of the U and W sections of the AGS-to-RHIC Transfer Line, with the X (left) and Y lines in the background are: (from left) Waldo MacKay, Ted Robinson, Michael Harrison and Raymond Savino. — Photos in this issue by Roger Stoutenburgh

To be commissioned by 1999, RHIC will circulate two beams of heavy ions in opposite directions at nearly the speed of light. These beams will be collided at six points around RHIC, in an attempt to recreate the hot, dense plasma of free quarks and gluons believed to have existed in the early universe immediately after the Big Bang.

"With this achievement, the RHIC Project marks another major construction milestone," says Satoshi Ozaki, RHIC Project Head. "The team led by Ted Robinson successfully completed the AGS-to-RHIC beam-transport system, as was designed by the late Horst Folsche, on schedule and within budget. This first phase of commissioning not only establishes a link for particles from the AGS to RHIC, but also the beginning of AGS and RHIC teams' working together toward the common goal of commissioning RHIC in 1999. So, congratulations are due to those staff members who brought this success to the Laboratory."

"I congratulate the RHIC and AGS teams that made this important step into the future possible. This milestone proves that the AGS can deliver to RHIC as advertised, with minimal impact to the AGS fixed-target physics program," says Derek Lowenstein, Chairman of the AGS Department.

First Test of RHIC Systems

Beam testing of this AGS-to-RHIC (ATR) transfer line began on Monday, November 6, and was successfully completed three days later, when gold ions were deliberately brought to a stop in a beam dump, a marble-clad chunk of steel near the end of the line. This beam stop sits a little back from the intersection of what are known as the X and Y lines, which will, respectively, send beam to circulate clockwise or counterclockwise around the two separate rings of RHIC.

In fact, in about a year, the next test of RHIC accelerator systems will involve sending beam down the 400-meter U and W portions of the ATR transfer line, into the 250-meter Y line and through one-sixth of the superconducting magnets and beam pipe that will make up the counterclockwise ring of RHIC.

"This was the first integrated accelerator-system test in preparation for RHIC," explains RHIC Associate Head Michael Harrison, who is in charge of the collider's construction and commissioning. "and it gave us a chance to check out some of the modifications made to the AGS so that it can be used as the injector for RHIC, as well subsystem hardware developed for RHIC, the RHIC control system that will be used to operate the collider, and the optical match between the magnets shaping the beam in the AGS and those in the transfer line."

According to Steve Peggs, Head of the RHIC Accelerator Section, between now and the end of the AGS heavy-ion run in mid-December, studies will be performed to look at two factors: the optics of the system, or how well the magnets focus and bend the beam along its ideal trajectory, and the parameters of the beam, such as its size, angular divergence and intensity.

"While our measurements of how well we control the beam are easier to make and interpret, determining the beam's internal structure is harder and will keep us busy analyzing our data," says Peggs.

Gold Ions' Long Journey

The gold ions used in this test originated at the Tandem, where they were accelerated to 1 million electron volts (MeV) per nucleon before being transported 900 meters through the Tandem-to-Booster (TTB) transfer line.

Completed in 1986 originally to link the Tandem directly to the AGS, the TTB now joins the Tandem to the AGS Booster, a small but mighty preaccelerator added in 1992. Since 1986, however, this transfer line has delivered heavy ions up to gold to the AGS, where they have been further accelerated, sent down beam lines and smashed into targets, allowing physicists to explore the high-density nuclear matter created in these collisions.

In the Booster, the energy of the heavy ions used in this test was upped to 72 MeV per nucleon. Injected into the AGS, they reached an energy of 10.8 billion electron volts (GeV) per nucleon before exiting via the ATR transfer line.

At this point, explains Thomas Roser, Head of the AGS Accelerator Division, the test verified the abilities of the two sets of AGS magnets needed to deliver beam to RHIC: kicker and septum magnets which are respectively used to "kick" the beam out of the AGS and divert it toward RHIC.

Fast Extraction, No Interruption

Roser points out that, while the AGS usually provides its heavy-ion users with what is called slow-extracted beam (SEB), RHIC requires a fast-extracted beam (FEB). So for this test, this meant that the particles in one of the 12 bunches within the AGS had to be extracted within less than 0.1 microsecond and sent down the ATR transfer line. Afterwards, the AGS was filled again and accelerated its new beam for about 1.5 seconds before FEB was again headed toward RHIC.

By providing FEB 10 percent of the time and SEB for the rest during this heavy-ion run of the AGS, the ATR test and subsequent studies have been carried out parasitically, without interrupting the AGS heavy-ion experiment program.

Extracted from the AGS, the gold beam continued its journey by heading up the ATR transfer line. "The ATR comprises several distinct sections of vacuum beam pipe and conventional, room-temperature magnets," comments Ted Robinson, Head of the RHIC Injection System Section, which began constructing the ATR transfer line in 1991.

The entire, 900-meter ATR includes the 400-meter U and W lines, plus 250 meters each of the X and Y lines. In total, the ATR contains 151 magnets: 76 horizontal and four vertical dipoles or bending magnets, 37 trim or steering magnets, 31 quadrupole or focusing magnets, two injection-septum magnets, and one magnet that will act as a switch between the X and Y lines.

The quadrupoles were recycled from the AGS or purchased from the Stanford Linear Accelerator Center for the former ISABELLE Project; the remaining magnets were assembled by the Injection System Section technical group headed by Raymond Savino. While 20 percent of the half-cores of the dipole magnets already existed, the rest were fabricated by Everson Electric Company of Bethlehem, Pennsylvania.

Robinson continues: "Immediately following AGS extraction, the beam is bent 4.25 degrees to the right, so it can be transported through the first section of the ATR. Called the U line, this section was built a decade ago as part of the AGS neutrino-search program, but was completely rebuilt for the ATR. Midway through the U line, the beam makes another 8 degree bend to the right."

Since the gold ions accelerated in the AGS have a charge of +77 (Au^{+77}), the U line also contains a stripper foil to remove the last two electrons to produce the Au^{+79} needed for RHIC injection.

The next section of the ATR is called the W line, "which includes another 20 degree bend to the right and a vertical level change of about 1.7 meters to bring the beam to the proper elevation for RHIC injection," says Robinson.

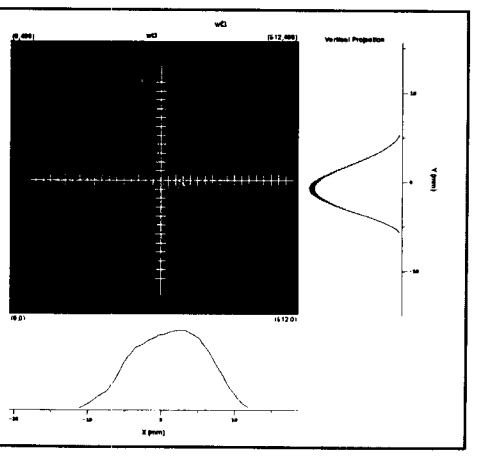
Making History With the ATR

With its magnets built, installed and surveyed, the ATR was completed in September, "at which point," says Robinson, "we turned it over for commissioning."

ATR commissioning history was made while Kevin Brown of the AGS Controls Systems Section (CSS), Jorg Kewisch of the RHIC Accelerator Physics Section (APS), Zal Maldonado of the RHIC CSS, and Fluvia Pilat of RHIC APS were at the controls, which were built by the AGS/RHIC Control System Section headed by Donald Barton.

The commissioning was actually verified in the AGS control room, with

(continued on page 3)



A two-dimensional graph and projections on the x and y axes of a gold-ion beam that has been transported through the AGS-to-RHIC transfer line and purposely stopped in what is called a beam dump, as seen on a beam-profile monitor, showing that the beam is well centered and of the correct shape. The scale for the graph is 1 millimeter; the scale for the projections is 10 millimeters.

BNL's Budget Sees Progress

Despite the budgetary impasse that prevailed in Washington as the Bulletin went to press, there was progress this week on BNL's budget: On Tuesday, November 14, President Bill Clinton signed the Energy and Water Development Appropriations bill, which funds the majority of the programs of the U.S. Department of Energy — and, hence, the Laboratory — for the full fiscal year 1996.

More on BNL's 1996 budget and its impact on the Laboratory will appear in a future Bulletin.

BNL's Native Americans Recall Their Proud Heritage

Commemorating the 1621 harvest reaped by the Pilgrims of Plymouth Colony in what is now the state of Massachusetts, Thanksgiving was first proclaimed a U.S. national holiday in 1789 by President George Washington and revived by President Abraham Lincoln in 1863. In 1941, Congress decreed that Thanksgiving is to fall on the fourth Thursday of November — this year November 23.

While eating turkey as a reminder of the four wild turkeys served at the Pilgrim's first thanksgiving feast, you should consider that Thanksgiving is not only a time to recall struggles of the 102 English Puritans who landed on Plymouth Rock in December 1620. It is also a time to honor America's original inhabitants — its Native Americans — and remember their immediate assistance to the Pilgrims and their long-term contributions to the establishment of this country, as well as their tribulations as a result of its development.

Appropriately, the month of Thanksgiving, November, is also National Nati American Month. To commemorate it, the Bulletin discussed their heritage with two of the Lab's Native American employees, who belong to two of the 13 tribes original to Long Island and the only ones now remaining.

Nancy Harris

A member of the Unkechaug Tribe who lives on the Poosepatuck Reservation off the Great South Bay in Mastic, Nancy Harris (Little Cloud), an administrative secretary in the Division of Contracts & Procurement, can trace her Native American roots on Long Island back some 400 years. As she explains, "My family has been here forever."

In the early 1600s, when the Dutch and English began colonizing Long Island, the widespread Unkechaugs owned and occupied territory ranging from Patchogue to Westhampton, where they hunted, fished and farmed. In the late 1600s, the Unkechaugs began selling their land, primarily to an English colonel, George Smith, to whom they appealed when they realized that they had no land-use rights and nowhere else to go. As a result, Smith deeded back 175 acres, of which 52 acres remain as the Poosepatuck Reservation.

Pictured on the Poosepatuck Reservation in front of the Presbyterian Church, a 400-year-old structure that was last in her family in the early 1800s as her great-great-great-great grandmother's house, are: (from left) Nancy Harris, her grandmother Abbie Maynes Langhorn, her son Darren Harris and her granddaughter Dikirah Harris.

The last full-blooded Unkechaug, Martha Maynes, whose portrait is in the collection of New York City's American Museum of Natural History and who died in 1933 at the age of 98, was the great-great-grandmother of Nancy Harris. The granddaughter of Martha Maynes and her father's mother, Abbie Maynes Langhorn (Princess Hummingbird) is now the family's matriarch.

"My grandmother complains constantly about the loss of traditions," says Harris. "She feels that we should have kept up with the annual powwow and corn festival, to let people know what our culture is all about. She believes that, if we don't do something about it soon, then our culture will be lost forever. Thankfully, things are now turning around: The children are being taught our history, and how to do the dances and the crafts."

In fact, for the first time in 18 years, the tribe expects to hold a Corn Festival next year. "Participating is a beautiful feeling you can't describe, an experience to go through," recalls Harris.

Harris's father lived on the reservation until he was 17. As a child, Harris resided in Center Moriches and disliked returning to the reservation to visit her father's side of her family. With lots of woods and not many children, Harris recalls, "It was lonesome and I had nothing to do, so I never thought I'd move there."

She did, however, 27 years ago, when she married her husband, Hubbard Harris Jr., who works in the Plant Engineering Division. She explains, "We thought we'd just stay a few years, until we got enough money together to buy a house, but now, with my three children and one grandchild there, I can't see moving off. It has its advantages and disadvantages, like anywhere else."

One of her children, Darren Harris, who also works in Plant Engineering, is one of the reservation's three land trustees, who are responsible for administering the land.

Because the reservation is small and has become populous, land became an issue in the late 1980s when many more had laid claim to a share than there was room for. So, each family, including Harris's, had to prove their blood rights in court, that is, trace their family tree back to the 1600s, to be able to continue living on the reservation.

Harris was recruited off the reservation to work at BNL by Renée Flack, formerly of the Affirmative Action Office, who now works in the Office of Educational Programs. Just as many BNLers hadn't heard of the reservation, "I had never heard of the Lab before Renée and Peter Chen came to my home, recruiting minorities, to tell me about it," she recalls.

Hired as a clerical trainee in 1971, "Working here was my first and has been my only full-time job," she adds. "I've enjoyed it, and I wouldn't have obtained my high-school equivalency diploma and earned credits at Suffolk Community and Briarcliffe Colleges without being a Lab employee."

Though many of her coworkers are not aware of her heritage, "I'm proud of being a Native American, and what people don't know about my culture they should ask," Harris concludes.

— Marsha Belford

Mitchell Williams

Shown in the Shinnecock Reservation's community center, in front of a mural representing the circle of life, are: Mitchell Williams (back, center), holding his youngest son, Malcolm; his eldest son Mitchell Williams Jr. (back, right); his mother Agnes Williams (left), with his middle sons, (from left, front) triplets Matthew, Maurice and Marcus.

It was 1994 when Mitchell Williams (Running Bear), a technical specialist with the Relativistic Heavy Ion Collider Project, made a comeback after 20 years: At the 48th annual Shinnecock Powwow, which has become one of Long Island's most famous festivals and is held over Labor Day weekend, Williams danced.

Dressed in his full, traditional regalia, "I wanted to show my boys that their old man could still head to the drum," says Williams, a member of the Shinnecock Tribe who lives on the Shinnecock Reservation in Southampton with his wife and five sons, "and they were surprised."

"I went to a lot of powwows in Connecticut, New Jersey and New Hampshire as a kid, but, as a teenager I drifted away. Because of my boys, I'm coming back," comments Williams, whose 12-year-old triplets performed in the powwow this year.

"Things are coming back around," he continues, "The tribe is now not only tutoring our kids so that they do well in school, but we are also teaching them our heritage: how to do the dances and what are their meanings, how to play the drum and its meaning. We want them rooted in tradition."

Williams recalls that, as a child, he was greatly influenced not just by his family, but also by the older members of his tribe. "Raising a child is a community effort," he explains.

As Williams learned when young, the Shinnecock Tribe has one of the oldest reservations in the U.S. on what was once part of their home ground. In the 1600s, the Shinnecock introduced the early colonists to the use of whales and shore whaling, which the natives did by rounding up a whale, and forcing it to the beach or killing it off shore.

Through the mid-1800s, when offshore whaling became a major Long Island industry, many Shinnecock served as the seamen who performed the hazardous work, with little of the material reward accorded the ships' owners and captains.

Though hardly mentioned, "Many of our ancestors lost their lives whaling, and our role contributed significantly to the history, economics and development of Long Island," comments Williams.

Williams can draw his family tree back to the 1800s. "It is a moving feeling to go to our cemetery and look at the tombstones of the ancestors who are looking down at us now and seeing that we move in the right direction."

Since New York State owns the land on which the Shinnecock Reservation sits, Williams cannot use his land as collateral and cannot take out a conventional mortgage to build a house. So, juggling four higher-interest personal loans, he built his 9-bedroom house over 12 years.

"The foundation is four feet in the ground and four feet out, and we lived in a finished basement for four years before I could afford to frame it," explains Williams.

After Williams graduated from high school and moved upstate, his mother wrote to inform him that his brother Mark, who worked here until 1979, had taken a job at Brookhaven.

Williams recalls, "I had never heard of BNL, but I liked the idea of working at a national laboratory, so I applied." Hired in April 1976 as a guest trainee working on the ISABELLE Project, Williams became a technician the next year and, since, has moved up the technical ranks. "I'd like to see more training opportunities for minorities for technical jobs like the one I had," he says.

"My coworkers definitely know who I am and where I come from, by what I wear, what I do and what I tell them," concludes Williams. For those who do not know, "Native Americans still exist, and we are a very proud people with a long history and a rich heritage. We are neither to be forgotten nor underestimated, for we know who we are and where we came from, and we have a great vision of where we are going.

— Marsha Belford

Amateur Radio Club

The BERA Amateur Radio Club will meet on Thursday, November 30, at noon in Room D, Berkner Hall. All Lab employees, guests and licensed amateur-radio operators are invited. For information, contact Chris Neuberger, Ext. 4160, or Nick Franco, Ext. 5467.

Calling All Carolers

The BNL Choral Group will present its annual Christmas Concert in the Cafeteria, at the special Christmas luncheon scheduled for Wednesday, December 20.

Rehearsals for this concert will be held at noon sharp as follows: Thursday, November 30; Monday, December 4; and Friday, December 8; Monday, December 11; Thursday, December 14; Monday, December 18. All rehearsals will be in Berkner Hall except on December 11, which will be in the North Room, Brookhaven Center.

Singers are needed for all parts: soprano, alto, tenor and bass. For more information, call John Weeks, Ext. 2617, or Janet Sillas, Ext. 2345.

For the Price of a Cup of Coffee . . .

One effect of tighter budgets is cutbacks in federal and state funding for agencies that help people cope with personal disasters. Without extra support, many of these agencies are forced to operate on a much smaller scale — or even to close.

But the United Way is trying to prevent that, with the donations of Long Islanders who have enough security to share with those in need. Says BNL's United Way Fund Drive Chair Michelle Cummings, "Never forget, it could be you, your friend, your family, who gets cancer, needs job training, has a handicapped child, and suddenly finds that agencies kept alive by United Way are vital pathways back to independence. One in three persons on the Island eventually needs some kind of help that is available through United Way funding."

As usual, prizes will be drawn from among pledges received by December 15, the end of the drive. The earlier the pledge, the more drawings it will be in. Thanks to Associated Universities, Inc.; the Long Island Guards Union No. 37; Local 8-431 Oil, Chemical and Atomic Workers International Union; and Local 2230 International Brotherhood of Electrical Workers, prizes include dinners for two and a grand prize of a dinner-and-theater weekend for two in New York City.

At the kickoff for BNL's 1996 United Way fund drive on November 9, Long Island's United Way Chairman Dan Keane (standing), president of the Suffolk division of The Bank of New York, explains to the Lab's campaign captains that the price of a cup of coffee or so a week from each employee could help BNL's United Way fund drive meet its goal of $90,000. To help in this endeavor, United Way's Bob Sewell (fifth from left) will be at Room D, Berkner Hall, Ext. 3547, until Wednesday, November 22, with a video and printed information. Other speakers at the kickoff were BNL Fund Drive Chair Michelle Cummings (left), who described her visit to Apple, a United Way-supported agency that helps alcohol and drug addicts, and BNL Deputy Director Martin Blume (back, center), who spoke of the Lab's responsibility to help its neighbors.

See Famous Opera Scenes

The next special BERA concert will feature scenes from famous operas sung in their original languages by graduate students from the State University of New York (SUNY) at Stony Brook. It will be held on Monday, November 20, at 8 p.m. in Berkner Hall.

Staged with piano accompaniment, the promising young opera singers will perform Mozart's *Don Giovanni*, Opening Scene, Act II, Sestetto; Bizet's *Pearl Fishers*, Duet for Nadir and Zurga, Zurga's Aria; Verdi's *Falstaff*, Act II, Scene I; and Selections: Menotti's *Amahl and the Night Visitors*.

This program is being made possible with the cooperation of SUNY at Stony Brook's Music Department and Center for Italian Studies. The suggested donation is $6 per person. Refreshments will follow the concert.

Book Fair Today

If you haven't been to the Book Fair in Berkner Hall, drop by for its last day, today, Friday, November 17, between 10 a.m. and 3 p.m.

With books ranging from children's stories or cookbooks to *New York Times* bestsellers, there is something for every reader on your holiday list.

AGS-to-RHIC Transfer (cont'd.)

data gathered from beam-current, -loss, and -profile monitors developed by Richard Witkover of the AGS Instrumentation Group, and beam-position monitors built by the RHIC Instrumentation Group headed by Thomas Shea.

"The speed with which we were able to get the beam down to the end of the transfer line is due, in part, to the remarkable effort of all the groups involved in its construction, its instrumentation and control system," explains Waldo MacKay of the RHIC APS, who headed the ATR commissioning. As was discovered during the test, "ATR control software, which is a prototype for RHIC, has worked very well and is exceptionally stable for a brand-new system in the initial stages of commissioning.

"Our job isn't done yet," adds MacKay. "We have a long list of things to do to characterize the beam."

With the ATR commissioned, "We look forward to the same success with next year's sextant test," concludes Harrison. — Marsha Belford

Marrow Drive Joins Blood Drive

Today, all employees will receive pledge cards that they can sign and return to give blood in BNL's next Blood Drive, Thursday and Friday, December 7 & 8, from 10 a.m. to 3 p.m., in the Brookhaven Center. Those who choose to give the gift of life this holiday season will also find a new box on the pledge card that they may check if they are interested in possibly donating bone marrow at a future date.

Bone marrow transplants are life-saving procedures for many suffering from diseases such as aplastic anemia, leukemia and lymphoma. About 500 people a year undergo marrow transplants from unrelated donors.

If you'd like to be considered as an unrelated donor, take advantage of the new option available this year to many of those who donate blood at BNL's upcoming Blood Drive: Become a participant in the National Marrow Donor Program — by agreeing to have a small sample of your donated blood tested.

The Congressionally authorized program maintains a computerized registry of volunteer donors. If a BNL donor's blood is found to be a potential match with a patient who needs a transplant, the donor will be contacted for additional blood tests. Then, if lab tests further reflect a potentially successful match, a detailed information session will be arranged so the donor can decide whether or not to proceed.

The odds of finding an unrelated donor match are between one in 100 and one in a million. But for that one in 100 or one in a million, the donor's generosity could mean life itself. That is why BNL has decided to give this program its full support, by paying for the blood test for 20 employees who decide to take that step at this Blood Drive.

Tissue types are inherited, so a patient's best chance for a successful unrelated match is with someone from the same racial or ethnic group. At present, there is an acute need for more minority volunteers, and federal funds are available to cover the tissue typing costs of donors who are African-American, Asian/Pacific Islander, Hispanic or Native American. So the Lab's funding for tests for 20 donors is in addition to any members of these groups who decide to participate.

Those interested in learning more about this program may check the new box on the donor pledge card when they sign up for the Blood Drive. They may also contact their Blood Drive Captain or call Blood Drive Chair Susan Foster, Ext. 2888.

Suggestion Program Closes

On Friday, December 1, the Employee Suggestion Program will close. Run by the Human Resources (HR) Division for the past 12 years, the program awarded cash prizes to employees whose suggestions saved the Laboratory time, money or energy, or improved safety.

Said HR's Susan Foster, Suggestion Program Administrator, "Though there were many excellent suggestions, the expense of administering the program, unfortunately, outweighed its cost-saving value. Employee suggestions received before December 1 will continue to be evaluated for implementation and awards, but any other suggestions will be forwarded to the appropriate departments or divisions, with no further correspondence from the HR Division.

"These are difficult financial times at the Lab," continued Foster, "and, though there may be no monetary reward, I am sure that BNLers with good ideas will continue to share them in the appropriate departments and divisions, reaping the reward of knowing they helped the Lab save money or enhanced their coworkers' safety."

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ANITA COHEN, Editor
MARSHA BELFORD, Assistant Editor

Bldg. 134, P.O. Box 5000
Upton NY 11973-5000
Tel. (516) 282-2345; Fax (516) 282-3368

The Brookhaven Bulletin is printed on paper containing at least 50 percent recycled materials, with 10 percent post-consumer waste. It can be recycled.

PEIS Public Hearing Reset for Next Week

The U.S. Department of Energy (DOE) will hold a public hearing — in the form of an interactive video teleconference — on the Waste Management Programmatic Environmental Impact Statement (PEIS), on Tuesday, November 21, from 6 to 9 p.m., in the North Room, Brookhaven Center.

Originally planned for October, the meeting was rescheduled to give the public more opportunity to comment on the PEIS, which focuses on management alternatives for treating, storing and disposing of radioactive and hazardous wastes in DOE's existing and projected inventory.

Mona Rowe of BNL's Public Affairs Office said that it is "highly unlikely that BNL would be selected as a storage site, since the Lab is located in the pine barrens on an island with a sole source aquifer. But, the Lab must be considered under the law as part of the DOE process."

To register for the teleconference and share your views with senior DOE officials, call (800) 736-3282.

To Your Health

The following programs have been scheduled by the Health Promotion Program of the Occupational Medicine Clinic. To register or for more information, contact Health Promotion Specialist Mary Wood, Ext. 5923.

Weight Watchers

Register for the next on-site Weight Watchers series on Wednesday, November 22, from noon to 1 p.m. in the South Dining Room of the Brookhaven Center. For the four-class series starting Wednesday, November 29, the fee is $12 per class.

Healthline Lecture: Money Matters

For the sixth time, attorney George Roach will present a Healthline lecture, speaking about "Money Matters When Illness Strikes: A Legal Update," on Tuesday, November 28, from noon to 1 p.m. in Berkner Hall.

Updated for 1995, Roach's talk will focus on the financial impact on a family when illness strikes a dependent or elderly parent. He will discuss recent changes in Medicaid law and basic estate planning.

CPR for Infants and Children

A two-day training class in the cardiopulmonary resuscitation of children and infants will be offered on Tuesday and Thursday, November 28 & 30, from 6 to 9 p.m. in Room B, Berkner Hall. The fee is $35 per person.

BERA Plans Trips . . .

Sign up now for the following trips at the BERA Sales Office, Berkner Hall, weekdays, 9 a.m. to 1:30 p.m. For more information, call Andrea Dehler, Ext. 3347, or M. Kay Dellimore, Ext. 2873.

To Radio City Music Hall

Seats are still available for the BERA bus trip to New York City on Saturday, November 25, to see the annual Christmas Show at Radio City Music Hall. For $99 per person, the trip includes round-trip motorcoach service, three hours of free time on 5th Avenue, a full-course dinner at La Veranda restaurant before the show, orchestra seats to the 6:30 p.m. show, and all taxes and tips.

Full payment is due immediately.

To Atlantic City

A few seats remain for the next BERA-sponsored, one-day trip to the Trump Castle Hotel and Casino on the marina in Atlantic City, on Saturday, December 9. The initial cost will be $22, but the hotel-casino will give a $15 coin return.

IBEW Meeting

Local 2230, IBEW, will hold its regular monthly meeting on Monday, November 27, at 6 p.m., in the Knights of Columbus Hall, Railroad Avenue, Patchogue. The agenda includes regular business, committee reports and the president's report.

CCD Seminar

The Computing & Communications Division will offer a ReportSmith class Tuesday & Wednesday, November 28 & 29, 8:45 a.m. to 5 p.m., in the PC Training Room, Bldg. 515. The fee is $500; seating is limited. To register or for more information, call Pam Mansfield, Ext. 7286, by November 15.

Equipment Demo

A Polaroid Appreciation Day will be held on Wednesday, November 29, from 11 a.m. to 1:30 p.m. in Berkner Hall. Displayed on tabletops will be information and samples covering new Polaroid professional films, microscopy, electrophoresis, scientific imaging, and digital film recorders and scanners.

Holiday Notes

In observance of Thanksgiving, the Lab will be closed on Thursday and Friday, November 23 & 24, so the following schedules will be in effect:

• **Brookhaven Bulletin** — There will be no Bulletin next week; the next issue will be published on Friday, December 1. The classified ad deadline for that issue is 4:30 p.m. on Wednesday, November 22.

• **Credit Union** — The Teachers Federal Credit Union will be closed all day on Thursday, but will open Friday for normal hours, 8:30 a.m. to 4:30 p.m. The automatic teller machine in the foyer of Berkner Hall will be open throughout the holiday.

• **Food Services** — The Cafeteria will offer only snack bar service Thursday through Sunday, from 9 a.m. to 2 p.m. The Brookhaven Center will be closed Thursday through Saturday, then reopen Sunday at 5 p.m. The vended food service in Bldg. 912 will operate continuously.

• **Gym & Pool** — The swimming pool and gymnasium will be closed from Thursday, through Sunday. Regular hours will resume on Monday.

• **U.S. Post Office** — The Upton Branch of the U.S. Postal Service will be closed on Thursday and will reopen on Friday, only from 8 a.m. to noon.

• **Weekly Calendar**— Submit notices for the weeks of November 27/December 4 by noon on Tuesday, November 21.

Cafeteria Menu

Monday, November 20	
Soup: Spiced potato kale	.90/1.20
A la Carte: Macaroni & cheese	3.00
Lite: BBQ chicken	3.95
Deli: Baked ham w/baked beans	3.20
Grill: Reuben	3.30
Tuesday, November 22	
Soup: Chicken noodle	.90/1.20
A la Carte: Roast chicken w/stuffing	3.95
Lite: Pork loin w/herbed crust	3.85
Deli: Corned beef & cabbage	3.20
Grill: French dip	3.30
Wednesday, November 23	
Soup: Broccoli & cheese	.90/1.20
Display Cooking: Chicken Caesar	4.75
Deli: Roast turkey w/stuffing	3.20
Grill: Tuna melt	3.30
Thursday & Friday, November 23-24	
Snack Bar Service — 9 a.m. to 2 p.m.	

Do your holiday shopping at the Winter Holiday Sales at the Science Store . . .

Three Fridays — December 1, 8 & 15
10 a.m. to 3 p.m., Bldg. 701

BERA Toy Drive

For the 12th year, BERA is participating in Brookhaven Town's Toy Drive, which is organized to provide happy holidays for needy young people in the local community. From Monday, November 20, through Wednesday, December 20, toys, preferably new, for children from infants through teenagers, may be brought to the BERA Sales Office, Berkner Hall, weekdays, 9 a.m. to 1:30 p.m. For more information, call Andrea Dehler, Ext. 3347, or M. Kay Dellimore, Ext. 2873.

Social Canceled

BNL Ballroom, Latin & Swing Dance Club regrets to announce that, due to lack of availability of the North Ballroom, the Saturday Social scheduled for tomorrow, Saturday, November 18, has had to be canceled.

Country/Western Club Plans Dance on Site

All are invited to join the BERA Country/Western Dance Club for a hoot of a time at their next dance. To be held from 7:30 to 11:30 p.m. on Friday, December 1, in the North Room of the Brookhaven Center, the event will feature music and instructions by Judy & Paul Cutler, hors d'oeuvres, door prizes and a cash bar.

Tickets purchased by Tuesday, November 28, cost $10 per person. After that or at the door, tickets will cost $12.50 per person. For tickets, call Marilyn Johnson, Ext. 2546.

Benefit Bake Sale

To buy much-needed equipment for the Upton Nursery School (UNS), the school will hold its annual Fall Bake Sale on Tuesday, November 21, from 11:30 a.m. to 1:30 p.m. in the lobby of Berkner Hall.

UNS is a nonprofit cooperative nursery school operating September through June, Monday, Tuesday and Thursday from 8:30 to 11:30 a.m. For more information, contact the UNS registrar, Janice Steski, 929-3859, or UNS president, Sue Ellen Gerchman, 929-3732.

Service Awards

The following employees celebrated BNL service anniversaries during the month of October 1995:

35 Years

Caroline Ferris.....Biology
Joseph W. Glenn III.....AGS
Robert B. Palmer.....Physics
Richard B. Squires.....Instrum.
James W. Sutherland.....App. Science

30 Years

Alan S. Carroll.....AGS
Edward McKenna.....NSLS
Charles W. Neuls Jr......NSLS
Richard L. Witkover.....AGS

25 Years

Noelwah Netusil.....Medical

20 Years

Michael Bannon.....AGS
April J. Donegain.....Fiscal
Patricia E. Gorden-Ozgul....Human Res.
Eileen M. Kelly.....Reactor
Dolores J. Knighton.....Info. Serv.
Frances V. Ligon.....Human Res.
Paul E. Poleski.....Comp. & Comm.
William E. Schoenig.....Physics

10 Years

Leesa B. Allen.....Physics
Frank A. Cetero.....RHIC
Alan G. Gustavsson.....Physics
Deborah A. Kerr.....Adv. Tech.
William R. King.....Instrum.
Patricia A. Manzella.....Human Res.

Attn: Young Artists

If you're a child age 6 to 12 whose parent is a Lab employee, get out your crayons: The Bulletin wants your help. We're looking for original drawings of holiday scenes for possible publication in our issue of December 22.

Whether your drawing is about the winter season or about a special holiday, such as Christmas, Hanukkah or Kwanzaa, it should be no larger than 9 inches by 12 inches. Submit it to the Brookhaven Bulletin, Bldg. 134 by Friday, December 1. Please put your name, your parent's name and your age on the back of the drawing.

Those whose work is published will receive a chocolate surprise.

Classified Advertisements

Placement Notices

The Laboratory's placement policy is to select the best-qualified candidate for an available position. Consideration is given to candidates in the following order: (1) present employees within the department/division and/or appropriate bargaining unit, with preference for those within the immediate work group; (2) present employees within the Laboratory; and (3) outside applicants. In keeping with the Affirmative Action plan, selections are made without regard to age, race, color, religion, national origin, sex, handicap or veteran status.

Each week, the Human Resources Division lists new placement notices. The purpose of these listings is, first, to give employees an opportunity to request consideration for themselves through Human Resources, and second, for general recruiting under open recruitment. Because of the priority policy stated above, each listing does not necessarily represent an opportunity for all people.

Except when operational needs require otherwise, positions will be open for one week after publication.

For more information, contact the Employment Manager, Ext. 2882, or call the JOBLINE, Ext. 7744 (282-7744), for a complete listing of all openings.

Current job openings can also be accessed via the BNL Home Page on the World Wide Web. Outside users should open "http://www.bnl.gov/bnl.html", then select "Scientific Personnel Office" for scientific staff openings or "Employment Opportunities" or "BNL Human Resources Division" for all other vacancies.

LABORATORY RECRUITMENT - Opportunities for Laboratory employees.

DD3778. SECRETARIAL POSITION - (part-time) Requires AAS in secretarial science or equivalent experience and demonstrated excellent organization and communication skills. Will provide varied secretarial support to Applied Physical Sciences Division, including purchasing; preparing correspondence, publications and proposals; and arranging travel. Additional requirements include IPAP/JCARS, as well as WordPerfect 5.1 or 6.0 experience. Department of Applied Science.

OPEN RECRUITMENT - Opportunities for Laboratory employees and outside candidates.

NS3982. ENGINEERING POSITION - Requires BS degree, and knowledge and experience in accelerator radiation safety. Knowledge of encoders, relays, isolation and log amps to interface with fast mechanical vacuum valves and beam-line hardware and shielding for security systems is required. Will be responsible for interfacing with the NSLS user community to design hardware/software to ensure personnel protection in areas requiring radiation security; and will be involved in the management and development of written safety procedures and manuals. National Synchrotron Light Source Department.

Motor Vehicles & Supplies

94 HONDA ACCORD - fully loaded, charcoal blue, excel. cond. 331-4096.

94 CHEVY S10 PICKUP - 4-cyl., 5-spd., 27k mi., mint, many extras. 727-3863.

94 ASTRO VAN - 29k mi., 7-pass., full power, deep tinted glass, Dutch door on rear, $14,000. Rich, 363-6845.

89 CHEVY CORSICA - 4-dr., a/t, cruise, high mi., excel. cond., $2,300. Gabriel, Ext. 2707 or 341-1087.

88 FORD FESTIVA - m/t, 35 mpg, silver, good cond., well maint., good station car, $1,500 neg. Ext. 5262.

87 PLYMOUTH RELIANT LE - 4-dr., 2.5 eng., ac, a/t, p/b, p/s, 76k mi., clean, one owner, runs well. Ed, Ext. 4437 or 581-1509.

87 TOYOTA COROLLA SR5 - 100k mi., 5-spd., ac, am/fm cass., good cond., moving abroad, $2,400 neg. Ken, Ext. 4514 or Alison, Ext. 4410.

86 MERCURY GRAND MARQUIS - 4-dr., loaded, well maint., new exhaust, brakes, more, ask. $1,650. 399-2290.

86 FIREBIRD - a/t, V-6, ac, T-top, hwy. mi., runs well, $1,600. 878-1617 after 5:30 p.m.

86 MERCURY MARQUIS - 6-cyl., 4-dr. sedan, black, a/t, ac, p/b, p/s, p/w, am/fm, 100k mi., runs well, $1,700 neg. Peng, Ext. 3869/5240.

85 SUBARU GL - 4-dr. sedan, 103k mi., 5-spd., p/s, radio, $1,000 neg. Fulong, Ext. 2338.

85 NISSAN 4x4 PICKUP - excel. cond. asking $2,700. Don, Ext. 5329 or 422-7415.

85 MERCURY WAGON - 9/95 rebuilt eng., excel., $1,400; '81 Lincoln Town Car, 10/94 rebuilt eng., ask. $1,800. Ed, Ext. 4846 or 363-6940 after 5 p.m.

84 PONTIAC TRANS AM FIREBIRD - black w/gold trim, 5-spd., V-8, 5.0 liter eng., $1,900 neg. Rich, 744-4816.

82 MERCURY ZEPHYR - runs well, well maint., good station car, $500 neg. Richard, Ext. 5521/5708.

80 VOLVO SL WAGON - body & engine in v.g. cond., $500. Ext. 7225.

79 OLDS CUTLASS SUPREME - orig. owner, ac, mech. excel., $550. Ext. 5928 or 427-8095.

77 FORD LTD II 302 - ac, p/b, p/s, am/fm cass., $900; flat-bed trailer w/ramps, $500; '50 Dodge Ram pickup; '67 Chevy 327, $3,000. Keith, 727-6517 after 6 p.m.

PARTS - 302 Ford motor, '91 Mustang rear, all new drums, rotors, misc, other parts for Mustang/Capri. Edward, 661-9155.

TIRES - snow, GR78-15 on GM rims, $20. Kim, Ext. 3167.

SHOP SERVICE MANUAL - for '93 Chevy S-10, 3-vol. set, cost $50, selling for $25. Joe, Ext. 2898.

HITCH - fits Volvo 940 '91-'96, 760 '93-'90 and 740 '85-'92, asking $250. Tom, 744-4535.

BRAKES - new, rear bonded for Chrysler, $5; air filters, AFL-52 Sears & Lee brand for Chrysler cars, $8/4. Susan, Ext. 7647.

Boats & Marine Supplies

KAYAK - Sea Eagle, 2-person, inflatable w/paddles, life vests, pump & carrying pack, excel. cond., ask. $100. A. Greene, Ext. 3664.

Furnishings & Appliances

BUREAU - tall dresser, dark pine, good cond., $45; scuba, b.c. adult, small, never used. Ext. 7225.

CHAIRS - Ethan Allen, 1 yr. old, Windsor-style, solid cherry, 4 side, orig. $199 ea., now $100 ea.; 2 arm, orig., $249 ea. now $150 ea. Eric, Ext. 5875.

CHAIR - IKEA, beechwood trim, $50; table, 36", oak, w/chairs, $100; baby swing, battery, excel., $40; TV cabinet, pine, corner. Peggy, Ext. 3131.

CHAIRS - counter height, 3, golden oak, swivel w/full seat & back, $75/3. Maria, Ext. 2301 or 924-3756.

COUCH - Ethan Allen, good cond., 325-0447 after 6 p.m.

FREEZER - G.E., 18 cu. ft., upright, w/built-in lock, white, excel. cond., must sell, $300 neg. Ext. 5740 or 744-8386.

FUTON - full-size, Evensong, oak frame, $150 neg. Janet, Ext. 2345 or Lorraine, 929-3910.

LAMPS - oil, shape of pear & apple, $5. Susan, Ext. 7647.

TABLE - trestle, 2 leaves, 4 side chairs, 2 armchairs, all wood, $50. Fran, Ext. 3309.

WICKER FURNITURE - king-size bed, end tables, dining room table/chairs. Jon, Ext. 4378.

Tools, House & Garden

BRICK FACE - red, 24 sq. ft., $10; day bed, metal, white, 36"x24", $20; bi-fold louver door, wood, 24"x79" hardware, $20. Joe, 281-7683.

COAL/WOOD STOVE - Golden Flame, airtight, excel. cond., w/many extras, $385. 689-9234.

LAWN TRACTOR - 11-h.p. Briggs & Stratton engine, 7-spd., 38" deck, elec. start, $400. Al, Ext. 5128 or 727-4417.

LAWN MOWER - Snapper, 21", self-drive, rear bagger, 3½ h.p., excel. cond., $150. Dan, 698-7322.

PATIO SET - table, 90"x42", 6 chairs w/matching umbrella & cushions, forest green, PVC, all covers, paid $2,000, best offer. John, 395-5922.

TABLE SAW - Craftsman, 10", older model, works well, many extras, $250. John, 395-5922.

WINDOW - 3'x4', double hung, alum. frame, brown, incl. storms & screens, $45. Tom, Ext. 7707.

Sports, Hobbies & Pets

FISH TANK - filter, pump & access., good for beginner, 10-gallon, $15/all. Gail, Ext. 7985.

SKIS - boots, binders, poles, 3 sets, call for size, any offer. Ext. 5740 or 744-8386.

SNOWBOARD - Bueton 3.1, w/Flex bindings, $135; Airwalk snowboard boots, size 6, $50. Kim, Ext. 3167.

TOBOGGAN - 4-person, wooden, new, used 1 yr., asking $60. John, 395-5922.

Audio, Video & Computer

CD PLAYER - Pioneer PD-6010, w/remote, Scott amplifier, receiver, 2 AR4X speakers. A. Greene, Ext. 3664.

COMPUTER - Commodore 64C, 1541 disc drive, Okidata 120 printer, joysticks, software, $50/all. Al, Ext. 7859.

COMPUTER - IBM, 386, 2 MB RAM, 130 HD, 1.44 drive, 13" monitor, fax, modem, IBM Proprinter, mouse, keyboard, $525; Proprinter II, $50. Kim, Ext. 3167.

COMPUTERS - 486, 50 MHz, 255 MB HD, $500; 66 MHz, 350 MB HD, $660; 80 MHz, 528 MB HD, $800; 100 MHz, 850 MB HD, $1,300. Ext. 2272 or 732-7634.

STEREO SPEAKERS - Infinity 122, 3-way, 200 watts, tweeter, mid-range, controls, $300; word processer typewriter, Brother, wp-1400D, $75. Bob, Ext. 2351.

TV - Sylvania, color, remote, 27", swivel base, good cond., works well, cable ready. Mike, 369-3307.

TV - console, 21", Zenith, color, works well, $50. 924-6751.

VIDEO GAME - Nintendo, deluxe joystick, NAS advantage controller, 18 games, excel. cond., asking $400 or best offer. John, 395-5922.

Miscellaneous

AIRLINE TICKETS - 2, Delta, JFK-Atlanta, round-trip, 11/23-28, $230/ea. Ext. 3422 or 473-3798 after 7 p.m.

BABY'S ITEMS - Graco swing, bat. op., $20; vibrating infant seat, $10; stroller, $20; Moses basket, w/linens, $25; bath, $3. Paul, Ext. 7577 or Leslie, 286-7127.

FUR COAT - black Persian, size 14-16, $100; exercise bike, excel. cond., $15. 924-3236.

HANDMADE LIGHTED XMAS CANES - any color garland, $15/ea. Jimmy, Ext. 3541.

TYPEWRITER - IBM selectric, excel. cond., asking $100. A. Greene, Ext. 3664.

Wanted

BOOKS - *Nancy Drew*, for grandchild. 924-6751.

LASER PRINTER - HP or Epson, software, cables, must work, old, OK. Colette, 744-2816.

MOTORCYCLES - mini bikes, go carts. 467-1343.

MOTORCYCLE LEATHERS - jackets, chaps, gloves, boots, saddle bags, etc., any age, size, or cond. Kevin, 281-8031.

POPCORN POPPER - hot air, reasonable. Sue, Ext. 5246.

UNITED WAY PLEDGES - have your pledge go to the Greg Persson Memorial Scholarship Fund. For info, call Ralph Persson, Ext. 2539.

In Appreciation

My wife Jeannette and I were grateful to my friends for their honoring me with my fellow retirees. Your thoughtfulness will always be cherished. — Ollie Booker, Jr.