

# *BROOKHAVEN FACES*



*Sixty Years  
of Discovery  
1947-2007*

*A committee of employees from across the Lab  
helped select the photos for Brookhaven Faces.  
They are:*

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For more information call (631) 344-2345  
or go to [www.bnl.gov](http://www.bnl.gov).



1940s & 50s



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In 1948, the Laboratory had two firehouses and 72 firemen. This photo shows Lab firemen from the East House extinguishing a fire with mechanical foam, one of the newest firefighting methods of that time.



**CLASSIFIED ADVERTISEMENTS**  
By popular request in future editions we will insert classified advertisements submitted for the sale, rent or trade of any material that our readers have to offer.  
**FOR SALE**  
One pair lady's riding boots, new, size 10. (phone numbers removed)





Visitors to the Laboratory, in 1958, when Brookhaven held an Open House, viewed "robotic arms" used by scientists to handle hazardous materials remotely.

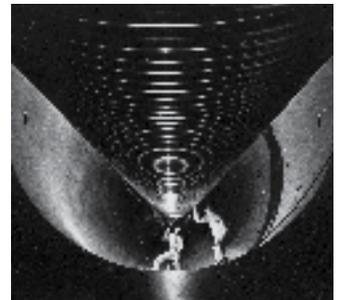


1960s



4

Students from colleges in Mississippi, Louisiana, and Texas were selected to participate in the first Brookhaven Semester Program in 1968. During their stay at the Lab, they did classwork, took seminars, and spent time in labs under the guidance of research advisors.



**BULLETIN ADS**

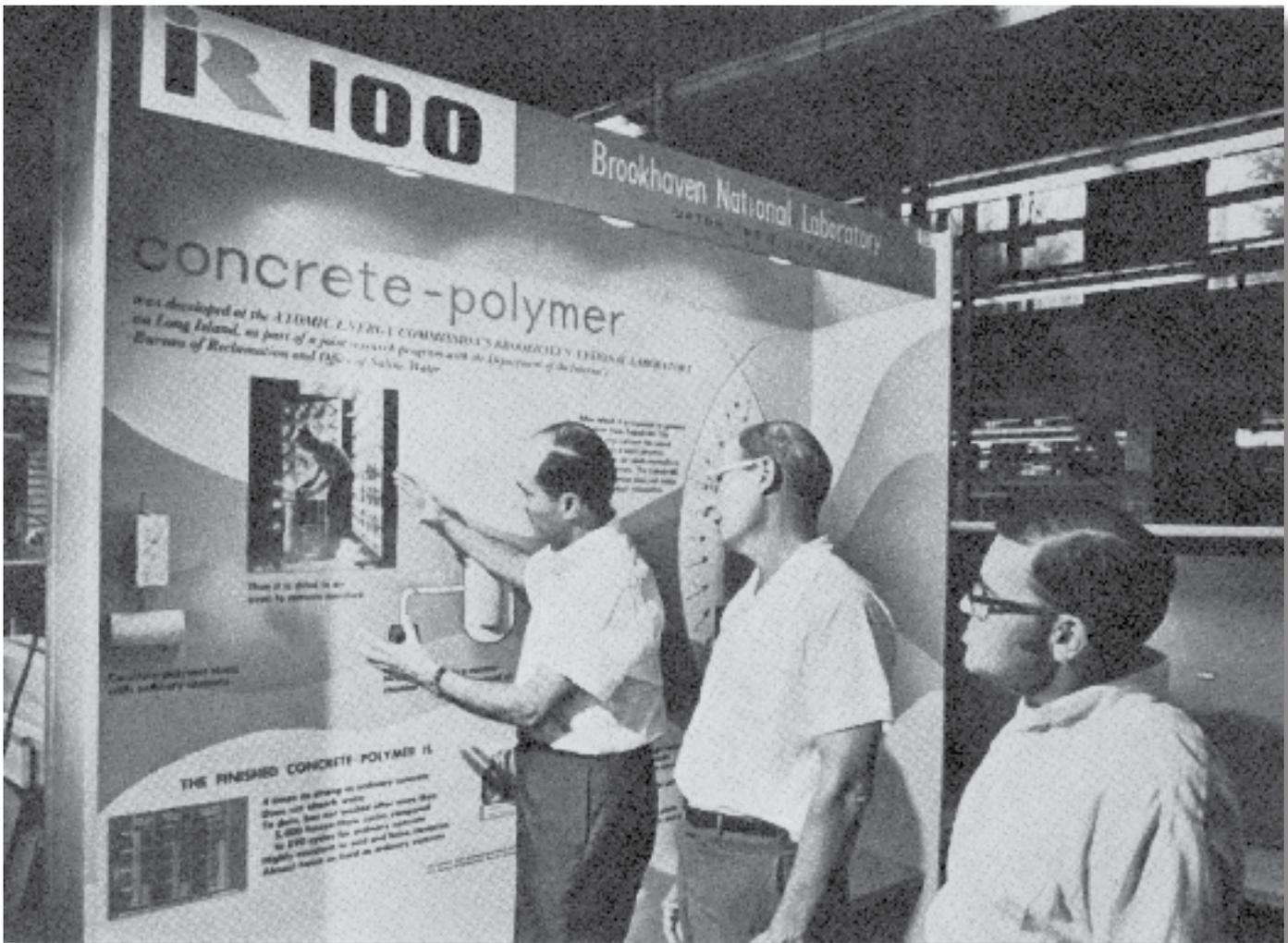
**Autos**

**THE PINK PANTHER** - 1960 Rambler custom sedan, orig. 56,000 miles, excel. rubber, std. trans., radio, reclining seats. Priced to sell at \$395.

**Real Estate Rentals**

**HOUSE** - In Brookhaven. 3 bedrooms, garden, garage. \$150 per month. Available Sept. 15.





Employees in the Lab's Department of Applied Science check out a display on the development of concrete-polymer. The display was constructed by the Lab's Cabinet Shop and set up at the Museum of Science and Industry in Chicago in 1969.



1970s



Two scientists in the Chemistry Department exchange ideas on research opportunities and administrative chores.



The Tandem Van de Graaff project was initiated in 1962. In 1970, employees celebrated the milestone of the machines running at design energies.



School bells rang for these employees selected for the Lab's Technician Training Program in 1977.





On March 28, 1979, within hours of a call for assistance after a nuclear power plant accident at Three Mile Island, members of the Radiological Assistance Program (RAP) assembled equipment before boarding a Coast Guard helicopter bound for Harrisburg, Pennsylvania. The RAP Region 1 Coordinating Office, located at Brookhaven, provides DOE first responder radiological assistance to protect the health and safety of the general public and the environment.



1980s



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When Brookhaven Women in Science (BWIS) first met under that name on September 26, 1979, the group could not have foreseen that years later their network would have accomplished so much at the Lab. This photo shows most of the members of BWIS in 1989.





As part of the extensive magnet building effort at Brookhaven, employees lower the testing probe containing a sample of cable into a powerful magnet cooled in a cryostat to 4.2 kelvins. Tests will show whether the cable meets standards for superconducting magnets. For more accurate results, the Brookhaven testing facility is designed to accept very long samples.



**BULLETIN ADS**

**Autos**

76 PINTO - runabout 3D, 4 cyl, a/t, excel cond, good mpg. \$1,950.

**Real Estate Rentals**

MT. SINAI - sublet 2 bdrm furnished house, 6 to 9 mo. \$475/mo plus util. From Aug 1st, unsuitable for children. Water three sides.

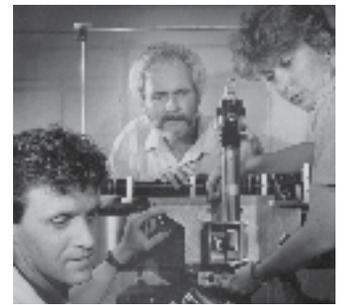


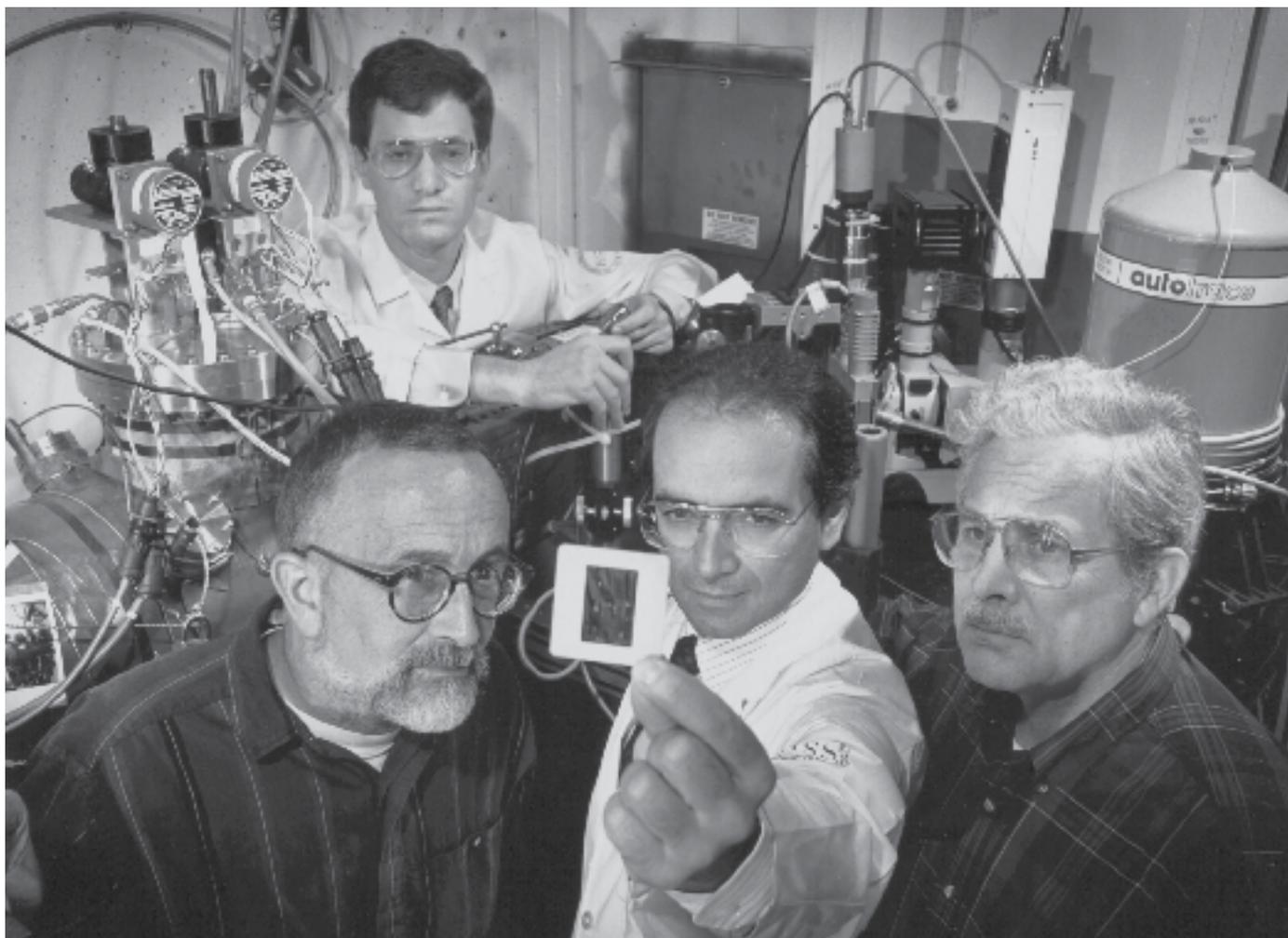
1980s



10

In 1988, Brookhaven employees bid farewell to the mighty Cockcroft-Walton pre-accelerator when it ended its time of service, ceding the path to its equally powerful successor, the radio frequency quadrupole linac (RFQ). Here are many of the employees involved in operating the Cockcroft-Walton.





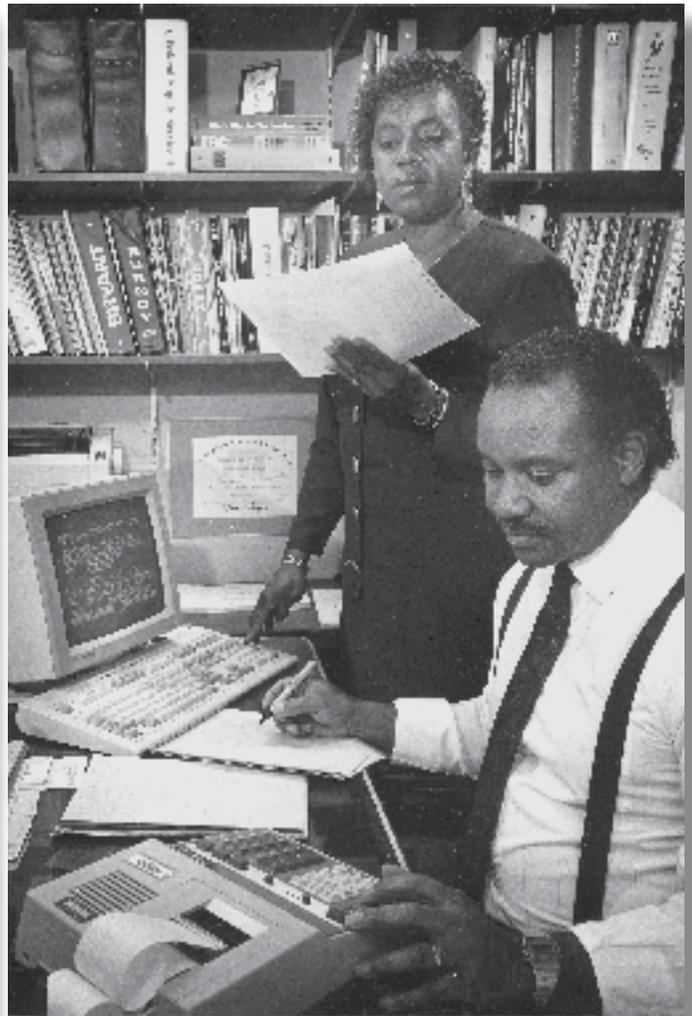
At the x-ray microprobe on beam line X26 at the National Synchrotron Light Source, researchers from Brookhaven and The Hospital for Special Surgery in New York City examine the results of a study to determine the amount of gallium nitrate accumulation in the bones of a cancer patient. The x-ray microprobe can measure trace elements and compounds in the range of one part per million.



**BULLETIN ADS**  
**Autos**  
 73 CHEVY MALIBU - p/s, new p/b, new tires, good running cond. \$900.  
**Real Estate Rentals**  
 BELLPORT VILLAGE - 3 bdrm ranch, full bsmt, 2 car garage. \$350/mo.  
 RIDGE - fully furnished 2 bdrm house for May - July. 5 min from Lab. \$400 plus utilities.



1990s



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The main task of the Lab's Fiscal Division is to ensure that the Laboratory's financial transactions are in compliance with DOE requirements and accepted accounting principles. These employees make up the majority of the Fiscal Division of 1995.

The Procurement and Property Management Division manages purchasing for the Laboratory and ensures that every dollar is well spent. In this 1990 photo, two employees in the division arrange a purchase for the Lab. That year, Brookhaven purchased supplies and services worth approximately \$84 million.





Dozens of employees, including Lab firefighters and those who volunteer for their local fire departments, helped in the massive fight against wildfires that swept forested areas in Rocky Point and Westhampton in August 1995.



BNLers have donated hundreds of thousands of dollars to the United Way to help people in need. In recent years, Brookhaven Science Associates, the organization that manages the Lab, has made a large monetary contribution to the United Way in recognition of the volunteer efforts of Brookhaven staff.

Need coffee for 20? Need a ride? Need a flight? Or a bed? The Staff Services Division is always ready to serve.



**BULLETIN ADS**  
**Motor Vehicles**

91 FORD TAURUS GL WAGON - 9-pass., p/everything, am/fm cass., cruise, tilt, air-bag, V-6, a/t, ac, more, 40k mi., \$11,600

**Real Estate Rentals**

NORTH SHIRLEY - 1 bdrm. bsmt. apt., 1/2 kit., w/w, furn., priv. ent., 1 person, nonsmoker, no pets, 5 min. from Lab. \$500/mo. pays all.



1990s



Employees celebrate the implementation of a Lab-wide environmental management system.



A staff member of the Lab's science museum welcomes visitors to its new location in building 935. Now named the Science Learning Center, the building continues to host hundreds of students every year for hands-on learning experiences.

Each year, the Lab's Office of Educational Programs sponsors a MagLev contest in which middle school students learn about MagLev and use math, science and technology principles to optimize a MagLev prototype.





Many staff members at Brookhaven's Alternating Gradient Synchrotron (AGS) commemorated their combined achievement in March 1995, when the renowned scientific facility bettered its own world record for proton-beam intensity. Benefiting from the extra intensity were not only Brookhaven researchers, but also about 850 scientists from 150 outside institutions who used the AGS for experiments that year.



**“Then and Now”** was conceived of as a regular feature in *The Bulletin*, Brookhaven National Laboratory’s weekly newspaper, to mark the 60<sup>th</sup> anniversary year – a way to compare and contrast life at Brookhaven from its earliest days to the present time. A selection of those pieces, accompanied by great photos from our files, are reprinted here with slight modifications.



## Then and Now — Employee Reflections

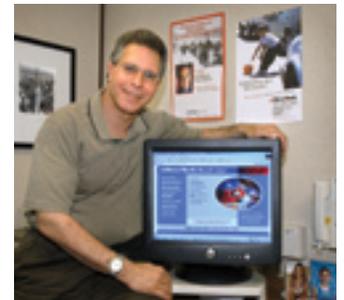
Every month, the Lab honors the service anniversaries of long-term employees. Ten years is the first to be noted, then 20, 25, 30, 35, 40, and more. In July 2007, George Dioguardo of the Procurement & Property Management Division celebrated his 50th year of service to the Lab. Fifty years is rare: other half-century and half-century-plus BNLees include Irving Feigenbaum, Bernard Manowitz, Leonard Newman (far right), Elinor Norton, Seymour Rankowitz, and others. BNLees with 40 years or more at the Lab, however, are not uncommon, while 35- and 30-year anniversaries abound.

In 1987, the Lab’s fortieth anniversary year, the *Bulletin* published a series of articles about employees — support staff and scientists, men and women — who had worked at Brookhaven for 40 years. From their reminiscences, a beckoning picture of the Lab emerged, and, as employees continue to stay on for three or more decades, the picture still holds its brightness.

Bernard Manowitz, in 1987 the Department of Applied Science Chair, remembered his first impression of the Lab 40 years ago. “Everything was rolling. New accelerators, the Hot Lab and the Graphite Reactor were being planned, all on a scale never before attempted. It was an exciting time, and I very much wanted to be a part of it.” (*Bulletin*, Oct. 16, 1987)

“It’s a good place to work,” said Charles Gargliardo, a Lab driver in the Staff Services Division, who had started at the Lab in 1947 with life number 482, and was looking back after 40 years of driving service. “The changes over the years have never changed that.” Gargliardo remembers the time that Lloyd Berkner, president of Associated Universities, Inc., from 1951 to 1960, had a 9 a.m. train to catch from New Jersey. “He was going to a very important meeting, or we would never have started,” said Gargliardo. “There was such thick fog, you could hardly see one car’s length ahead. It was quite a strain. At about halfway, Dr. Berkner insisted on driving. ‘Your eyes will get tired, it’s my turn now,’ he said. He drove on, and we made it!” (*Bulletin*, June 5, 1987)

Kenneth “Whistle” Swezey, a storeskeeper in the Supply & Material Division, held life number 427. In a 1987 interview with the *Bulletin*, he remarked on the most important change he’d seen. “We started out doing everything by hand. Then we switched to punch cards. But the computers we got about three years ago have really cut down the paperwork. It’s a hundred percent better.” After 40 years at





the Lab, Swezey was anticipating his retirement. "I'm going to miss the place," he said. "But mostly, I'll miss the people." (Bulletin, Feb. 27, 1987)

Glassblower Karl Walther (above left) joined the Lab in February 1947 with life number 160. He commented on the excellent quality of the equipment at Brookhaven. "The Lab was something of a showpiece, and we were lucky in procuring first-class working materials, which were hard to get as a rule," he said. Forty years later, with many buildings changed and Lab workers come and gone, "One thing is the same," said Walther. "When you're supporting a top scientist with a first-class mind who throws his whole heart in his project, you are just dragged along into the excitement of the work. You don't work for the salary. You are part of a team of discovery. That's working at the Lab at its best, and for me, there's no place like it." (Bulletin, Jan. 9, 1987)

Bob Walton (far left) was issued life number 536 when he joined the Photography & Graphic Arts Division in April 1947. An early assignment was to take aerial photos of the site in 1948. "A duck farmer in Center Moriches had a Piper Cub at a little air strip, which is now the Brookhaven Airport, and he'd fly me up at high noon, and I'd hang out the side to shoot," reported Walton. He found work at the Lab satisfying because of its permanent value. "From the beginning, the product of the Lab's research often has been either photographs or papers, and often those papers contain photographs. I get a kick at seeing pictures I took many years ago just published in school textbooks," he said. (Bulletin, April 10, 1987)

Two long-term employees interviewed by the Bulletin in 1987 were Marilyn McKeown, a computer analyst in the Physics Department, and Frances Scesny, a

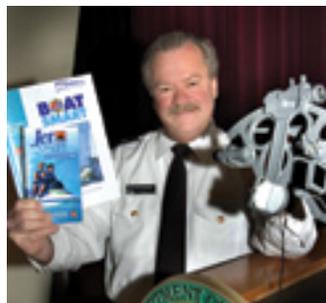
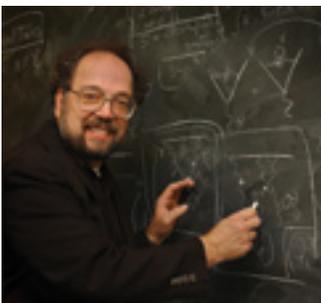
personnel representative in the Personnel Division. Although both were hired in 1947, neither was celebrating 40 years of service to the Lab. Scesny, who had been hired with life number 63, had to leave before the year was out because she was expecting a baby. "Women didn't work through their pregnancies," explained Scesny. "That was the way it was, and no one questioned it at the time." Scesny returned to work 13 years later in 1960, when her children were all in school. In 1960, women still had to leave work at their sixth month of pregnancy, receiving six months of unpaid leave. In 1987, Scesny commented on the changed policy that allowed women to take sick time for childbirth, and the fact that the majority of mothers returned to work while their children were in day care. "Now, it is nice that a woman can have a baby and a job," she said. (Bulletin, Oct. 9, 1987)

McKeown was interviewed for a job at the Lab in the spring of 1947. She joined the Lab after completing her bachelor's degree in physics in May. "I was offered a job in physics, and I took it because not many places at the time were hiring qualified women for scientific positions," she said. McKeown, who had taken leave to complete her masters in physics, also had to leave her Brookhaven job in March 1954 to raise her family. She returned part-time in 1955 and started taking computer science classes at Stony Brook University for her second master's, which she completed in 1977, two years after becoming a full-time employee. She continued working in the solid state physics group in the Physics Department until 1993. In 2007, she wrote to the Bulletin, "Over the years at BNL, I made many friends and watched the Lab acquire Nobel prizes and achieve many scientific accomplishments. I didn't know that when I signed on in 1947, I would be one small part of the advancement of science for women and for the world. For me, 1947 was the beginning of a great career and the starting point of lifelong friendships. Simply stated, the Lab was the perfect place to work." (Bulletin, March 2, 2007)

So many BNLeers have expressed their deep satisfaction in being a part of the grand endeavors at the Lab that only a few of their remarks can be shared here. To conclude from the interviews of 1987:

"There are always mountains left to climb," said Manowitz. "After all this time, I still see brand-new ideas here and frontiers to pioneer. People still work weekends and late into the night because they are interested, not because it's their job. It's still an adventure." (Bulletin, Oct. 16, 1987)

— Liz Seubert



## Then and Now — World-Class Machines for Worldwide Users



In May 1979, prospective users of the National Synchrotron Light Source, at that time still under construction, visited the lower level of building 535, which housed the vacuum assembly area, diagnostics lab and experimental beam line groups.

Excitement surged through a users' workshop in July 2007, when Department of Energy representative Pat Dehmer announced that the proposed National Synchrotron Light Source-II was to be sited at Brookhaven Lab. The project drew a vitally interested community of potential users from across the world to hear about its status and help plan for its future.

The intense user interest is not new, but as old as Brookhaven, as the Lab was built for outside users. The Laboratory's mission has always been to enable research using unique, large-scale tools that can be shared with scientists from universities, industry, and other laboratories.

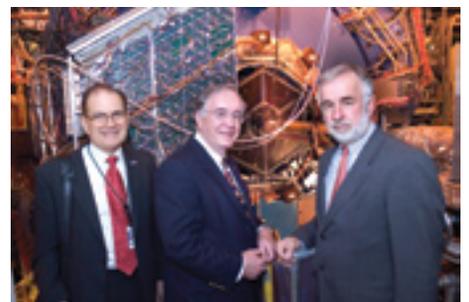
The concern for users' needs has always been a driving force at the Lab. Examples date from the earliest days when, in 1946, the Brookhaven Graphite Research Reactor, known as the "pile," was being planned. The pile had to be built very quickly to fulfill users' needs before they went elsewhere, and so it was scaled up from an existing design of the second reactor ever built, the X-10 at Oak Ridge National Laboratory. A team of reactor physicists initiated many improvements that resulted in extra experimental space and the possibility of a wider variety of experiments.

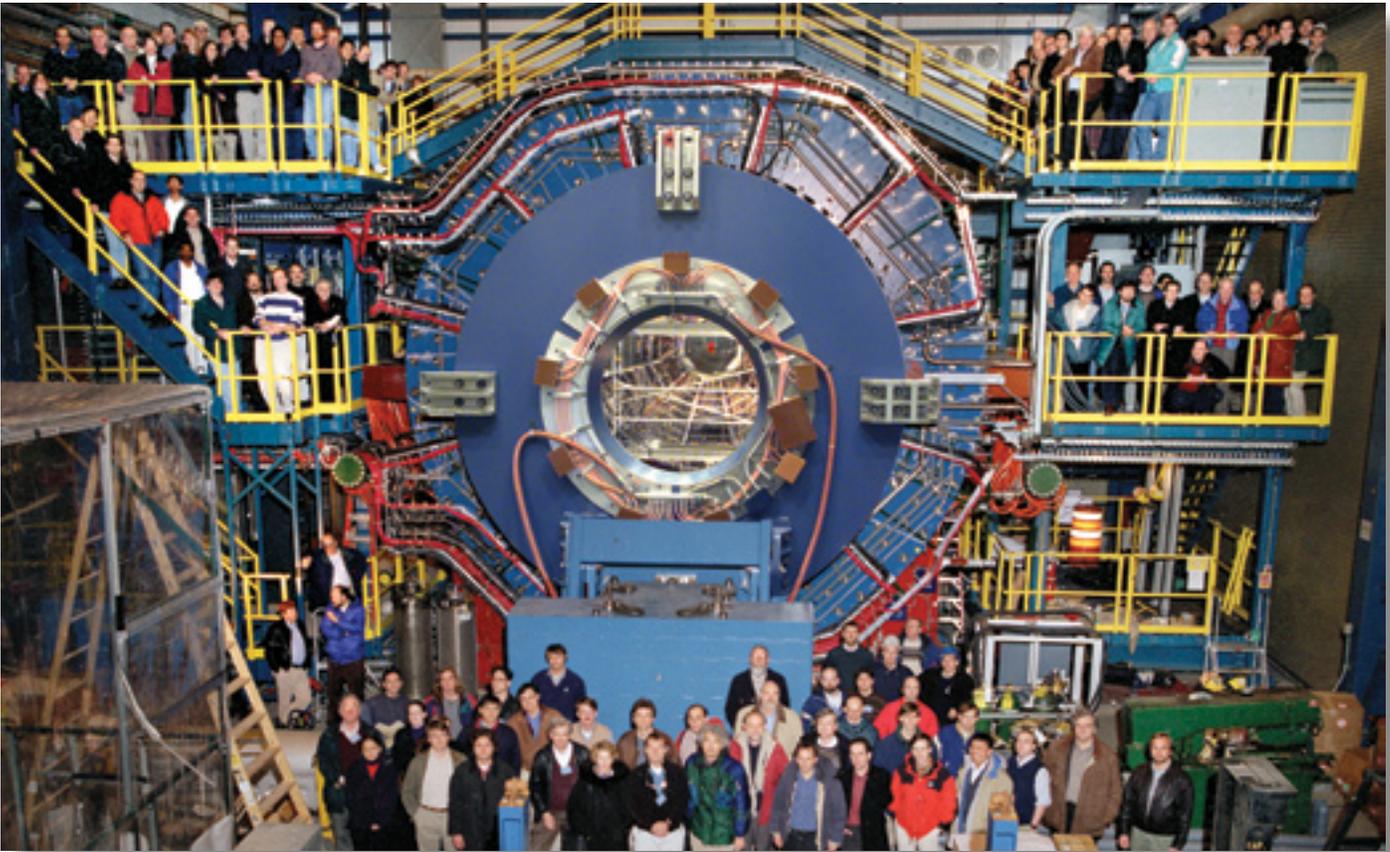


In January 2000, part of the massive PHENIX detector at the Relativistic Heavy Ion Collider was put in place. More than 430 physicists and engineers from 45 institutions in 12 countries work at PHENIX, aided by a comparable number of support personnel.

Users also came to Brookhaven to use the Cosmotron, the first accelerator in the world to accelerate particles to multi-billion-electron-volts (GeV) — reaching 3.3 GeV in January 1953. Later, the Alternating Gradient Synchrotron set other world records in energy, intensity, and flexibility. The Lab established a tradition of providing excellent experimental support for visiting researchers that included, for example, bubble chambers in which outside scientists could track their results. The High Flux Beam Reactor, the National Synchrotron Light Source (NSLS), and the Relativistic Heavy Ion Collider (RHIC) are some of the other "big machines" where scientific researchers from around the nation and the world have been welcomed through the decades.

Interestingly, so many users are drawn by Brookhaven's world-class machines that they far outnumber the Lab's staff scientists. At the NSLS, outside users number about 2,100 annually, an especially large number because of the range of possible research. At RHIC, close to





Around the STAR detector at the Relativistic Heavy Ion Collider are participants in a collaborative meeting held in 1999. The STAR team includes more than 400 scientists and engineers from 33 institutions in eight countries, aided by support personnel.

1,000 researchers are time travelers in reverse, probing the state of the universe a microsecond after the Big Bang to understand how matter forms and behaves.

The Laboratory makes sustained efforts to improve the quality of life on site and on Long Island for users. Help with everything from housing to the English language is available, as is a shuttle service to local stores. A Research

Support Building was opened in 2007 so that all necessary arrangements for a stay at the Lab could be made in the same location.

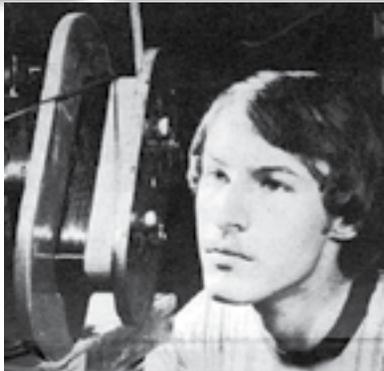
As all scientists and support staff recognize, the "passion for discovery" that drives Brookhaven is shared by Lab and outside researchers alike, keeping all at the forefront of the race toward new, exciting horizons. — Liz Seibert



In 1970, before proceeding with their work, two employees discuss splicing and checking control cables that are to be used in an AGS/Linac upgrade.



In 1970, this employee won a Wise Owl Award for wearing safety glasses when a glass tube exploded near his face.



This 1978 photo shows a technician without safety glasses near a coiled wire. The photo was intended to warn employees of potential hazards and how to address them.

## Then and Now — Don't Play Safe, Be Safe!

The second issue (July-August 1947) of the Lab's first newspaper, *Isotopics*, published the results of a survey on what employees thought of the first issue. The front-runners in the popularity stakes were: gossip columns and departmental news for 57 of the 122 responding BNers; sports, which most interested 45 voters; and scientific data for laymen, scientists' biographies, and cartoons, which all tied with 20 votes. So it is not surprising that through the 1960s, reminders to "work safe" often came in the form of cartoons in the Lab newspaper. The cartoons were most often supplied by the National Safety Council, with captions added by Lab staff on how Brookhaven accidents stacked up against the national average.

By the 1970s, the *Brookhaven Bulletin* was settled as a four-page, 11-by-17-inch paper, blooming with lively photos of Lab events. Then as now, the subject of safety was high on the list of messages conveyed to readers. In May 14, 1970, an eye-catching photo of David Christman of the Chemistry Department (far left) drew attention to an award he had won for wearing the safety glasses that had saved him from grave injury when a glass tube exploded nearby. In June of the same year, in a full page of photos of an Alternating Gradient Synchrotron upgrade, one photo could have been printed any time and especially in the past few years: two employees engaged in pulling control cables into place "discuss splicing and checking before work proceeds." A more recent example was Tom Imperial (far right), a welder in Central Fabrication Services Division. Planning is a major first step to any work, and Brookhaven's present Standards Based Management System (SBMS) is key to that planning. SBMS online, with procedures for every contingency, is one of the modern amenities that the Lab has used to spread information on safety.

Another Brookhaven Lab way of bringing safety to the forefront is found in the *Bulletin* of July 14, 1978. A headline asks, "What's Wrong With These Pictures?" The explanation below the photo, which had appeared in the paper the week before, showed that BNL readers had recognized that Bill Lenz (left), who was near a machine that used a coiled wire, should have been wearing safety glasses, even though the equipment was not operating.



More recently, in 2005, a series of articles that appeared in *The Bulletin*, as the publication was renamed in 2000, took the opposite approach: the photos showed the correct way to climb a ladder, coil a cable, or set up a workstation with ergonomics in mind. Another comparatively recent innovation among safety messages is the sign at the Main Gate, which often carries a reminder of some aspect of safety, sometimes in an apt phrase sent in by an employee.

Early in 2007, Brookhaven became the first Lab in the DOE complex to earn full registration with the Occupational Health Safety Assessment Series (OHSAS) 18001 standard — a commitment that took extraordinary dedication to safety from both the leaders and the Lab-wide supporters of the achievement. The high standard set by being OHSAS-registered is ongoing and revisited by annual reviews; it has become part of the Lab's culture. Other ways to improve worker safety and work at the Lab are continually explored. For example, a new initiative involving a human performance approach was introduced in a memo to all employees in August 2007.

No discussion of the methods by which the Lab endeavors to "get the safety message across" is complete without a reference to the inventive, humorous, and explicit one-minute safety sections of the *Take5* videos, developed each month by Lab videographer Alex Reben. Who can forget the clip of an office worker picking up a piece of paper in the correct manner with commentary on an Olympic weight-lifting event in the background, or the series showing cars on site not quite stopping at a stop sign, or the long rolling journey of a container of compressed gas if it is improperly handled? These funny and thought-provoking reminders of how to work and play "safe" have the same goal as the cartoon messages of the earliest days — to keep employees well and accident-free at work and home.

— Liz Seubert



In 2004, this employee played it safe when he detected a strange odor from a gas cylinder he was welding. He stopped work and had it investigated, thus avoiding a potentially serious accident. The cylinder contents later proved to be contaminated.



## Then and Now — BERA: A Grand Old Institution



The first BERA Board was established in 1948.

Nowadays, we say there's no time, and everybody worries — about job requirements, quality-time commitments for children and elderly parents, eroding savings, or the leak in the roof when it rains. Available free moments are too often whiled away in a doze in front of the TV.

Yet at the Lab, a vital force exists that can, and frequently does, lure BNers into pastimes in which worries can fade and friendships can form. The Brookhaven Employees Recreation Association, or BERA, embraces everyone who works or has worked at the Laboratory, including employees, retirees, facility users, guests, and subcontractors, and their families. In BERA clubs, people with all sorts of hobbies and diverse backgrounds meet, get acquainted, and make events happen. The several hundred active members at any given time participate in sports, music, dancing, debate, art, camping, martial arts, biking, motorcycling, trips to cultural or sporting events, and more. BERA is run by a Lab administrator and a small, elected board of BNers, all dedicated to helping as many people as possible enjoy recreation with others who have similar interests.



Time was, BERA brought more than pleasant extracurricular activities to Lab life. Many regret the passing of yesterday's Long Island, when highways were byways and malls were farms. But entertainment was most often "do-it-yourself." Photos in *Isotopics*, the Lab's earliest newspaper, show that the first BNers took every opportunity to join group recreation and enthusiastically created theater, bowling, archery, and other clubs. This part of Lab life was considered important enough to be included in an Administrative Progress Report dated December 15, 1947:

"Since June, an employees' welfare supervisor has been in charge of a welfare and recreation program. During the summer, this included operation of six tennis courts, a swimming pool, a recreation room for the 'on-site' apartments, and the men's dormitory, and a soft ball program. The bowling alleys were activated early in November. An association of Laboratory employees is now being established which will conduct recreational activities such as dances, choral singing, bowling, and amateur theatricals."

In the six decades since 1947, thousands of hours of fun, talent development, and unexpected bonding have been seeded and tended by BERA, enriching and unifying the Brookhaven community spirit.

— Liz Seubert

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BERA Softball League champs of 2001 included the Happy Hour team. Other winning league teams that year were the Blue Jays, the Medicals, and the Hounds and Foxes.





The gazebo near the ball fields throbs with life each July when the BERA Motorcycle Club "Cycletrons" holds a lunchtime reunion on national Ride to Work day. Then, in September, the club organizes a grand family BBQ — all are invited, join them next year!



## Then and Now — Brookhaven Research Benefits Society

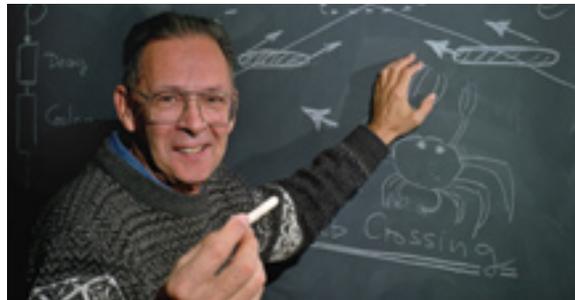
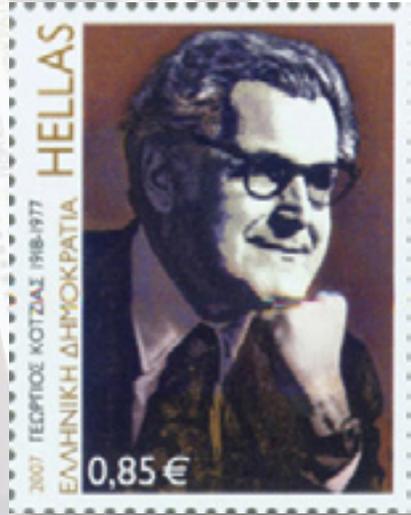


In 2007, George Cotzias's home country of Greece issued a commemorative stamp to honor his outstanding contribution of discovering L-dopa as a treatment in the fight against Parkinson's disease (see bottom left). Cotzias, who worked in Brookhaven's Medical Department from 1953 to 1975, began research into the use of L-dopa to treat Parkinson's in the 1960s. He conducted clinical trials with doctors across the nation, who found that L-dopa helped many Parkinson's sufferers to become self-reliant. As the Greek commemorative stamp shows, society has not forgotten the researcher whose vision and dedicated work helped so many.

Like Cotzias, other Brookhaven scientists have made, and are still making, discoveries that benefit society. The following list of discoveries contains just a few examples of the Lab's useful innovations:

### Medical Marvels

- Technetium-99m, now used to diagnose heart disease and other ailments in more than 11 million people each year
- Synthetic insulin
- Promising addiction treatment, now in clinical trials
- Thallium-201, now used in hundreds of thousands of heart stress tests each year, developed by Margaret Greene and Elliot Lebowitz in the 1970s (upper left)
- Genetically engineered T7 gene expression system, used worldwide
- Red-blood-cell labeling technology, used in two million procedures each year
- Studies of the Lyme disease protein used in a vaccine
- Important studies of the brain, including those uncovering the roots of psychiatric disorders, brain metabolism and drug addiction (e.g., first images of cocaine's effects on the brain, and discovery of enzyme deficit in smokers' brains)





Brookhaven researchers and colleagues from other laboratories are developing innovative designs for new tools and detection methods for countering nuclear terrorism.

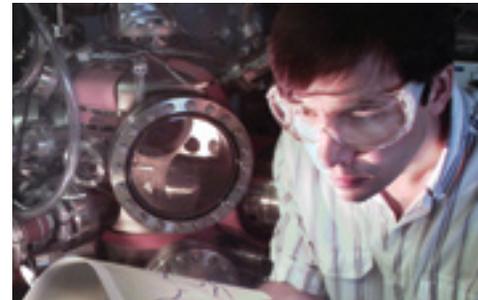
### Technological Triumphs

- Invented first video game
- Measured wear in engine parts, leading to the development of multi-grade motor oils such as 10W-30
- Invented cleaner, more efficient oil burners as well as devices to aid clean and efficient oil burning
- Studied environmental technologies, including polymers used to clean oil spills
- Harnessed natural bacteria to clean up environmental pollution and purify crude oil
- Developed new techniques for using materials such as glass, plastic and concrete to encapsulate hazardous waste for storage and disposal
- Designed advanced computer chips
- Developed asbestos-digesting foam used to render asbestos harmless
- Built better batteries using advanced electrolyte materials
- Invented magnetically levitated trains
- Created advanced coatings for corrosion prevention
- Developed polymer composite materials for construction and road repair
- Designed polyplanar (flat panel) video display screen
- Developed portable radiation detectors for homeland security purposes

### Basic-Research Breakthroughs

- Discovered a rare arrangement of electric charge in a high-temperature superconductor, which is a valuable clue to how those materials function
- Triggered individual carbon nanotubes to emit light, which may be useful in future electronic and photonic applications
- Twice observed a once-in-a-trillion decay of a kaon, a subatomic particle
- Developed a recyclable catalyst that can be recovered and reused with no waste, eliminating a need for solvents
- Conducted Nobel Prize-winning research on solar neutrinos and how they change form on the way to Earth
- Created molecule-thick organic films on liquid mercury, helping build a foundation for the development of molecular electronics

— Liz Seubert



## Then and Now — Furthering Science Education at Brookhaven

“Dwight Miller, a pre-dental student at Jackson State University in Mississippi, is shown spending a semester working with BNL scientist Harold Atkins in the nuclear medicine lab of the Medical Department. He is one of ten students whose mornings are devoted to lab work with a research advisor, and afternoons to classes given by Lab scientists, or in attending seminars and conferences.”

This caption could have been written today, but, in fact, it was reported in the Brookhaven Bulletin of March 21, 1975. Miller’s science education program started in 1968, after two years of planning and fundraising efforts organized principally by Assistant Director R. Christian Anderson of Brookhaven’s Office of Scientific Personnel. During that first year, Anderson worked closely with Isaac Cole of the Lab’s Personnel Division and Amos Kennedy of Grambling College in Louisiana, to bring six students from Grambling State University in Louisiana, Tougaloo College in Mississippi, and Prairie View A&M and Texas College in Texas into Brookhaven’s Semester Program to enhance their scientific education.

The Semester Program was not the first student program organized by Anderson at Brookhaven. Summer interns were already coming to the Lab by 1950 (right). For example, Eugene Weinstock, who had just received his B.A. in physics at Princeton University in June 1950, became a summer research assistant at the Cosmotron, then under construction. Weinstock went on to graduate work at the University of Pennsylvania that fall, then joined Brookhaven as an employee in 1956.

By 1976, the Lab was celebrating the 25th year of the annual Summer Student Program, which Anderson had officially established in 1951. That year, 640 students applied from all over the U.S. to spend 11 weeks of research and classes with Brookhaven scientists. Past participants in the summer student program include Nobel laureate Roald Hoffmann and previous Lab director Nicholas Samios.

Another early summer program was in health physics, run for many years by Red Carsten of the Health Physics Division. Charles Meinhold came to Brookhaven in 1957 as an Atomic Energy (AE) Commission Fellow from the University of Rochester to join the program. After his internship, he was offered a regular Lab job.

Says Meinhold, “When I came to BNL as an AE Fellow, I expected to return to Rochester to complete more degree programs. But then the Lab job offer came up. I took it, and never regretted it!”

During his career at Brookhaven, Meinhold headed the Safety & Environmental Protection Division from 1972 to 1988. He also served on committees and boards involving radiation safety standards, rising to be president of the National Council on Radiation Protection & Measurements and the International Commission on Radiological Protection.



Summer students and their parents have been a familiar sight at Brookhaven for more than 50 years.

The early programs to bring talented students into close contact with “real” science have evolved over time with some changes in format or name. In essence, however, they remain the same, thanks to the dedication of volunteer scientist mentors, the commitment of the Brookhaven administration, and funding from DOE, New York State, and other agencies. The Lab has therefore been able to expand its educational programs to serve students in multiple age groups at the local, regional, and national levels, and thereby expand the potentially science-educated workforce.

Among the programs is one with by far the most “users,” run by the Office of Educational Programs at the Laboratory’s Science Learning Center. All year long, educational specialists introduce elementary school children to magnetism and other scientific topics related to the school curriculum and tied in to Brookhaven’s research, by means of interactive exhibits and hands-on activities. The popularity of this program is easy to measure: it is always fully booked, so that Brookhaven introduces more than 25,000 children to the wonders of science each year.

— Liz Seubert





Brookhaven participants taking on-site courses for a master's degree in Environmental and Waste Management from Stony Brook University meet with program lecturers and administrators.

**Educational Opportunities for Employees**

Educational opportunities at Brookhaven Lab are not limited to students from outside the Laboratory. All sorts of training programs are available to BNers to enhance skills needed for a particular job. Employees can also learn from a Human Resources representative what skills are needed for a job change and get help in starting on a program to accomplish that goal. For many years, employees could be selected to become apprentices in one of the skilled trades at the Lab. Many a worker has won a place in the program and later started a new career, having qualified, for example, as an electrician, machinist, or plumber. In-depth training for Lab-related

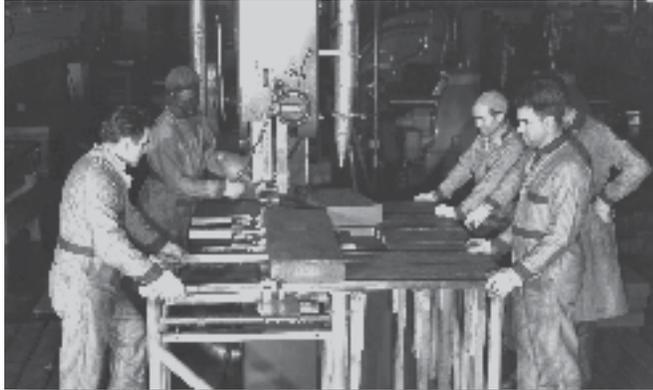
certification is also provided. Approximately 100 participants completed the new Brookhaven Certificate in Supervision in 2006 and 2007. In addition, employees taking college degrees are reimbursed either 75 or 100 percent for the courses they pass. Some classes given by Stony Brook University and other local colleges are also organized to take place on site. A three-year environmental and waste management Stony Brook Master's Degree offering one or two courses per semester at Brookhaven was completed in 2006 and 2007 by about 15 Lab participants.

— Liz Seubert



## Then and Now — Fueling the Local Economy

Brookhaven Lab is known around the world for its cutting-edge research. But on Long Island and in New York State, the Laboratory's diverse spending plays a large part in supporting regional industry, from big companies to small businesses.



In 1948, men wearing cotton gloves cut blocks of graphite on a bandsaw before the graphite was used in the reactor. Each piece needed to be cut into shape so it would fit in the reactor properly.

Whenever possible, Brookhaven buys its goods and services locally. In 2006, for example, the Lab purchased \$51.2 million of goods and services from Long Island businesses. By far the largest amount was paid to E.W. Howell Co., Inc., of Woodbury, Long Island, \$32.7 million in partial payment for construction of the two new buildings on the Laboratory site: the Center for Functional Nanomaterials and the Research Support Building. Things were not so different sixty years ago, when the Laboratory was building the first of its big machines, a nuclear research reactor. Brookhaven retiree Tyrell S. Wilson Jr. (right) recalled working on the project as a machinist for Liberty

Motors in Bethpage, Long Island. He was a local resident, and the job was convenient. After the reactor's construction was completed, Wilson moved on, but returned in 1965 to work for the Lab, starting as a custodian and then doing machine maintenance in Central Shops. In 1968, he became a firefighter in the Fire Department, and he retired in 1988 as a firefighter/emergency medical technician.

During the early days when Long Island was mainly a rural, farming community, many Long Islanders found a steady job and the opportunity for advancement at the Laboratory, as did Wilson. From the mid-1940s to the mid-1960s, science in the U.S. was well funded, and the Lab's programs and its facilities grew steadily. By 1965, the Laboratory's staff had grown to more than 3,300.

Today, Brookhaven counts approximately 2,600 on staff — a number down from the mid-60s, but stable and promising to grow with new projects in place and on the horizon. All told, employee salaries, wages and fringe benefits in fiscal year 2006 accounted for almost 57 percent of the Laboratory's total annual budget of about \$490 million. In addition, some 5,000 scientists from around the world visit Brookhaven each year. Taken together, the shopping power of Brookhaven staff and visiting scientists certainly impacts local businesses!



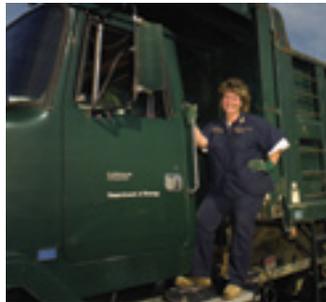
The future economy looks promising for Long Island and New York State. In a report published in 2005, economic consultant Pearl Kamer predicted that by the year 2014 more than 91,000 jobs would be created statewide by Brookhaven Lab's spending, and virtually all industries would benefit from the Lab's continued growth. In addition, new discoveries at Brookhaven, possibly in the area of new, efficient, renewable energy, might further sustain the local region, as well as the nation and the world.

— Diane Greenberg





Construction on the Lab's 94,500-square-foot Center for Functional Nanomaterials started on September 13, 2005, and steel erection began on January 21, 2006. Gathered in front of the steel framework when construction workers bolted in the final steel beam for the facility, the occasion known as "topping out," are Brookhaven employees; representatives from the U.S. Department of Energy, which funded the project; general contractor E.W. Howell, Inc.; and architectural engineering firm HDR Architecture, Inc.



## Then and Now — Volunteers

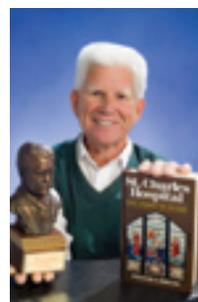


Many Lab employees and retirees give their time and efforts to various volunteer programs. They make it possible for the Lab to run programs including Speakers' Bureau, Envoy, Bridge and MagLev contests, student and community tours, student mentoring, Science Bowl, Science Fair, and Summer Sundays.

BNLers take part in a multitude of volunteer activities, both on and off the Lab site. Those activities include participating in food drives, civic groups, and school boards; donating items to be sent to active military personnel and school supplies for underprivileged children; serving in soup kitchens, hospitals, schools, churches, and scouts; giving boating safety classes; and volunteering as firefighters and emergency responders in their hometowns.

The Envoy, Speakers' Bureau, and tour programs have also been an integral part of the Lab's relationship with the community. For instance, the Envoy

program, which began in 1998, is designed to keep neighbors informed about Lab activities. By attending meetings and events and interacting with local residents, employee volunteers help to build long-term relationships and trust in the community. The Speakers' Bureau program sends scientists, engineers, technicians, and administrative personnel to address audiences of students, business groups, civic organizations, and other groups that request a speaker on a Lab-related topic. These talks have been popular since the Lab's earliest days and Speakers' Bureau volunteers continue to foster interest in Lab activities among potential visitors.



The Lab has always welcomed visitors, but the success of these visits depend upon employee volunteers who demonstrate their research or other activities in a fun and exciting way. On one famous "Visitor's Day" in 1958, community members were delighted to play "Pong," the very first video game, invented and set up on an oscilloscope by Lab scientist Willy Higinbotham to entertain the crowds. Today, thousands of people visit the Lab during Summer Sundays to learn about the Lab's unique experiments and facilities.

In addition, BNLeers support many external volunteer organizations. A new program, Volunteers in Partnership (VIP), promotes these efforts. For example,

at a recent volunteer fair organized by VIP, employees brought representatives from their chosen charitable organizations to the Lab and won support from other employees for their cause.

Perhaps one of the most outstanding contributions made to the local community by Lab employees is a large annual donation to the United Way of Long Island. Every year, the total gift increases. This generosity has always been part of Lab life.

— Jane Koropsak

### Community Volunteers Help the Lab . . .

Just as Lab employees have volunteered to help the local community, in turn, the community has helped Brookhaven.

When Brookhaven Science Associates was contracted to manage the Lab, it was evident that the Lab needed to not only be recognized as a world-class research institution, but it also needed to strengthen its commitment to become a community asset and employer of choice. To achieve that goal, the Lab adopted a policy that ensured the breadth of interests and values from across the community would be heard by Lab decision makers.

One way to facilitate this was through the formation of a Community Advisory Council (CAC), which included some stakeholders already interested in the Lab's environmental issues. Additional members representing civic, environmental, health, business, and employee organizations (among others) also joined the committee.

Since its establishment, the CAC has been supported by all of the Lab's directors and deputy directors and by the many staff members who make presentations at their monthly meetings. In return, the members have advised Laboratory directors on issues that are important to the communities they represent.



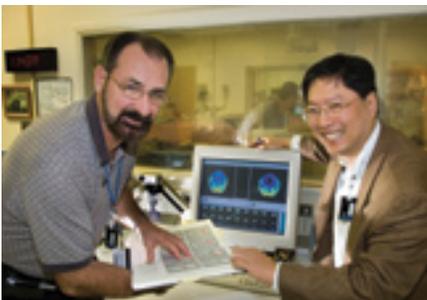
Elected officials joined Community Advisory Council members at a celebration for the successful Peconic River cleanup project.

Council meetings are open to all, and interested community members are encouraged to participate. The CAC sets its own agenda, and meetings are coordinated through the Lab's Community Relations Office.

In October 2005, the Department of Energy presented the CAC with an Appreciation Award for its "commitment, initiative, resolve, and wisdom" during the Peconic River project, one

of the environmental issues it had addressed. Today, as plans are made for future scientific endeavors to benefit local, national and world communities, the Lab continues to engage with the CAC, whose broad interests and values are appreciated components in decision-making processes.

— Liz Seubert



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Each year, the BERA Art Society holds a show of art and crafts created by members of the Lab community, revealing in many cases keen talent. A machine craftsman might exhibit toys and elegant macramé; a technician, a unique and sensitive sculpture; a scientist, a “speaking likeness” portrait using ticker tape as a medium.





Brookhaven staff, together with personnel and children from the on-site Child Development Center (CDC), celebrate the installation of new playground equipment in 2006. Brookhaven's CDC was the first to be built at a DOE facility. The center offers a day care program for children between the ages of six weeks to five years, with an emphasis on each individual child's process of learning. The center is managed by Child Care Management, Inc., and is licensed by the New York State Department of Social Services and accredited by the National Association for the Education of Young Children.

The Occupational Medicine Clinic provides many services to promote optimal physical and emotional well-being of the Lab's employees.



**BULLETIN ADS**

**Motor Vehicles**

**07 AMERICAN IRONHORSE SLAMMER**  
 - S&S 111, 6 spd, like new. 2,600 mi. \$21,000/  
 neg. Mark, Ext. 2599.

**Real Estate**

**SHOREHAM** - 4 bdrm. cape, 2 bath, l/r, d/r,  
 kit., full bsmt., oak flrs., 2 car gar, new siding,  
 windows, drs., drway., walks, oil burner, land-  
 scape. \$389,000/neg.

2000s

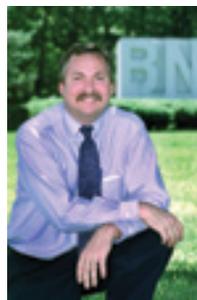


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Brookhaven chemists conduct research on ionic liquids, which have many potential uses in advanced technologies to produce or save energy while reducing environmental impacts and creating safer products.

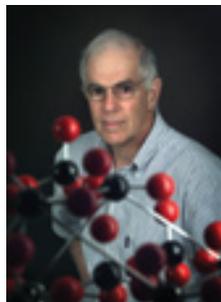


**BULLETIN ADS**  
**Motor Vehicles**  
 05 MAZDA RX-8 - water white pearl, black int., a/t, sports tuned suspend, 18" wheels w/lg brakes, perfect. 7500 mi. \$22,500.  
**Real Estate Rentals**  
 HOLBROOK - large 1 bdrm bsmt apt., sep ent. full bath, plenty of closet space, no smkg/pets util incl., avail. immed, 1 mo. sec. \$1,150/mo.





The annual Perfect Attendance Award recognizes full-time employees with a certificate, reception, and \$200 bond for perfect attendance during the previous calendar year. Above are many of the winners for 2006.



2000s



Brookhaven researchers at the Lab's NASA Space Radiation Laboratory study the effects of space radiation on astronauts.



Lab employees possess a variety of talents and engage in cultural activities both on and off site. This BNLER and blues musician performs at a Summer Sundays concert.





On May 21, 2007, a day sparkling with sunshine and excitement, representatives from Brookhaven Lab, the U.S. Department of Energy, Brookhaven Science Associates, and local elected officials celebrated the formal opening of the Center for Functional Nanomaterials.



**BULLETIN ADS**  
**Motor Vehicles**  
05 HARLEY D. SPORTSTER 883 CUSTOM  
- wht/chrme, excel. cond., wdshield, sdle bgs,  
hwy. lights, eng. guards/bars, fwd. ft. ctrls. 3100  
mi. \$5,700.  
**Real Estate Rentals**  
MANORVILLE - 4 bdrm. house, partially furn.,  
fen., bsmt. \$1,500/mo.

