BROOKHAVEN BULLETIN
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BROOKHAVEN NATIONAL LABORATORY

Brookhaven Wins Two R&D 100 Awards

For the eighth year in a row, Brookhaven Lab has captured awards in the prestigious R&D 100 competition.

BNL has two winners in this year's national competition: the world's most sensitive method for measuring plutonium in urine samples, and a unique high-resolution x-ray microscope.

The R&D 100 Awards are given annually by *Research and Development Magazine* to the top 100 technological achievements of the year. Typically, these are innovations that transform basic science into useful products.

The awards were presented at a banquet held September 19 at the Museum of Science & Industry in Chicago.

Collaborating on the development of the high-resolution scanning photoelectron microscope were (from left) Dieter Kern, Erik Anderson, Janos Kirz, Steven Hulbert, Harald Ade and (back) Erik Johnson.

Fission Track Method

BNL's method for measuring plutonium, known as the fission track method, can measure plutonium at the level of attocuries (10^{-18} curies), which is about 200 times more sensitive than the widely used alpha spectroscopy method.

It was developed by Anant Moorthy and Duff Henze, Department of Nuclear Energy, and Carl Schopfer, Safety and Environmental Protection Division, in order to measure plutonium levels in people of Rongelap in the Marshall Islands.

Rongelap was contaminated as a result of a U.S. bomb test on nearby Bikini island in 1954. In the late 1970s, BNL became concerned that the islanders might be ingesting plutonium as a result of living there. In 1982, urine sampling for plutonium was added to BNL's medical and radiological monitoring and assessment program of these islands, which has been ongoing since 1954.

According to Moorthy, only a small fraction of the total body burden of plutonium is excreted in the urine every day. Because the BNL method is sensitive enough to measure plutonium at levels near environmental background, it has proven successful in monitoring plutonium levels in the Marshallese.

A 24-hour urine sample is subjected to a chemical process so that the final portion of about 200 microliters is free from uranium (less than 10^{-15} grams), the only naturally occurring element that interferes with the analysis.

In the final phase of the analysis, a portion of the solution is evaporated onto a quartz slide and exposed to thermal neutrons at either one of BNL's two research reactors. The tracks formed on the slide are enlarged, counted under a microscope, then converted to attocuries.

Additional potential applications of the fission track method include evaluating people who witnessed nuclear bomb tests, and, for the general population, measuring background levels of plutonium in urine as a result of exposure to fallout from above-ground weapons tests or as a result of accidental release to the environment from research and production facilities. Yet another application would be to determine plutonium in radiation workers.

"What is remarkable about our method," says Moorthy, "is that it

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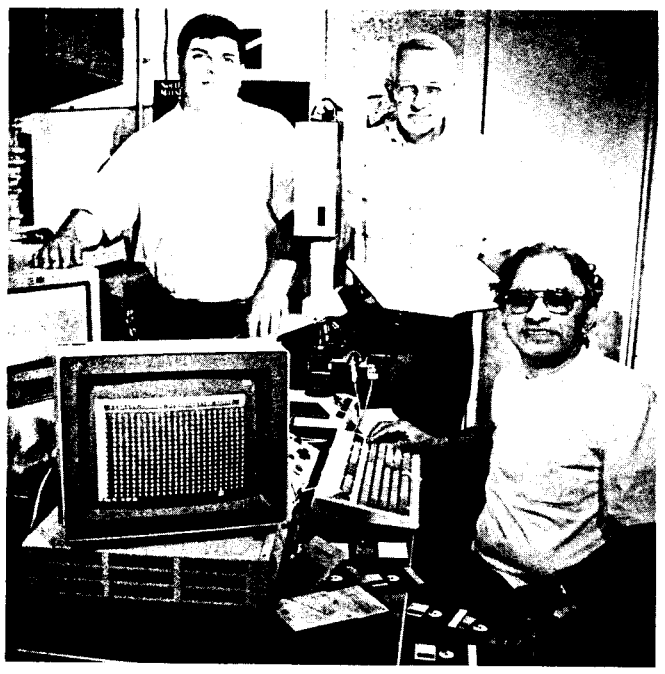

Anant Moorthy (seated), Carl Schopfer (left) and Duff Henze developed the fission track method, which is an extemely sensitive measure of the level of plutonium in the body.

Photos in this issue by Roger Stoutenburgh.

Romney Duffey Chairs DNE

Romney Duffey, a physicist with an international reputation in the nuclear energy field, began an appointment as Chairman of BNL's Department of Nuclear Energy (DNE) on September 1.

Duffey replaced Walter Kato, who had requested that he be allowed to return to research as a senior nuclear engineer within the department after fulfilling his term as Chairman.

In announcing Kato's replacement, BNL Director Nicholas Samios noted, "During Dr. Kato's tenure, the Department continued to grow and diversify, and, thanks to his leadership, it is in a strong position to continue its mission of addressing issues and problems regarding nuclear safety, nuclear waste, advanced reactors and other related technologies for the U.S. Nuclear Regulatory Commission, Department of Energy [DOE], and Department of Defense."

Added Samios, "We look forward to Dr. Duffey's new leadership of BNL's Department of Nuclear Energy. His experience at the Electric Power Research Institute and at the Idaho National Engineering Laboratory will help him direct the department in addressing many of the applied research issues facing the U.S. energy industry."

"Brookhaven has offered me an opportunity that I think is challenging in two respects," says Duffey.

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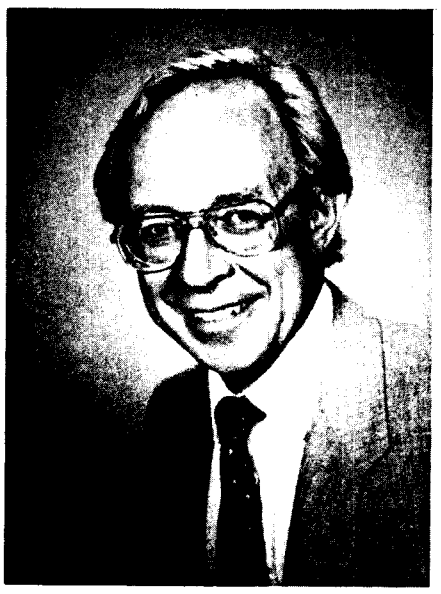


Romney Duffey

BNL Signs $6.5-Million Contract to Buy RHIC Magnet Cable

This past Monday, September 23, BNL signed a $6.5-million contract with Oxford Superconducting Technology to buy 1.8 million feet of superconducting cable from the New Jersey-based company.

The cable is destined to become part of BNL's Relativistic Heavy Ion Collider (RHIC), now under construction.

Says Satoshi Ozaki, RHIC Project Head, "This is the first of a number of major purchases from industry that will be required as the RHIC project progresses."

This fiscal year 1991, Congress appropriated the first installment of RHIC's $397-million construction budget. When completed in 1997, the accelerator will be the world's foremost and unique facility for nuclear physics research.

RHIC will collide subatomic particles called heavy ions at high energies to recreate the hot, dense plasma of quarks and gluons that existed in the early universe immediately after the Big Bang.

Superconducting magnets will be used to bend and focus the heavy ions as they circulate in opposite directions around a tunnel 2.5 miles in circumference. Traveling at nearly the speed of light, the heavy ions will slam into each other with the extremely high energy of 100 billion electron volts per nucleon in each of the colliding beams, thus creating a quark-gluon plasma.

A key component in the manufacture of many of RHIC's magnets will be the Oxford superconducting cable, which is made from niobium-titanium alloy — a special material that loses electrical resistance at close to absolute zero temperature.

Seen under a high-powered microscope, the superconducting cable consists of 30 copper wires, each

(continued on page 2)

Jointly signing the $6.5-million contract for superconducting cable for the Relativistic Heavy Ion Collider (RHIC) are E. Parke Rohrer (left), BNL's Associate Director for Management and Physical Plant, and James Worth, President of Oxford Superconducting Technology. Looking on are (from left) BNL Director Nicholas Samios, RHIC Project Head Satoshi Ozaki, and James Yeck, RHIC Project Manager for the U.S. Department of Energy.

Leaving the Lab — After 35 Years or More

Charles Waide, a chemical engineer in the Department of Nuclear Engineering (DNE), is retiring on Monday, September 30, after over 39 years of service to BNL — his first and only employer after college.

"I've stayed almost 40 years because of the variety of subject areas and projects I've worked on — I never was bored," reports Waide.

He began his Lab career as a junior chemical engineer on June 16, 1952, having been recruited during his senior year at the then Polytechnic Institute of Brooklyn, where he took a bachelor's degree in chemical engineering.

Waide joined the Fuel Processing Group in the old Nuclear Engineering Department (NED), on a project to develop a fuel processing method for a proposed liquid-metal fuel reactor (LMFR).

"We did an experiment at the Brookhaven Graphite Research Reactor (BGRR), circulating molten uranium-bismuth to test how well a molten salt removed fission products from the fuel," recalls Waide. While working on this and related LMFR corrosion studies at the BGRR, he was promoted to an associate chemical engineer in July 1961.

Then in January 1969, NED branched out and renamed itself the Department of Applied Science (DAS), and Waide worked within its Engineering Division "lending engineering support to other divisions within the department," he explains.

One of Waide's first assignments involved the chemonuclear in-pile research loop, a BGRR experiment to study the production of chemicals

Charles Waide

using nuclear energy to drive the reactions. Following that, he participated in an experiment at the High Flux Beam Reactor, where he assisted in the installation of a facility for monitoring the reactor's structural materials.

Around July 1972, when Waide was promoted to chemical engineer, he and others developed a machine that could pump polymer and fiberglass bolts into overhead mine-roof rock, which were to support the roofs in underground mines. That year, Waide and eleven others spent six weeks underground in one of the largest underground metal mines in the world, testing their prototype at the White Pine Copper Company in Michigan.

During the mid-70s, he turned his attention to the emerging energy crisis, by looking into coal and hydrogren as alternative fuels.

By October 1977, when the old DAS broke into the present DNE and the Department of Energy & Environment (DEE), Waide was heading the latter's Fossil Fuel Division. He continued in this position through May 1983, when DEE became the present Department of Applied Science.

In June 1986, Waide transferred to DNE, to work for the Technical Support Organization Division, which advises the U.S. Department of Energy and other federal agencies on ways to safeguard nuclear and other materials that need to be secured. Since then, "The project that I was most involved in was a U.S. Air Force program, lending support to their safeguards effort," explains Waide.

Waide's move to retire began a couple of years ago, when he cut his work week down to four days. "I thought I'd see how I would like it and if I could put the extra time to use around my house in Eastport — and I did," he explained. With his daytimes free while his wife Peggy continues to teach, Waide hopes to spend more time pursuing some personal interests, such as photography, music, and church and community activities.

Concludes Waide, "I will miss interacting with the congenial and talented people with whom I've worked, and being alert to the latest trends in science and technology — something you can't avoid around here even if you want to."

— Marsha Belford

Romney Duffey (cont'd)

"First, nuclear energy has a vitally important role to play in the world today, so I'd like to help secure its role. And second, BNL's Department of Nuclear Energy has a reputation in the field that is recognized internationally, and I'd like to see DNE increase its global role."

Adds Duffey, "Given the long-term future of nuclear energy, I think that Brookhaven is the right place to be in the research and development world today. The department already has a great staff and wonderful programs to which I hope I may contribute."

To chair DNE, Romney Duffey left Scientech, a management consultant firm for which he worked for six months. As Acting Manager of its Idaho division, he directed and carried out safety and technical assessments for government and industrial clients.

Duffey came to Scientech after three years at DOE's Idaho National Engineering Laboratory (INEL). Employed by EG&G, the largest of the seven primary contractors operating INEL, he worked there from 1987 to 1990, as Leader of the Energy & Systems Technology Group and Deputy Manager of the Nuclear Reactor Research & Technology Department, responsible for a budget of $25 million and a staff of over 100.

"Actually, I'm a fun-loving physicist who strayed into the nuclear energy field and happened to stay," explains Duffey of his career path.

Romney Duffey obtained a B.Sc. in physics in 1963 and a Ph.D. in physics and geophysics in 1967, both from Exeter University, England.

He then took a job as a research officer at the Berkeley Nuclear Laboratories of Central Electricity Generating Board (CEGB), Great Britain's national electric utility. In that position from 1967-72, Duffey initiated CEGB involvement in nuclear power plant safety research, performing research on transient heat transfer and other related topics.

As Section Leader from 1972-77, Duffey continued to carry out safety studies, while heading a team that was assessing the safety of the design of various types of nuclear power plants to help the United Kingdom decide what type of plant to build next.

In addition, Duffey coordinated the U.K.'s safety research with that ongoing in North America and Europe. As a result, he traveled to the continent, Canada and the U.S. "and this gave me a fantastic opportunity to look at research in the field, most of which was going on overseas."

This and the fact that the U.K.'s power-plant decision was "too far off for my liking" gave Duffey the impetus to immigrate to America in 1977, with his wife Victoria, daughter Rebecca and son Julian.

At the Electric Power Research Institute (EPRI) in California, a laboratory funded by the U.S. electric utilities to carry out research and development on fossil fuel and nuclear power plant technology, Duffey first served as Program Manager, 1977-80, and then as Senior Program Manager, 1980-87. As such, he directed software development and large-scale experiments aimed at improving the safety and reliability of U.S. plants, provided technical direction to government and the utilities, and continued his own research.

"At EPRI, I got a good overview of the nuclear power scene in the U.S.," says Duffey, "as well as a firsthand understanding of the research philosophy and practices in this country."

He applied that understanding at INEL and Scientech, and has now brought it to Brookhaven.

"I've known of BNL's Department of Nuclear Energy for many years, through its reputation and my interaction with its staff, and, obviously, I hold it in high regard," comments Duffey. "In meeting the challenges that the future holds for the department, I hope there will be a synergism between my background and experience, and that of the department's staff."

He adds, "There are so many good people here with good ideas — so I see it as my job to encourage and support them. I believe in lots of open communication and in forward strategic thinking — in other words, devising the right strategy for the department on which all planning, structure and direction will be based. So I'll be relying on the staff to provide me with input throughout the process."

Concludes Duffey, "I look forward to having fun here at Brookhaven and to helping the department make a significant contribution to the energy future of America."

— Marsha Belford

R&D 100 Awards (cont'd)

can be used to estimate intakes that took place 50 or more years ago, at levels far below any radiation protection limits."

X-Ray Microscope

The award-winning x-ray microscope, called a high-resolution scanning photoelectron microscope, is located at BNL's National Synchrotron Light Source (NSLS), the world's largest synchrotron radiation center.

The device is used to study the elemental and chemical composition of a surface, as well as its electronic structure.

The microscope was developed by BNL's Steven Hulbert and Erik Johnson, both in the NSLS Department; Harald Ade and Janos Kirz, of the State University of New York at Stony Brook; Erik Anderson, Lawrence Berkeley Laboratory; and Dieter Kern, of IBM's T.J. Watson Research Center.

Says Stony Brook's Ade, principal on the project, "The basic technique of photoelectron spectroscopy has already been an invaluable analytical tool in the R&D environment. We expect the addition of high spatial resolution to revolutionize surface and material science."

The microscope's unprecedented high spatial resolution is due to a novel approach based on an optical device known as a zone plate. It also takes advantage of an undulator magnet on the NSLS x-ray ring that provides coherent illumination of the zone plate to produce a small beam of x-rays that serves as a microprobe.

The sample can be examined in one of two ways: It can be scanned through the beam, allowing the formation of images from photoelectrons detected by an electron energy analyzer. Alternatively, spectroscopic point analysis can be performed with the sample at rest, yielding more detailed elemental and chemical information. Images have a resolution of less than half a micron.

Applications for the microscope are many and varied, including: 1) microstructured semiconductor device characterization, failure analysis; 2) chemistry at grain boundaries, edges and steps; 3) composite materials; 4) superconducting ceramics; 5) step and defect nucleation in thin film growth; and 6) corrosion analysis.

BNL's participation in the R&D 100 competition has been organized since 1984 by the Office of Technology Transfer. In all, the Laboratory has garnered 17 awards since 1969.

— Mona S. Rowe

RHIC Cable (cont'd)

containing 3,600 niobium-titanium filaments imbedded in the copper. A single filament is 6 microns in diameter (50 microns is roughly the size of a human hair).

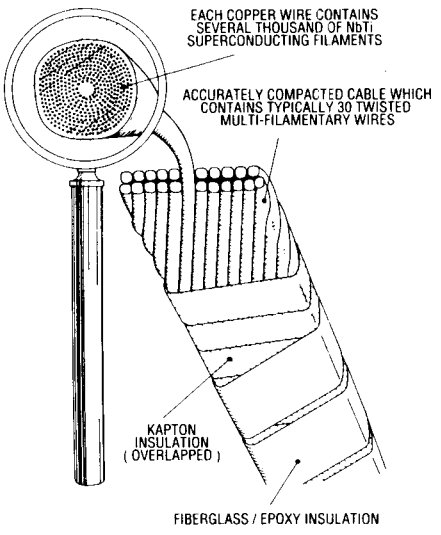
Specifically, the Oxford cable will be used in arc dipole and arc quadrupole magnets, which will be placed in the bending sections of the rings, as well as some insertion dipoles and quadrupoles, which will be used to inject heavy ions from the Alternating Gradient Synchrotron into RHIC.

Oxford is a leading superconductor manufacturer in the U.S., according to Larry Smith, who heads the RHIC procurement office for BNL's Division of Contracts and Procurement (DCP). Smith and Andrew Feldman, also of DCP, handled the cable purchase, which was the culmination of a process that began over a year ago.

Preparation for this procurement started in the fall of 1989, under the leadership of Art Greene, RHIC Project. The following May, BNL solicited requests for proposals from eleven companies. Several months later, three out of nine respondents were each awarded a manufacturing development contract to furnish 63,000 feet of cable.

Samples were delivered to BNL in May of this year, then extensively tested to see if they met design specifications and desired uniformity. Testing was carried out by the Accelerator Development Department's superconducting materials R&D section, headed by Bill Sampson. He and Meyer Garber, Arup Ghosh and Ken Robins applied their expertise to the detailed measurements and analysis effort.

Based on the technical evaluations as well as a review of final price quotations, the cable contract was awarded to Oxford.



Close-up of RHIC cable

Another Blast From the Camp Upton Past

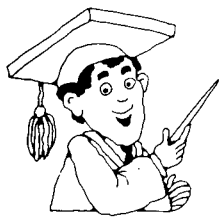
Ten hand grenades, the biggest find in recent history of explosive relics from the site's former days as the U.S. Army's Camp Upton, were safely exploded near BNL's warehouses on Tuesday, September 17, by the Emergency Services Section (ESS) of the Suffolk County Police.

The small, hand-launchable explosives were uncovered around 9 a.m. that day at the intersection of Groves Street and Weaver Drive, by contractors using heavy equipment. While excavating the road so concrete drainage conduits could be placed underground, the equipment operators first noticed metal clips, then about half dozen grenades six inches below the roadbed.

They reported this find to BNL's Plant Engineering Division, which in turn notified BNL's Police Group. After taking the call at the headquarter's desk, Sergeant Paul Sawina called in the ESS.

According to BNL Police Captain Beverly Gwathney, when the bomb squad responded, they uncovered four more grenades. After digging a hole in which the grenades were placed along with ESS explosives and reinforcing the area with sandbags, the explosive experts detonated the grenades at 12:57 p.m., with no injuries or property damage resulting.

Since 1987, a total of 14 hand grenades and two land mines have been uncovered around site during excavations and walks in the woods. Presumably, these were left over from Army training during World War II at Camp Upton — but there could be more out there. So, if any munitions or suspicious objects are found, employees are asked to assume that they are dangerous, not to touch them and to call the Police Group's emergency number, Ext. 2222.



AUI Scholarship Alert

Applications for the 1992 AUI Trustee Scholarships can now be obtained from the Office of Scientific Personnel. Children of regular employees of BNL are eligible to compete for up to 14 AUI scholarships, each for $2,500 per year renewable for up to four years of study toward an academic degree.

In addition, up to three scholarships may be awarded to BNL and National Radio Astronomy Observatory (NRAO) employees' children who are Black, Hispanic or Native American. One such scholarship is open to qualified children of employees at BNL and another for children of NRAO employees. One may be awarded to an additional applicant from either institution on a competitive basis.

Qualified applicants are the children of BNL employees who begin regular, full-time or regular, eligible part-time employment no later than November 15 of this year and who are employed by BNL at the time the award is announced; or children of retired employees or employees who died while in regular service at the Laboratory. Stepchildren are eligible if the employee regularly claims the child as a dependent for income tax purposes.

Applicants must also be secondary school seniors who will be graduating during the current academic year and entering college by fall 1992. In addition to filing applications by this November 15, eligible candidates are required to take the Scholastic Aptitude Test, requesting release of their scores to AUI Trustee Scholarships, code number 0442. Students planning to major in the arts or performing arts may also submit a portfolio of their work, of the same file size as the other application materials.

Scholarship winners will be selected by an independent committee reporting to Sponsored Scholarship Programs, an organization within the Educational Testing Service.

For further information, contact the Office of Scientific Personnel, Bldg. 185, Ext. 3336.

Social Club

The following events are on the Social Club's calendar:

- **American Gladiators** — Live tour, Sunday, October 20, 7.p.m., Nassau Coliseum, $15 due immediately for best seats.
- **Disney's World on Ice** — Sunday, November 24, 3 p.m., Nassau Coliseum, $15 due as soon as possible for best seats.
- **Halloween Murder Mystery Weekend** — Lake George, NY, October 25-27.
- **WF Wrestling** — Friday, December 13, 8 p.m., Nassau Coliseum, $18, due by November 1.

Call Doris Terry, Ext. 7610, for more information and reservations.

Archery Club

The Archery Club will hold its monthly meeting on Thursday, October 3, at noon, in the Physics seminar room lounge, Bldg. 510. New members are welcome. For information, call Bill Schoenig, Ext. 2377.

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Microcomputer Club UCONCON Upgrade

The Microcomputer Club program UCONCON (Units Conversion and Constants) has been upgraded to include a relativity calculator. The club is providing this program free to all BNL staff members who send a formatted 3.5- or 5.25-inch floppy disk with a request to Ralph Fullwood, Bldg. 130.

Volleyball

The Volleyball League has scheduled the following events:

- **Captains' Meeting** — This second meeting will be held on Wednesday, October 2, at noon, in Room 300, third floor, Chemistry, Bldg. 555. Discussion and voting on the local rules and constitution will take place at this time. Captains or team representatives must attend.
- **Referee Clinic** — Each team must have a representative at this clinic in the gym on Monday, October 14, from 5:30 to 7 p.m.
- **Volleyball Clinic** — Jean Spears will give this clinic in the gym on Wednesday, October 16, 5:30 to 7 p.m.

Arrivals & Departures

Arrivals

Animesh Jain.....ADD
Lambiz Nassiri.....Plant Eng.

Departures

This list includes all employees who have terminated from the Lab, including retirees:

Ralph A. DeMarco.....AGS
Gayanath W. Fernando.....Physics
Qiming Zhang.....Chemistry

Weight Watchers

Two 8-week Weight Watchers groups will be starting on site next month for employees and their dependents. The Monday group will meet at noon in the North Room of the Brookhaven Center beginning October 7, while the Wednesday group will meet at 5 p.m. in the Brookhaven Center's dining room, beginning October 2.

The cost of each eight-week session is $80, but since the Lab pays $10 per participant, the actual cost for employees is $70.

For more information, contact Health Promotion Specialist Mary Wood, Ext. 5923 or 4567.

Hospitality News

Lyme disease will be the subject of a presentation by physician David Graham, Suffolk County Division of Public Health, at the next Hospitality Committee get-together on Tuesday, October 1, at 9:30 a.m., in the dining room of the Brookhaven Center.

This talk should be informative for people from other states and countries who are not familiar with Lyme disease. Spouses of Lab employees and guests are welcome. Please come and bring the children, as babysitting will be provided free of charge, and refreshments will be served.

Cafeteria Menu

Monday, September 30	
Soup: Chicken rice	.75/.95
Entree: Ravioli w/red sauce & 1 veg.	3.10
Entree: Chef's choice	3.10
Fitness: Baked chicken w/1 veg.	3.10
Carvery: Hot pastrami sandwich	2.85
Grill: Knockwurst Reuben on rye	2.85
Tuesday, October 1	
Soup: Cream of broccoli	.75/.95
Entree: Chicken cacciatore w/1 veg.	3.10
Entree: Pizza	3.25
Fitness: Baked fish w/1 veg.	3.10
Carvery: Hot roast beef sandwich	2.85
Grill: Swiss & mushroom burger w/French fries	2.85
Wednesday, October 2	
Soup: Split pea	.75/.95
Entree: Chicken cordon bleu w/1 veg.	3.10
Entree: Taco (each)	.90
Fitness: Vegetarian fajitas w/rice	3.10
Carvery: Hot Black Forest ham sandwich	2.85
Grill: 3-D burger & French fries	2.85
Thursday, October 3	
Soup: Navy bean	.75/.95
Entree: Chicken chow mein w/1 veg.	3.10
Entree: Stuffed manicotti w/red sauce & 1 veg.	3.10
Fitness: Beef Burgundy w/1 veg.	3.10
Carvery: Hot corned beef sandwich	2.85
Grill: Tuna melt w/French fries	2.85
Friday, October 4	
Soup: New England clam chowder	.75/.95
Entree: Swiss steak w/1 veg.	3.10
Entree: Pork gumbo	3.10
Fitness: Baked fish Creole	3.10
Carvery: Hot turkey sandwich	2.85
Grill: Fish fillet sandwich w/fries	2.85
Breakfast Served w/coffee & small juice, 7:30 - 10:30 a.m.	2.65

Mon.: 2 eggs, bacon, one pancake, home fries
Tue.: Western omelet, home fries, toast
Wed.: Spanish omelet, home fries, toast
Thu.: 2 eggs, bacon, cheese on croissant, fries
Fri.: French toast, 2 eggs, bacon, home fries

Islander Tickets

Tickets for the regular 1991-92 home season hockey games of the N.Y. Islanders will go on sale Wednesday, October 2, at 8 a.m. in the BERA Sales Office. BERA has four seats available per home game. Tickets may be purchased in pairs only, with a limit of four pairs per person the first time through line. During initial sales, only one pair of Islander vs. Ranger tickets may be purchased. The Islanders 1991-92 home schedule is:

October		**January**	
Sat. 12	Philadelphia	Sat. 11	St. Louis
Tue. 15	Pittsburgh	Tue. 14	Detroit
Sat. 19	Edmonton	Thu. 16	Philadelphia
Tue. 22	Winnipeg	Thu. 23	Toronto
Sat. 26	Los Angeles	Sat. 25	Pittsburgh*
Tue. 29	San Jose	**February**	
November		Sat. 1	Philadelphia**
Sat. 2	Washington	Sun. 2	Calgary**
Mon. 4	Boston	Sat. 15	Vancouver
Sat. 16	NY Rangers	Mon. 17	Winnipeg*
Wed. 27	Boston	Thu. 20	NY Rangers
Sat. 30	Washington	Sat. 22	Minnesota**
December		Sun. 23	Washington**
Thu. 5	Montreal	Sat. 29	New Jersey
Sat. 7	Chicago	**March**	
Tue. 10	St. Louis	Tue. 3	Montreal
Sat. 14	New Jersey	Tue. 10	Philadelphia
Mon. 23	Pittsburgh	Sat. 14	Buffalo*
Thu. 26	New Jersey	Thu. 26	San Jose
Sat. 28	NY Rangers**	Sat. 28	NY Rangers**
January		Sun. 29	Detroit**
Sat. 4	Quebec	**April**	
Thu. 9	Hartford	Sat. 4	New Jersey*

*Games are 7:35 p.m. except *2:05 and **5:05 p.m.*

For more information, call Carolann Zebrowski, Ext. 3347.

Coming Up

The 1991-92 BERA Concert Series will begin with a recital by the new York Philomuscia Chamber Ensemble, on Thursday, October 10, at 8 p.m., in Berkner Hall. The evening's program includes: Haydn's Divertimento in E-flat, HII:21; Beethoven's Sextet in E-flat, Op. 81b; and Mozart's March in D, K320c/445 and Divertimento No. 17 in D, K320b/334.

Single tickets will be sold at the door for $12 general admission, $9 students and people over age 65; and $5 for youths under 18. Block tickets, which cost $9 each for a minimum purchase of five and which are good for any of the season's five concerts, will also be sold at the first concert or can be bought before then from:

	Bldg.	Ext.
Clemens Auerbach	197C	2914
Jane Bennett	460	5406
Leroy Blumberg	725C	4600
Howard Gordon	510A	3740
Geoffrey Hind	463	3400
Richard Holroyd	555A	4329
Alfredo Luccio	911A	7699
Edwin Popenoe	490	3622
Stephen Schwartz	426	3100

Bus Trip to Art, Antiques and Leaves

On Saturday, October 19, enjoy scenery, leaves and art on the BERA Art Society bus trip up the Hudson to the Federal period Boscobel house and gardens, attractive Cold Spring village and Storm King outdoor sculpture park.

The bus will leave BNL at 7:30 a.m. and return by 6:30 p.m. Bus and entry fees cost $26, $24 for those over 60.

If 36 tickets are not sold by October 5, the trip will be canceled, so decide quickly. To sign up or for more information, call Liz Seubert, Ext. 2346.

Bowling

Red/Green League

R. Mulderig had a 232/210 for a 623 scratch series, K. Asselta 222, R. Wells 222, C. Bohnenblusch 212, T. Prach 207, S. Thompson 206, S. DiMaiuta 205, M. Guacci 202, E. Sperry IV 202.

White League

Boyzie Singh had a 205, Craig Diaz 203, Gerry Riker 188/183, Sharon Smith 184.

Purple League

Jim Goode had a 211, George Munoz 203, Mary Ellen Hubner 192, Debbie Keating 185.

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 Personnel Division lists new placement notices. The purpose of these listings is, first, to give employees an opportunity to request consideration for themselves through Personnel, 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.

The vacancies listed below have been exempted by the Director's Office from the current freeze on open requisitions.

LABORATORY RECRUITMENT - Opportunities for Laboratory employees only.

MK 8711. CHAUFFEUR - Must have a valid New York State driver's license. Will drive vehicles for purpose of transporting Laboratory employees, guests and visitors. Staff Services Division.

MK 8710. HELPER A - Under general supervision will perform a variety of tasks in Automotive Shop that require knowledge of skills in that trade although not those of a craftsperson. Duties will include handling minor assignments and assisting craftspeople in more complex assignments. Staff Services Division.

DD 8052. SECRETARIAL POSITION - Requires AAS in secretarial science or equivalent and a good knowledge of Laboratory policies and procedures. Familiarity with IPAP, WordPerfect 5.1 and database experience highly desirable. Will perform diverse secretarial duties for Department Administrative Office. Duties include preparation of correspondence, manuscripts and reports. Additional responsibilities include processing domestic and foreign travel vouchers. Biology Department.

DD 0684. SECRETARIAL POSITION - Requires AAS in secretarial science or equivalent experience, knowledge of Laboratory policies and procedures and excellent communication skills. Will perform diverse secretarial duties such as typing correspondence, arranging travel and housing, and processing appointments, vouchers, ILRs and purchase orders. IBM PC experience required; WordPerfect experience desired. Office of Educational Programs.

OPEN RECRUITMENT - Opportunities for Laboratory employees and outside candidates.

DD 8699. TECHNICAL POSITION - Requires AAS in electronic technology or equivalent experience with experience troubleshooting electronic equipment to the component level. Duties will include maintenance and calibration of various radiation detection and environmental monitoring instruments. The ability to obtain and maintain security clearance also required. Safety and Environmental Protection Division.

DD 6114. TECHNICAL POSITION - (term position) Requires AAS in mechanical technology or equivalent experience, and the ability to operate basic computer systems and diagnostic equipment. Will provide mechanical support to the AGS Vacuum Group, including installation and repair/replacement of vacuum components, and leak checking. Must be willing to work in a radiation environment. Alternating Gradient Synchrotron Department.

Motor Vehicles & Supplies

89 FORD CROWN VICTORIA LX - 47k mi., black, 4-dr., p/w, p/l, cruise, ac. $8,650. Ext. 7271.

88 T-BIRD TURBO - 5-spd., 63k mi., $6,000; '88 Honda Accord LXI, 24k mi., $7,000; '88 Caprice Classic, 30k mi., V-8, 4-dr., $4,800. 363-6352.

87 YAMAHA YZ125 DIRT BIKE - new rear tire, chain & sprockets, great shape, $1,000. Danny, Ext. 4988 or 286-8541.

86 OLDS CUTLASS CIERA - ac, p/s, p/b, p/seat, am/fm, new brakes, tires. Bill, 822-6941.

86 LINCOLN CONTINENTAL MARK VII - a/t, p/s, p/w, p/l, ac, brown two-tone, excel. cond., 40k orig. mi., $8,500. Lloyd, Ext. 5225.

86 TOYOTA CAMRY - m/t, ac, am/fm cass., full spare, 100k mi., reliable, $2,100. Tom, Ext. 4866.

86 CHRYSLER LEBARON GTS - 5-spd., silver, 61k mi., p/b, p/s, p/w, am/fm, ac, new tires & shocks, $3,800. Keijo, Ext. 7496.

86 VOLKSWAGEN JETTA - 5-spd., ac, sunroof, blue, excel. cond., must see, $3,800 or best offer. Ext. 5919 or 722-3010.

86 CHRYSLER NEW YORKER - turbo, 4-dr., white, leather int., all avail. options, mint cond, $5,000. Jim, Ext. 4040 or 289-0876.

85 FORD PICKUP - p/s, p/b, ac, stereo cass., new custom seat, new bedliner, excel. cond., asking $4,800. John, 563-6596.

85 MITIS PICKUP - 5-spd., 73k mi., am/fm cass., great gas mi., must sell, moving, asking $1,800. Steve, Ext. 4612 or 878-1577.

85 OLDS DELTA 88 ROYALE - 4-dr., V-8, ac, cruise, p/l, p/s, stereo cass., excel. cond., $3,500. 286-1253.

84 MALLARD RV - 24', 2 ac., radial tires, 29k mi., sleeps 8, excel. cond., $16,500. 878-1178.

84 PLYMOUTH RELIANT - 4-dr., 89k mi., excel. cond., asking $1,800. Patricia, Ext. 3226.

84 CHEVY MONTE CARLO - V-6, a/t, p/s, p/b, p/w, ac, some body damage. 924-7476.

82 NISSAN MAXIMA - 68k mi., loaded, new battery & exhaust system, asking $1,650. Yujie, Ext. 3983.

81 BUICK SKYLARK - high mileage, runs well. Ma, Ext. 5701.

81 OLDSMOBILE CUTLASS CRUISER WAGON - p/s, p/b, am/fm, ac, V-8, cruise, good cond., $1,400. Mark, 924-0848.

80 GMC JIMMY 4x4 - loaded, ac, tilt, 33" tires, $2,800. Dan, Ext. 4988 or 286-8541.

80 PLYMOUTH TC-3 - m/t, red, runs well, 100k mi., asking $750 neg. Michelle, 924-4290.

79 HONDA XL250 - low mi., on or off road, mint cond., ask. $750. Steve, Ext. 4612 or 878-1577.

79 MAZDA 626 - 5-spd., 2-dr., new tires, runs well, $600 or best offer. 331-5068.

78 VEGA CAMPER - 27', Bunkhouse, sleeps 7, ac, awning, microwave, self-cont., $4,500. 281-7806.

78 OLDS 88 - looks good, runs well, $700 or best offer. Ext. 7897 or 331-0807.

76 CADILLAC - white, new tires & brakes, alarm, sunroof, family owned, $1,500 neg. 727-1158.

69 CAMARO RALLY SPORT - classic car, $3,000. Jim, Ext. 3372 or 821-0250.

56 JEEP - 4wd, good body, frame & tires, runs OK, $400. Bill, 878-6016.

FORD PARTS - for cars & trucks, long battery cable for trunk hookup, heads, pistons, headers, flywheels, converters. Wayne, Ext. 3084.

TRAILER HITCH - class 2 for Chevy truck, $15; 15" rims & wheelcovers, 6-lug for Chevy 4wd truck, comp. set, $20. Roger, Ext. 7918 or 878-8847.

TIRES - P185, good cond., $10 ea.; Toyota rims, 4-lug, $10 ea. Jim, Ext. 3372.

TIRES - 5, P225/75R15 Goodyear radials, OWL, good cond., $60. Chris, Ext. 4936.

AUTOMOTIVE MAGAZINES - over 600 issues, *Car-Craft, Hot Road, Motor Trend, Car & Driver, Auto Week,* etc., '70s to '90s. Roy, Ext. 7357.

Boats & Marine Supplies

21' SAN JUAN SAILBOAT - w/trailer, good cond., $2,500. Mark, 924-0848.

16' BOWRIDER - 65-h.p. Evin., trailer w/power winch, speedometer, $1,600. Jim, Ext. 3372 or 821-0250.

16' WINNER - 50-h.p. Evin., elec. start, canvas, extras, $1,100 neg. Ellie, Ext. 3395 or Ken, 325-1537.

14' CANOE - Stowe Fisherman, paddles, Minn Kota 35 elec. motor, battery & box, $575, w/o motor $475. Bill, Ext. 2377 or 821-6523.

14' HOBIE CATAMARAN - roller reefing jib, trailer, v.g. cond., $1,400 or best offer; kayak, Kiepper double, f/g, $500. Ext. 7657 or 298-9560.

Furnishings & Appliances

BEDROOM SET - dresser w/mirrored hutch top, bed, 2 nightstands, $300; entertainment unit, $40, more furniture. Elaine, Ext. 3866 or 286-0641.

CHAIRS - spindle-back, newly caned; antique dining room set; electronic typewriter; 2 one-way tickets, Islip-Tampa, Nov. 26, $150/ea. 363-7032.

COUCH - Ethan Allen, 7', excel. cond. 325-0447.

COUCH - & matching chair, light green, $50/both. Gail, 585-8381.

DEN - sofa, loveseat, ottoman; patio furn.; toys; microwave oven; lamps; dressers; stereo rack; kerosene heaters. Ext. 3403 or 281-5076.

DINING ROOM - contemp., dark wood, table w/1 leaf, 6 chairs, china closet, buffet, 5-light chandelier, $350. E. Grahn, 265-3731.

DUST RUFFLE - dark blue & white, pillow shams, $8/all; portable elec. organ w/chord buttons, $15. 732-2720.

BEDROOM SET - $175; living room, $100; kitchen, $25; wall unit, $50; child's captain's bed, $50 neg. R. Moore, 689-9331.

LIVING ROOM - 3-piece Italian prov. sectional, w/2 high-back chairs, cocktail table, matching lamp, excel. cond., asking $675. Tony, 669-1586.

LIVING ROOM - couch, 2 chairs, end tables, lamps, cocktail table, like new, solid pine, $550. Alison, 369-4922 eves.

MATTRESS - & boxspring, full size, good cond., $70. Shen, Ext. 3748.

MICROWAVE - Whirlpool, w/various settings, incl. defrost, hardly used, $60. Cora, Ext. 7681.

REFRIGERATOR/STOVE/SINK UNIT - 3 in 1, excel. for apt., great cond., $450. Marie, 589-3020.

REFRIGERATOR - 3.6 cu. ft., white, 1 yr. old, excel. cond., $100. Cai, Ext. 3507.

WATER BED - Soma, complete, king, 1 yr. old, room too small, $150. Bill, 878-6639.

Tools, House & Garden

DOOR - front entry, solid wood, 9 lights, crossbuck lower half, 36" x 6'7½". 821-0865.

FENCE - 100', used, post/rail, $75; 2-gallon humidifier, $20, 5.5 gallon, $80; pool ladder, above ground, $25. George, Ext. 4584 after 6 p.m.

HEATER - for garage, hot water w/fan, works, $25. Roger, Ext. 7518 or 878-8847.

LAWN MOWER - Snapper, 4 h.p., 2 yr. old, good cond., needs bag, $125; Montgomery Ward, 20" cut, $50. Dan, Ext. 4987 or 698-7322.

LAWN TRACTOR - Sears, 36" cut, 7 h.p., good cond., $225. Roger, Ext. 7518 or 878-8847.

WINDOW - vinyl, double hung, full screen, 32" x 37½". Tony, 698-9274.

Sports, Hobbies & Pets

DECOYS - Canada goose, field silhouettes, $4/ea. H. Richardson, 588-2477.

ELECTRIC GUITAR - Fernandez, new, rosewood neck, white board, left-hand neck, right-hand body, strung for left, $500. Sue, Ext. 4931.

FISH TANK SET-UP - 50-gallon, everything incl., $150; African Cichlids. Roy, Ext. 7357.

FLUTE - Artly, 18.0, needs tune-up, $75; Minolta Easy Flash camera, F-1.7 lens, $50. Janet, Ext. 2345 or 929-3910.

ORGAN - Thomas, w/bench, excel. cond., orig. $750, sell for $125. 924-5192 eves.

TRANSCEIVER - President 2510, 10/11 meters, new, $250. Frank, 281-1457.

TYPEWRITER - manual, good cond., $25; Singer sewing machine, works well, old, $25. Roger, Ext. 7518 or 878-8847.

TYPEWRITER - IBM Selectric 3, corrects, excel. cond., $500. Ext. 3403 or 281-5076.

UNIVERSAL WEIGHT STATION - Marcy I, orig. $1,500, asking $1,000. Jay, Ext. 2022 or 345-2634 after 5:30 p.m.

Audio, Video & Computers

AMPLIFIER - SAE, 140 watts, channel needs work, $50; digital tuner, works good, $40. Mark, Ext. 7978.

COMPUTER - IBM 286/287, 20 mb hd, 2 fd, amber graph. monitor, $450. Ext. 7502 or 3097.

TV STAND - Neal Jackson, Ext. 2907.

Miscellaneous

DO-IT-YOURSELF ENCYCLOPEDIA - Family Circle, complete 16-volume set, 1973, excel. cond., $8. Ext. 2679 or 472-6922.

PLAYPEN - $7; booster seat, $1; baby's car seat, $3; 2 potties, $2; sassy seat, $2. 567-9025, eves.

TROMBONE - necklace, $20; pewter horse & wagon belt buckle, $25; giant houseplants, $10; sterling charms, $10. Kathy, 744-2203.

VENDING MACHINE - brand-new, 4½'h x 2½'w x 2'd, mech. type for candy, etc., $100. Dan, Ext. 4987.

WINTER JACKET - boy's, Osh-Kosh, red/blue plaid, 3T, good cond., $20; toddler's snow boots, red/blue, 5/6, $10. Pat, 722-4489.

Free

BABY'S ITEMS - twin stroller, swing, walker, chair, good cond. Roger, Ext. 7518.

KITTENS - two, 6 weeks old, very cute, need good home. Linda, Ext. 7187 or 722-3938.

KITTENS - Kevin, 563-9855.

Yard & Garage Sales

HOLBROOK - Sat. 9/28, books, toys, records, misc. household items, TV console, 249 Thunder Rd., off Greenbelt Parkway.

MIDDLE ISLAND - 9/28-29, 9 a.m.-3 p.m., toys, clothing, furniture & baby items, 448 Nottingham Dr. Mark, Ext. 5299.

PATCHOGUE - multi-family sale, 9/27-28, 10 a.m.-4 p.m., 28 West 3rd St.

SELDEN - 9/28-29, marble tables, mirror squares, wooden drapery doors, crystal, misc. items, 10 Corvette Rd., off Ruland Rd.

Real Estate

Real Estate advertised for sale or rent is available without regard for the race, color, creed, sex or national origin of the applicant.

For Rent

BROOKHAVEN HAMLET - 1-bdrm. converted barn, priv. deck, new bath & oil furnace, very priv., $625/mo. + util. 286-5850.

CORAM - own room in a spacious home, $350/mo. for single or $550/mo. for master bdrm. w/priv. bath. Ext. 7897 or 331-0807.

EAST PATCHOGUE - S. of S. Country Rd., 3 bdrms., gar., full bsmt., w/d, no pets, nonsmokers, walk to Bellport Village, $900/mo. + util., sec. & refs. Ext. 3291 or 589-3020.

NORTH BABYLON - 3 bdrm. house, l/r, d/r, kit., bsmt., screened porch, gar., fully carpeted, lovely yard, $900/mo. + util. 689-9331.

NORTH SHIRLEY - 2nd floor 2-bdrm. apt., eik, full bath & l/r, priv. ent., lg. closets, 5 min. to Lab., $800/mo. incl. util., immed. Joanne, Ext. 3415.

OLD MASTIC - 2-bdrm. house on private wildlife setting, near bay, 2 wooded acres, sep. studio & workshop, 2 fp, all appl., historic dist., 20 min. from Lab., $950/mo. + util. Hans, Ext. 3737.

RIDGE - furnished studio apt., private, fenced-in yard, 5 min. from Lab., avail. end of Oct. $500/mo. 744-8632.

ROCKY POINT - 1-bdrm. house, f/p, bsmt., low util., near beach, $625/mo. Kevin, Ext. 2948 or 744-0871 eves.

S. JAMESPORT - 1-bdrm. cottage, l/r, eik, porch, bath, part. furn., suit. couple, walk to beach, 20 mi. to Lab, no children/pets, $450/mo. + util. Walt, Ext. 2907/2241 or 698-0576 eves.

WADING RIVER - 3-bdrm. house, 15 acres of woodland, kit., d/r, lg. l/r w/fp, 2 full baths, full bsmt., gar., large yard, very secluded, $1,100/mo. Charlie, 929-6755.

SPRING HILL, FL - 2-bdrm. house in developed community near Weeki Wachi, 1 bath, avail. few months or more. Ext. 4530 or 261-2719.

CLAREMONT, NH - 2-bdrm. condo, antique shops, factory outlets, 10 min. to Lake Sunapee, 1 hr. to Lake Winnepesaukee, $300/wk., $225/wkend. Frank, Ext. 7749.

For Sale

BELLPORT VILLAGE - 2-bdrm. house w/sleeping loft, 2 baths, secluded, near golf & tennis, Fr. doors & decks, outdoor hot tub, $248,000 or rent $1,200/mo. + util. Susan, Ext. 2888 or 286-0422.

CALVERTON - 1-acre wooded bldg. lot, residential neighborhood, priv., dead-end road, ready to build, ask. $49,500. Lori, Ext. 3046 or 874-8839 after 6 p.m.

CENTER MORICHES - 4-bdrm. Col., lg. l/r w/fp, d/r, eik, TV rm., laundry rm., 1½ baths, full bsmt., deck, gar., walk RR, shops, 10 min. to Lab, 1 mi. to bay, 100'x150', $189,000. Marilyn, Ext. 2259.

CORAM - N. of Rt. 83, 4-bdrm. contemp. Colonial, l/r, d/r, fam. rm., f/p, fin. bsmt. w/nightclub, 2-car gar., ⅓ acre, $139,900. Ext. 7897 or 331-0807.

CORAM - Strathmore East, 4-bdrm. ranch, 2 baths, cathedral l/r, 2-car gar., gas heat, fenced corner lot, $120,000. Ext. 3791 or 928-7154.

EAST MARION - 1-acre bldg. lot adjacent to Greenbelt, walk to Sound. 325-0447.

MIDDLE ISLAND - 2-bdrm. condo, 1½ baths, cac, pool, clubhouse, tennis, all appl., low maint., 5 min. from Lab., $101,990. Mark, 924-1561.

MIDDLE ISLAND - Coventry Manor, 3-bdrm. townhouse, 2 full baths, kit., l/r, d/r, cac, 5 appl., encl. patio, pool, tennis, clubhouse, ask. $102,000. Rosalie, Ext. 3160 or 289-5704 after 5 p.m.

MIDDLE ISLAND - 3-bdrm. ranch, eik, den, d/r, l/r w/bay window, 1½ baths, screened porch, patio, full bsmt., wooded ½ acre, cul-de-sac, $128,900 neg. 924-6051.

MT. SINAI - 3-bdrm. ranch, dbl. gar., ¾ acre, fp, 1½ baths, water view, carpeted, oil heat, extras, $279,000. 473-0178.

PATCHOGUE - 4-bdrm. Victorian, mint, parlor, l/r, d/r, eik, sunroom, 1½ baths, fp, new roof, new cesspools, updated elec., plumb., heat., beautiful woodwork, ½ acre, $189,900. Tom, Ext. 4030.

PORT JEFFERSON STATION - 3-bdrm. ranch, lg. lot, dbl. gar., fp, walk to shops & RR, red. to $179,000. 473-0178.

RIDGE - 3-bdrm. townhouse, 1½ baths, cac, w/w, all appl., newly redecorated/carpted, enc. redwood patio, storage rm., attic, low monthly maint., 5 min. to BNL, $80,000. Mary, 924-4328.

RIVERHEAD - modular home, adult park, 3 bdrm., 2 baths, eik & d/r, laundry, l/r, w/w, cac, 5 min. drive to all, ask. $46,900. Green, 369-8452 eves.

SHOREHAM - 4-bdrm. Cape, attach. 2-car gar., 2 fp, 1½ baths, d/r, 1 acre treed lot, new appl., extras, estate, must sell. Vi, Ext. 5169 or 744-6043.

SHOREHAM - 4-bdrm. brick Cape, eik, playroom, gar., full bsmt., 1½ baths, remodeled, conven. loc., SWR SD, $135,000. Janet, Ext. 2345 or 929-3910.

SHOREHAM - 3-bdrm. ranch, ½ acre, SWRSD, low taxes, 2 baths, large eik, d/r, l/r, den, lg. storage rm., cac, gas heat, all appl., prof. landscaped, igs. $145,000. Ext 2833 or 744-7172.

SOUND BEACH - 3-bdrm. ranch, 2 baths, eik, d/r, l/r, carpeting, gar., fenced yard, deck, agp, Miller Place Schools, $130,000, rental income. Ext. 7918 or 821-1271.

STUART, FL - waterfront condo, 2/2, corner unit, screened porch, pool, clubhouse, sauna, boat dockage, furn., $81,500. Beth, Ext. 3555 or 472-0706 eves.

Wanted

AIR COMPRESSOR - elec., 1-1½ h.p., min. flow 7 cfm. Richie, Ext. 2175.

AIR CONDITIONER - either window or portable unit, also portable TV. Brian, Ext. 2369.

ASBESTOS SHINGLE CUTTER - to buy or rent. Joe, Ext. 3966.

CHILD CARE - put 9-yr.-old girl on/off school bus from Sept.-June, on-site resident preferred or Coram/Yaphank area. Ext. 4432 or 473-9678.

CAR - for daughter, reasonable, reliable transportation. Ext. 3451.

CHIPPER/SHREDDER - or just a shredder. 727-1423.

SMALL HOPE CHEST - or toy chest. 732-2720.

IBM XT - or clone, nonworking for parts, dead ATs also wanted. 744-2816.

NORDIC TRACK - Peter, Ext. 5634 or 751-7935.

PATCHES - fire dept. and/or companies, fire police, for sale or trade. Joe, 924-7476 after 5 p.m.

PHYSICS TEXTBOOKS - for graduate student. Ext. 7502/3097.

ROOMMATE - share spacious house in Pt. Jeff., nonsmoker, $300 plus, avail. now. Carol, Ext. 7253.

ROWBOAT - in good cond., fiberglass preferred. 821-0469.

SERVICE MANUAL - for a 84 Merc Lynx. Mark, Ext. 2043 or 821-3169.

SCUBA GEAR - Don David, 286-2267 or Darcy, Ext. 3362.

SKI ACCOMMODATION - slope side or close, 2-4 bdrm., 12/27/91-1/1/92. 689-1877.

TUBED AUDIO COMPONENTS - working or not, by Macintosh, Marantz, Futterman, Dyna, Scott, Eico, Altec, R.E.L., Ampex, Hadley. Jim, Ext. 4584.

WET SAW - for cutting bricks, rent or buy. Tony, 698-9274.

In Appreciation

Thank you to my friends and coworkers for their thoughtfulness regarding the recent loss of my brother Patrick. — Mike Hickey

Classified Ad deadline is 4:30 p.m. Friday for publication Friday of the next week.