BROOKHAVEN BULLETIN
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BROOKHAVEN NATIONAL LABORATORY

Tracer Technology Pinpoints Underground Cable Leak

Many days of searching and probably tens of thousands of dollars were saved on October 22, when tracer technology developed at Brookhaven helped the Consolidated Edison Company of New York (Con Edison) locate a leak on a 900-meter (3,000-foot) section of its more than 1,000-kilometer (650-circuit mile) transmission system of underground high-voltage electric cables.

Known as tracer technology because it employs a compound that will leave a vapor traceable to the source of leak, this method comes out of BNL's Tracer Technology Center (TTC) in the Department of Applied Science. Headed by Chemical Engineer Russell Dietz, the TTC started developing tracers in the 1970s to detect environmental pollution.

In 1987, under contract with the Electric Power Research Institute (EPRI), with support from Con Edison and the Empire State Electric Energy Research Corporation, TTC began looking into applying this technology to detect underground leaks of dielectric fluid. This fluid electrically insulates and cools several hundred-kilovolt electric cables enclosed within buried steel pipes.

Robert Wieser (left) and Russell Dietz, of BNL's Tracer Technology Center, examine the bore hole soil-air extraction tool at the site of an underground dielectric fluid leak in the Consolidated Edison Company's high-voltage cable. (Photo supplied by BNL Video.)

TTC's goal was to decrease the number of excavations needed to find a leak — because each excavation costs about $10,000 to $30,000, and it is not unusual to dig in five or more locations before a small leak is found.

TTC began experimenting with perfluorocarbon tracers (PFT) that it had already used in long-range atmospheric transport studies. These environmentally safe carbon compounds, saturated with fluorine, can be dissolved in hydrocarbon fluids in amounts up to 1 percent by weight.

Such a "primary" solution, explained Dietz, is injected into the cable pipes, where it dilutes into a one-hundredth percent solution. The PFT vapor comes out of solution where the leak occurs. The vapors then travel with the subsurface air movement in soil, following the path of least resistance to the surface of the street and into the atmosphere, where they can be detected at sub-part-per-quadrillion (less than 10^{-15}) levels.

This leak localizing and pinpointing technology is much more precise than conventional methods. With BNL's tracers, leaks as small as about 0.04 liters (0.01 gallons) per hour can easily be found.

Locating the Leak

BNL's PFT technology was put into practice in early October when Con

(continued on page 2)

Roger Stoutenburgh

Second RHIC Contract for Grumman

This past Tuesday, December 1, BNL awarded a $6-million contract to Grumman Corporation's Electronics Systems Division, to produce 432 superconducting cable quadrupole magnets for the Relativistic Heavy Ion Collider (RHIC).

At the contract signing were: (from left, seated) John Harrison, President of Grumman's Electronics Systems Division; BNL Director Nicholas Samios; RHIC Project Head Satoshi Ozaki; Carson Nealy, Manager of the U.S. Department of Energy's (DOE) Brookhaven Area Office; (standing) James Yeck, DOE RHIC Project Manager; BNL Associate Director Parke Rohrer; and John Cozzolino, RHIC Project.

The $6-million contract is Grumman's second for RHIC work. In June of this year, Grumman won a $42.7-million contract to build superconducting dipole magnets for RHIC. The collider will need a total of 1,740 superconducting magnets of various types and sizes. Earlier this fall, on October 2, Brookhaven awarded a $2.25-million contract to Everson Electric Company of Bethlehem, Pennsylvania, to produce yet other types of superconducting magnets — sextupoles and special trim quadrupoles.

BNL Postdoc Takes DOE Honor in First Year of Program

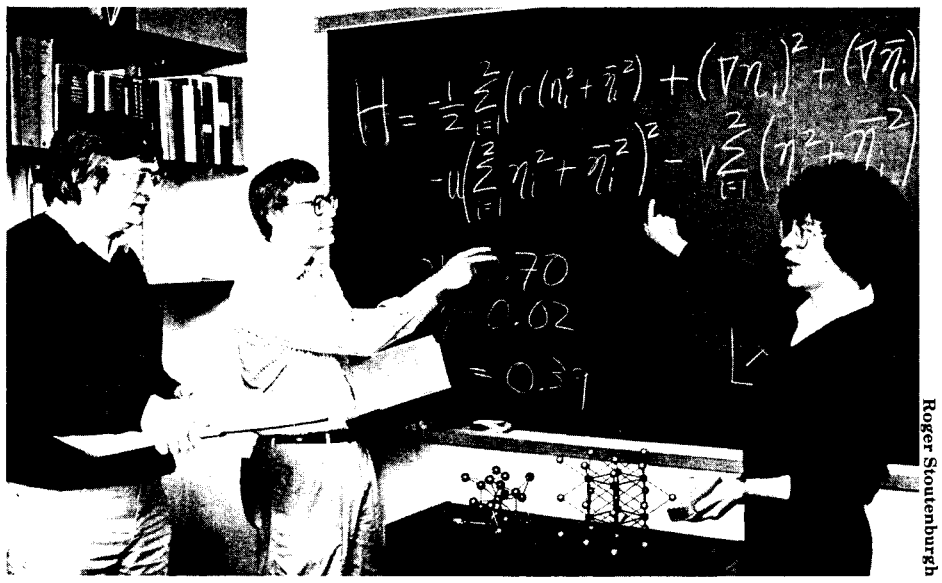
Maya Paczuski, a research associate in the Solid State Theory Group within BNL's Physics Department, is one of 12 postdoctoral researchers in the United States to be awarded the first Distinguished Postdoctoral Research Program appointments by the U.S. Department of Energy (DOE). To begin on January 4, 1993, Paczuski's appointment is the sole award to be served at Brookhaven.

Along with the 11 other distinguished postdoctoral fellows, Paczuski met with U.S. Secretary of Energy James Watkins, and was honored at a Washington, D.C., ceremony on Wednesday, December 2.

DOE established the Distinguished Postdoctoral Research Program this year, to offer researchers who are within three years of having received their doctoral degree an opportunity to conduct research at one of its laboratories in the physical sciences, computer science, engineering or a supporting discipline. With this new program, DOE extends its support of basic research in fields related to its mission.

Each one-year appointment, which is renewable for up to two additional years, is supported by the Office of University and Science Education Programs within DOE's Office of Energy Research. The award consists of a stipend of $52,800 for the year, as well as a travel allowance.

For this appointment, Paczuski proposed a theoretical study of the critical properties and surface-ordering effects in the metallic element holmium, aimed at understanding magnetic phenomena in rare earth metals, including holmium.



Roger Stoutenburgh

Maya Paczuski, conversing with (from left) Per Bak and Doon Gibbs.

Her interest in this was stimulated by neutron and x-ray scattering experiments done at Brookhaven, results from which suggest that there may be a fundamental difference between the near-surface and bulk behavior of holmium as it nears a bulk magnetic phase transition.

At room temperature, holmium is a kind of magnet called a paramagnet. As the temperature decreases, holmium changes to what is called an antiferromagnet; when the temperature is low enough, holmium becomes a ferromagnet like iron.

In developing an understanding of the critical phenonema occurring during one of holmium's magnetic phase transitions, Paczuski would like to explain the apparent differences between what is going on near the surface of holmium versus what has been found within its bulk. Although holmium is a model system to study experimentally, her theory on the origin of the experimental results could be extrapolated to all rare earth elements.

"The use of x-rays to study magnetic critical phenomena has opened up a relatively new field, and BNL has been at the center for using neutrons to study these phenomena for the past 20 years," explains Paczuski. "In fact, the Lab is the only facility in the U.S. at present that has demonstrated capabilities to perform both x-ray and neutron scattering. Both techniques have complementary features, so it is important to make sense of the data and to draw some comparisons between what has been measured near the surface with x-rays and what has been seen in the bulk with neutrons."

Formally, her work is to be done in collaboration with another solid state theorist, BNL Senior Physicist Per Bak, and an experimentalist, BNL Physicist Doon Gibbs, leader of the X-Ray Scattering Group.

"I look forward to working closely with both the experimentalists in the X-Ray Scattering Group and theorists like Per Bak, and appreciate the different perspective each brings to the project," comments Paczuski. "Both Doon and Per have made efforts to help me find interesting projects to work on, and their encouragement while I put together my proposal was inspiring."

Maya Paczuski, who came to BNL in August 1991, was awarded her Ph.D. in June of that year from the Massachusetts Institute of Technology (MIT), where she had received both her bachelor's and master's degree in June 1986. Her graduate studies at MIT were supported by a National Science Foundation Graduate Fellowship. — Marsha Belford

Tracer Tech (cont'd)

Edison discovered a leak in a 900-meter (3,000-foot) cable in Long Island City, Queens.

To locate the leak, a crew from Con Edison, EPRI and Underground Systems, Inc., the commercial suppliers of the injection apparatus, first tagged the cable's fluid with a two-hour slug of the primary PFT solution. The PFT-tagged slug traveled the length of the entire cable and back through a parallel connecting cable every two days, releasing tagged dielectric fluid at the leak location on each pass.

Next, small glass tubes were placed on streetlight poles along the cable route at about one-half block intervals. Known as capillary adsorption tube samplers (CATS), these contain charcoal that picks up PFT vapors. After 24 hours, the BNL team analyzed the CATS in the lab to determine the maximum PFT concentrations.

"Based on these preliminary results, we discovered two hot spots, one block apart," said Dietz. "So we took our van to the area. It is equipped with a real-time dual trap analyzer (DTA), which can corroborate the general leak location even more precisely."

Along 39th and 40th Avenues, where the PFT vapors were strongest, the Con Edison workers drilled 5-centimeter- (2-inch) wide holes in the concrete about 60-centimeters (2 feet) deep at 6-meter (20-foot) intervals. A device fitted to the holes was used to extract subsurface air, which was analyzed immediately with the DTA and another real-time analyzer.

Whereas aboveground tracer concentrations were 2 to 10 times higher at the 40th Avenue corner, below-ground levels were 100 to 300 times higher at the 39th Avenue location. Additional bore holes at about one-meter (3.3-foot) intervals improved the pinpointing step.

"We excavated at the 40th Avenue hot spot, but found no leak," Dietz said. "Apparently, PFT vapors from the leak had moved through a nearby buried electrical duct, escaping into the atmosphere through a manhole cover at that corner. The next spot we excavated, based on high subsurface concentrations near 39th Avenue, proved to be the right one. The leak, which turned out to be 60 milliliters [2 fluid ounces] per minute, was within one foot [30 centimeters] of where I had predicted it would be."

In addition to Dietz, other TTC members participating in the project included Ruby Fajer, Robert Goodrich, Gunnar Senum, Robert Wieser and Walter Loss, who recently left BNL. Other assistance came from Jehuda Binenboym, a visiting scientist from Israel; Doug Shotts, a student collaborator; and Bernard Lefebvre, a physics teacher from Hauppauge High School.

Dietz estimated that the cost of finding the Long Island City leak was about $20,000, plus the cost of the two excavations. Using conventional methods would most likely have required several more excavations, which would have significantly increased the cost. Furthermore, the tracer process did not require feeder deenergization.

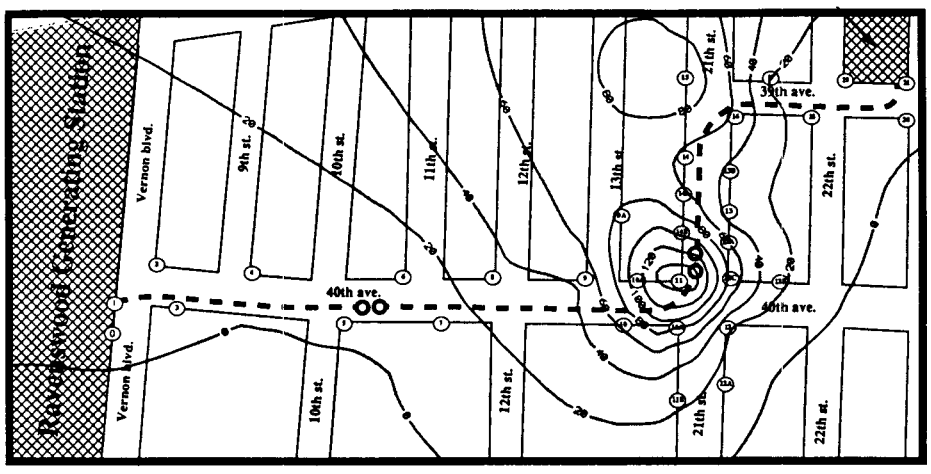
Other applications of this technology are in the works. The BNL team plans to demonstrate the method to the Long Island Lighting Company (LILCO), which has some underground fluid-filled pipelines.

Also, LILCO owns underwater cables stretching from Connecticut to Long Island. Using conventional methods, leaks in them would be hard to find. But, if BNL tracer technology is used to locate the leaks with a DTA-equipped boat, then PFT concentrations in the tagged fluid spread on the surface of the water could be quickly and easily detected.

In the commercial sector, Vacuum Instruments Corporation is making an analyzer based on BNL's prototype. Underground Systems, Inc. of New York is manufacturing injection apparatus for the tracer and has a license from EPRI to promote a commercial leak detection service.

"Right now, only BNL has the instrumentation to do this work," Dietz said. "But this technology has international potential and, by 1994, its transfer should be complete."

— Diane Greenberg



On this Long Island City street map, the circled numbers represent capillary adsorption tube samplers located on streetlight poles. Their analysis pointed to two maximum tracer concentrations near sites 11 and 15. Subsequent underground sampling pinpointed the leak location near site 14.

Healthline Lecture

Anatomy of a Backache

While it is estimated that eight out of 10 Americans will have a back injury sometime during their lives, it known that 30 percent of injuries on the job are back injuries — resulting in pain and suffering for the injured individual and lost time at work.

Back-injury prevention involves understanding the anatomy of a healthy back as well as practicing good back hygiene — proper posture, lifting and back conditioning — before injury strikes.

Arnold Schwartz

All this will be explained in the next Healthline lecture sponsored by the Health Promotion Program of the Occupational Medicine Clinic. To be presented on Wednesday, December 9, from noon to 1 p.m. in Berkner Hall, "Back Safety — The Medical Facts" will be discussed by orthopedic surgeon Arnold Schwartz.

After reviewing the most common problems affecting the different regions of the back, Schwartz will talk about prevention and treatment of these various syndromes.

After earning his bachelor's degree from Northwestern University with a major in biomedical engineering, Arnold Schwartz took his M.D. from the School of Medicine of the State University of New York at Stony Brook. Schwartz is board certified in orthopedic surgery and practices at the Long Island Spine Center, Commack, where he treats patients with spine disorders.

To register, return the bottom portion of the Healthline flyer recently sent to all employees to Mary Wood, Bldg. 490. For more information call Ext. 5923.

Note to Employees:

Attendance at lectures, meetings and other special progams held during normal working hours is subject to supervisory concurrence.

1993 Holidays

Holiday	Holiday Observed: Day	Date
New Year's Day	Friday	January 1
Floating Holiday (Martin Luther King Jr.'s Day)	Monday	January 18
Presidents' Day	Monday	February 15
Memorial Day	Monday	May 31
Floating Holiday	Friday	July 2
Independence Day	Monday	July 5
Labor Day	Monday	September 6
Veterans Day	Thursday	November 11
Thanksgiving Day	Thursday	November 25
Day after Thanksgiving	Friday	November 26
Christmas Eve	Thursday	December 23 (½ day)
Christmas Day	Friday	December 24

In Memoriam

Morris Shapiro, a research engineer with the Relativistic Heavy Ion Collider (RHIC) Project, who had been at the Lab since April 1980, died suddenly on October 11.

Shapiro first joined the Alternating Gradient Synchrotron Department as a development engineer, then became a research engineer six months later. After a few months away from BNL during 1982, he returned to become a project engineer in October that same year, and then took his last title a year later. He moved to the Accelerator Development Department (ADD) in October 1986, becoming part of the RHIC Project this year.

"Morris worked in the Magnet Division of ADD for many years as an electromechanical design engineer," said Senior Project Engineer Gene Kelly, who was Shapiro's supervisor. "For the past few years, Morris worked in a team that has developed some of the quality assurance standards for magnets being built for RHIC. He participated in the superconducting magnet programs for ISABELLE, CBA, SSC and RHIC. Aside from the technical contributions that Morris made to these programs, he will be remembered for his loyal, cooperative attitude and his likable personality."

Shapiro, a resident of Stony Brook, was an active participant in local fishing and tennis organizations. He is survived by his wife Arlene and children Dana, Cara and Craig.

Coming Up

Catherine Anderson, who is Staff Associate for Communications at Universities Research Association (URA), will give the Physics Colloquium on Tuesday, December 8. Anderson covers Washington, D.C., for URA, which is the organization that operates both Fermi National Accelerator Laboratory and the Superconducting Super Collider Laboratory. Her talk on "Clockwork Utopia: The Congressional Legislative Process" will begin at 3:30 p.m., in the seminar room of the Physics Department, Bldg. 510.

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Senior Physicist Per Bak of the Physics Department will deliver the next Brookhaven Lecture on Wednesday, December 16. His talk, "At the Edge of Chaos: Self-Organized Criticality and Catastrophes," will begin at 4 p.m., in Berkner Hall.

Medical Testing At Clinical Lab

The Clinical Laboratory of the Clinical Research Center (CRC), with the concurrence of the Occupational Medicine Clinic, offers medical laboratory testing services to full-time and eligible part-time employees.

To request these services, the CRC asks employees to cooperate in complying with the following guidelines: Go to the CRC reception area in the Medical Department, Bldg. 490, Monday through Friday, from 1 to 4 p.m. only. Bring a written request from your personal physician and your BNL employee identification card.

To avoid conflict with other clinical and laboratory activities at the CRC, requests will be processed and results made available to employees only on weekdays, from 1 to 4 p.m.

The Clinical Laboratory performs tests on an elective, nonurgent basis. If there are no unusual delays, most test results are available within seven to ten days, with some ready as quickly as two days.

If test results are required urgently, tests should be performed at a clinical laboratory facility off site.

Not only food, but also personal checks will be especially welcome this month as holiday baskets are prepared for needy families in Brookhaven Town. Send checks and receipts from King Kullen and Finast, which give discounts, to Carole Kerr, Bldg. 460.

Cooking Exchange

The Cooking Exchange will hold its monthly meeting on Wednesday, December 9, at 11:30 a.m., in the Recreation Building. All are welcome to sample a variety of tasty dishes and meet with new friends. A donation of $2 per adult is requested, and baby-sitting will be provided for $1 per child. For more information, call Laura Gottlieb, Ext. 1022.

Let's Dance

Late registration is being accepted by the BNL Ballroom, Latin & Swing Dance Club for its eight-week series of beginners' fox trot and mambo dance lessons, which began Wednesday, December 2.

Given by 1991 U.S. Ballroom Dance Champion Giny Rae, classes are held on Wednesdays from 5:15 to 6:30 p.m. The next class, on December 9, will be held in the first floor Physics lounge, Bldg. 510.

The cost is $15 per person for the series, or $3 per lesson at the door. To register, contact Marsha Belford, club president, Ext. 5053.

Astronomical Society

The BNL Astronomical Society invites you to a lunar eclipse party on Wednesday, December 9, at 5 p.m. at the Observatory. Bring a telescope and a friend; the society is looking for new members. If you plan to attend, call Keith Power, Ext. 5355.

Calling All Carolers

The BNL Choral Group will present a Christmas Concert in the cafeteria at the special Christmas luncheon on Tuesday, December 22. Rehearsals are scheduled as follows:

Fri., Dec. 4	Berkner Hall
Tue., Dec. 8	Berkner Hall
Fri., Dec. 11	Berkner Hall
Wed., Dec. 16	Berkner Hall
Fri., Dec. 18	Brookhaven Center

Each rehearsal will begin at noon sharp and is expected to last half an hour. All parts are needed, so please join us. For more information, call John Weeks, Ext. 2617, or Janet Sillas, Ext. 2345.

Bowling

Week of November 16

Red/Green League

H. Arnesen bowled a 225/204, B. Erickson 225, R. Sick 222/212/605 scratch series, E. Sperry IV 222, R. Larsen 221, R. Raynis 212, C. Scarlett 212, S. DiMaiuta 208, A. Warkentien 207, R. Prwivo 203, R. Chorzempa 202, E. Meier 200.

Purple League

Rich Larsen 225/217/185/627 scratch series, Jim Goode 225/188/576 scratch, Vito Manzella 208, Pete Stelmaschuk 207/191/516 scratch, Caryl MacDougall 203/178/524 scratch, Pat Manzella 203, Joe Ferante 200/183/550 scratch, John McCarthy 194, Ed Sperry IV 191, Elaine Zukowski 187, Jim Biamonte 184, Jeanne Penoyar 180/170/500 scratch, Debbie Keating 176/175, Denise Monteleone 172.

White League

Phil Radusewicz 223, Jim Petro 220/210/585 scratch, George Munoz 215/187/555 scratch, Joe Mayeski 211/187/555 scratch, Norman Fewell 208, Ray Raynis 199/189/552 scratch, Pete Wynkoop 197, Gerrie Riker 191, Tom Romano 184, Ed Sperry 180, Ralph Vega 180, Pat Bounauito 178/177/524 scratch, Renée Flack converted the 2-7-10 split, Gerrie Riker converted the 4-7-10 split.

Week of November 23

Red/Green League

R. Larsen bowled a 267/635 scratch series, R. Wiseman 232/200/195/627 scratch, B. Mullany 220, B. Jansson 214, A. Sauerwald 210, R. Eggert 210, R. Chorzempa 209, E. Sperry IV 208, J. Muller 208, A. Warkentien 201, B. Sick 200.

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Early Bird Gets Dinner Prize

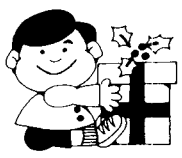
Already, in the first three days of this year's United Way fund drive, 405 generous BNLers have donated $60,140. All these donors were eligible for the first drawing for the early pledge prizes — and the winner of this prize, dinner for two at a fine Long Island restaurant, is Gregory Bagley (right) of the RHIC Project, pictured here with this year's Campaign Coordinator, Richard Eggert of the Contracts & Procurement Division.

Bagley and all other United Way supporters are also winners in another way, because they are involved in keeping alive organizations that help all kinds of people, from retarded children to those needing job placement.

Said Eggert, "Many people don't realize that all money given to the Long Island United Way fund stays right here on Long Island. So, when you give to the BNL drive, you are helping your own neighbors. Also, some people think that last year's pledge carries on to this year, but pledges have to be renewed annually."

Remember, every pledge card received before the drive ends on December 11 will be entered in drawings for prizes that include dinners for two in local resturants, gift certificates for shopping, a "wreck and reef" boat trip, and a grand prize of a theater weekend for two in New York City.

Three Days to Shop At the Science Store



Looking for the perfect gift to celebrate Christmas? Hanukkah? The Winter Solstice? You're sure to find it at the Winter Holiday Sales at the Science Store.

Today is the first of three consecutive Fridays — December 4, 11 and 18 — that the store will be open to employees from 10 a.m. to 3 p.m. So, to stock up on intriguing, inexpensive, science-oriented gifts, head to the Science Store in the west side of Bldg. 701, and park in the north parking lot.

For a colorful preview of items on sale, catch the *GLANCE* video playing at the Cafeteria, 11:30 a.m. to 1:30 p.m., today and Monday.

Touch Football Champs

This year's Touch Football League Championship game was a rematch between The Bad Boys and the Untouchables. Though The Bad Boys had lost their starting quarterback midway through the season, behind a tough defense, they went on to repeat as champions, beating the Untouchables 14 to 7. Showing their championship style are Bad Boys: (back, from left) Pete La Salla, Mike O'Connor, Chris Saxen, Don MacKay and Carlos Victoria, with (front, from left) Lenny Butera and John Pagano. Not pictured is Mick Spinella.

Film badges will be changed tomorrow. Please place your badge in its assigned rack space before leaving work today.

Photos on this page by Roger Stoutenburgh.

Toastmasters to Present Program at BWIS Meeting

If you've been intrigued by the way the Toastmasters' Club approaches public speaking but have been unable to attend one of its evening meetings, Brookhaven Women in Science (BWIS) is giving you a chance to enjoy "A Taste of Toastmasters."

Several BNL Toastmasters will present a program at the next BWIS meeting on Wednesday, December 9, at noon, in Room B, Berkner Hall. They will demonstrate the typical Toastmaster approach to prepared speeches, impromptu talks and evaluations. They also hope to reduce attendees' fears of public speaking by showing them how easy and how much fun it can be.

For more information, contact Dorry Tooker, Ext. 2078.

Arrivals & Departures

Arrivals

Marcia A. Bero.....Saf. & Env. Prot.
Wen-Quan Feng.....AGS
Rodger A. Hubbard Jr......RHIC
Christine K. Madonia.....RHIC
Shawn P. Williams.....Biology

Departures

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

Mikel P. Breitenstein....Nuc. Energy
Erika L. Lajko.....Biology
Ferenc Lajko.....Biology
Walter M. Palais.....Ph. & Gr. Arts

Volleyball

Standings as of 11/23

Open League		League I	
The Roofing Co.	15-6	Network News	12-1
GTeam	15-6	VolleyBallAholics	10-5
Me & the Boys	10-14	Upfagrabs	9-6
Penetrating Vollies	7-14	Underdogs	7-5
Farside	7-14	Rude Dogs	7-5
		Fornossing	3-12
		D & D Company	0-15

League II		League III	
Monday Nite Live	16-2	Volley of the Dolls	8-4
Nuts & Bolts	13-5	Silver Bullets	8-4
Safe Sets	13-5	Upton Ups	8-4
Fossils	10-8	High Volley'em	7-5
Night Court	7-11	Jolly Vollies	7-5
Net Wits	6-12	Nutcrackers	6-6
Just Up	4-11	Hairballs	2-10
Sourcerers	3-15	Mis-Fits	2-10

Better Late Than Never

It is not too late to schedule some time to donate blood during BNL's annual Winter Blood Drive, on Thursday and Friday, December 10 & 11. Just call Blood Drive Chair Susan Foster, Ext. 2888, to make an appointment.

With the holidays coming up, the best gift that you can give is the gift of life to someone in need of blood. So please add "Donate Blood" to your list of must-dos for the holidays.

Cafeteria Menu

Luncheons

Monday, December 7

Soup: Beef barley	.80/1.10
Entree: Baked herb chicken w/veg.	3.35
Lite choice: Fettucini w/white clam sauce	3.20
Carvery: Hot pastrami sandwich	2.95
Grill: Reuben platter	3.25

Tuesday, December 8

Soup: Italian minestrone	.80/1.10
Entree: Macaroni & cheese	3.20
Lite choice: Chicken Szechuan	3.45
Carvery: Hot roast beef sandwich	2.95
Grill: Beef kabob w/Spanish rice	3.35

Wednesday, December 9

Soup: Potato chowder	.80/1.10
Entree: Baked meat loaf w/veg.	3.45
Lite choice: Pasta primavera	3.20
Carvery: Hot ham sandwich	2.95
Grill: Italian sausage grinder	3.20

Thursday, December 10

Soup: Cream of broccoli	.80/1.10
Entree: Stuffed shells w/marinara sauce	3.20
Lite choice: Turkey curry w/rice pilaf	3.35
Carvery: Hot ham sandwich	2.95
Grill: Herb chicken breast w/rice	3.35

Friday, December 11

Soup: Manhattan clam chowder	.80/1.10
Entree: Chicken Kiev w/veg.	3.65
Lite choice: Baked fish w/veg.	3.45
Carvery: Hot turkey sandwich	2.95
Grill: Tuna melt platter	3.20

Local Computer Users

Peter Bond, Chairman of the Physics Department, will discuss the role of the BNL Computing and Communication Division (CCD) Steering Committee at the next meeting of the Upton Local Computer Users Group (LUG). It will be held on Wednesday, December 16, at 10:30 a.m., in Room B, Berkner Hall.

The meeting will be followed by a question-and-answer session. Members of the CCD Steering Committee, members of computer committees at BNL and all computer users are encouraged to attend. For information, send E-mail to LUG@BNL or contact Zohreh Parsa, LUG chairperson, at PARSA@BNL or Ext. 2085.

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.

SCIENTIFIC RECRUITMENT - Candidates may apply directly to the department representative named.

POSTDOCTORAL RESEARCH ASSOCIATE - trained in prokaryotic molecular biology, with a background in oceanography, limnology or microbial ecology, and experience with DNA hybridization, PCR, epifluorescence microscopy and oligonucleotide probes. Must be able to take part in research cruises. Contact: Paul Kemp, Department of Applied Science.

LABORATORY RECRUITMENT - Opportunities for Laboratory employees.

MK 2902. ADMINISTRATIVE/SECRETARIAL POSITION - Will provide secretarial and administrative support to the Associate Director, Applied Programs, and Assistant Director, Planning and Policy. Requires an AAS or equivalent, significant secretarial experience and administrative background, and proficiency in WordPerfect. In addition, a broad knowledge of Laboratory policies and procedures, knowledge of IPAP travel, excellent oral and written communication skills and the ability to use shorthand also required. Responsibilities will include providing secretarial support for the Institutional Plan, preparing correspondence and papers, and setting up agendas and schedules for internal and external meetings. Must be able to work independently. Director's Office.

OPEN RECRUITMENT - Opportunities for Laboratory employees and outside candidates.

DD 1084. TECHNICAL POSITION (term appointment) - Requires AAS or equivalent experience and the ability to work from electrical and/or mechanical blueprints or sketches in building and troubleshooting complex equipment. Experience in leak detection (components and systems), PPA, the handling of cryogens and the use of machine and hand tools also required, as are excellent communication skills and demonstrated organizational skills. RHIC Project.

MK 8100. MANAGER, OFFICE OF EDUCATIONAL PROGRAMS - Requires an MS in a technical field (PhD in a relevant field preferred), demonstrated management experience, a history of involvement in science education, and excellent oral and written communication skills. A knowledge of DOE programs highly desirable. Responsibilities will include managing the Program Office and working with educators to develop new programs and to provide leadership to explore new ideas for the future. Director's Office.

MK 0480. PHYSICS ASSOCIATE POSITION - (term appointment) Requires a BS in physics (MS preferred), several years' experience with high energy detectors, a thorough understanding of physical principles and the ability to find and solve problems. Will be responsible for testing and debugging of large drift chambers and associated electronics and assisting in the initial setup of high energy experiments. Physics Department

LS 0867. COMPUTING/ANALYST POSITION - Requires an MS degree in computer science or software engineering with experience in managing a commercial software development group. Experience in a scientific and/or engineering environment is preferred. Responsibilities include implementing and managing a software development group for the Protein Data Bank macromolecular structure database effort. Chemistry Department.

NS 0866. ADMINISTRATIVE POSITION - Requires bachelor's degree, or equivalent work experience, excellent communication skills and prior comprehensive experience organizing/supervising in a detailed-oriented office environment. Responsibilities will include instituting procedures for better communications between the Protein Data Bank and its users and collaborators; preparing reports for funding agencies; management of contracts; and providing assistance to scientific and professional staff members in purchasing computer products, supplies and maintenance contracts. Prior involvement in the preparation of budgets and familiarity with computers (hardware/software) very desirable. Chemistry Department.

NS 8770. OCEANOGRAPHY ASSOCIATE POSITION (term appointment) - Requires a BS in biochemistry, molecular or cell biology and 1-2 years' laboratory experience. Duties will involve assisting in experimental work on algae and applying standard molecular biological techniques such as DNA library screening, cloning and sequencing, and protein isolation and purification. Must be willing to participate in research cruises. Department of Applied Science.

NS 1083. ADMINISTRATIVE POSITION - Requires AAS or equivalent experience and excellent communication skills; familiarity with the IPAP/JCARS system is highly desirable. Work will include verifying and expediting delivery of materials, equipment or services as required and associated maintenance of files and records. Will also provide support for IPAP/JCARS data entry and other administrative backup with the aid of computer-based information systems. RHIC Project.

Motor Vehicles & Supplies

89 FORD F150 PICKUP - 302, V-8, 4-spd., p/s, p/b, 70k mi. 878-4177.

89 PLYMOUTH SUNDANCE R5 - 2-dr., a/t, black cherry, all luxury goodies, excel. cond., $5,990. Eric, Ext. 5875.

89 LINCOLN CONTINENTAL - Signature series, moonroof, dual air bags, alarm, black w/gray leather, 54k mi., excel., $12,200. Larry, Ext. 4821.

89 MUSTANG LX 5.0 - h/b, a/t, 47k mi., alarm, ac, p/w, p/s, blue, gray int., mint cond., $7,900. 654-5510.

88 HONDA PRELUDE - 5-spd., ac, am/fm, moonroof, gar., red, 31k mi., excel., $8,500. 286-0259.

87 BUICK TOWN CAR - phone, new brakes, orig. owner, 57k mi., loaded, $5,000. Jim, Ext. 4040.

87 FORD F250 XL 4x4 - supercab, p/w, p/b, p/s, 2-tone gray/black, mint. $7,100; snow plow, Meyers, p/angle, 7'6" blade, lights, $850. 399-6507.

87 TOYOTA COROLLA LE - 4-dr., a/t, ac, p/s, p/b, am/fm stereo cass., 83k mi., excel. cond., $4,000. Bo, Ext. 3537 or 341-1086.

87 TOYOTA COROLLA - 4-dr., 5-spd., ac, am/fm, new tires, 70k mi., excel. cond., $3,900. Sharon, Ext. 5919 or 722-3010.

86 FORD TEMPO GL - 2-dr., 5-spd., am/fm cass., ac, cruise, 92k mi., good cond., $2,200. 689-5606 after 7 p.m.

86 MAZDA 323 - 5-spd., runs well, body damage to pass. side, $700. Colleen, Ext. 4563 or 929-3573.

86 PLYMOUTH VOYAGER - 2.6L, p/s, p/b, a/t, am/fm stereo, ac, 80k mi., v.g. cond., must sell, $4,800. Ext. 2420/4830 or 341-1020 eves.

86 CHEVETTE - new brakes, tires, starter, ac, good cond., $1,200 neg. Tony, 286-9426.

85 RX-7 GS - 86k mi. ac, 5-spd., am/fm cass., 4 speakers, very clean, excel. cond. in/out, must see, $5,500 neg. Marsha, Ext. 2871.

85 JEEP - 4wd, 5-spd., new tires, full cabin top, summer top, p/s, 63k mi., excel. cond., CA bronze, $4,500. Nancy, Ext. 4177.

85 PONTIAC GRAND AM - red, ac, 5-spd., sunroof, am/fm, 104k mi., v.g. cond., $2,100. Michael, Ext. 3571 or 341-1025.

85 BUICK CENTURY - 4-dr., 76k mi., ac, a/t, p/s, p/b, am/fm stereo, new exhaust, 30 mpg, orig. owner, $2,600. Larry, Ext. 3506 or 281-2002.

85 NISSAN STANZA - 4-dr., a/t, ac, p/w, p/l, cruise, tilt, stereo, am/fm cass., 72k mi., fairly good cond., $1,400. Chuck, 589-8102.

84 DODGE OMNI - needs clutch, good for parts, ask. $100; 5 Goodyear tires. Ext. 3983 or 341-1039.

84 FORD LTD - 4-dr., a/t, p/s, p/b, ac, am/fm, runs well, body needs work, $500. Rich, Ext. 7013.

83 CHEVROLET CITATION - w/'86 Pontiac engine, 53k mi., 4-cyl., p/s, p/b, a/t, cruise, 23 mpg, good transportation, $1,200. 878-2239.

83 TERCEL - 4-dr. h/b, 5-spd., replaced engine, clutch, radiator, tires, muffler, rear shocks, $2,200. Elaine, Ext. 3876 or beeper 0456.

83 HONDA INTERSTATE MOTORCYCLE PARTS - rotor covers, $50; caliper covers, $30; heel-toe shifter, $30; floor boards, $50. 472-3254.

82 RELIANT WAGON - excel. body, good tires, fwd, $1,000. 744-7852 after 5 p.m.

82 PONTIAC BONNEVILLE - runs well, reliable, $900. Jim, Ext. 3372 or 821-0250.

81 DATSUN B210 - 2-dr. h/b, a/t, good cond., looks great, $1,200. Russ, Ext. 3059 or 758-3952.

80 BUICK CENTURY - small V-8, p/w, p/b, p/s, good cond., $650 or best offer. 924-0960.

80 CITATION - running cond., many good parts, $300. Lin, Ext. 3064.

80 MERCEDES BENZ 240D - no int./ext. damage, runs well, gar., carefully maint., must sell now, $4,700 or closest bid. Neil, 732-3902.

79 CHRYSLER NEWPORT - 8-cyl. eng., good running cond., many new parts, must sell, leaving the USA, $700. Fery, Ext. 3403 or 399-5136.

79 CHEVY IMPALA WAGON - 150k mi., runs well, many new parts, $475. Andy, Ext. 7693 or 744-5592.

79 OMNI - 4-spd., 4-dr., m/t, new tires, starter, timing belt, runs well, peppy, good transportation, $650. Mike, Ext. 3833.

79 CHEVY VAN 350 - V-8, good cond. in & out, needs minor body work, runs well, asking $1,000. Kris, 581-8438 after 2 p.m.

78 HONDA CIVIC WAGON - blown head gasket, best offer. Darryl, Ext. 7892.

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

74 CHRYSLER WAGON - Town & Country, a/t, ac, p/s, p/b, p/w, p/l, $295. Tony, 698-9274.

70 CHEVROLET IMPALA - classic, 118k mi., red, 350 V-8, very strong & fast, excel. tires, body, engine. Michael, Ext. 3469.

31 CHRYSLER - 2-dr., rumble seat, all orig., excel. cond., ask. $8,000. Rosalie, Ext. 3160 or 289-5704.

SNOW TIRES - 205x15, steel-belted radials on rims, almost new, $50/2. Joe, Ext. 3783.

OFF-ROAD LIGHTS - 11, Trailblazer, $175; roll bar, needs paint, $30. 474-4050.

UTILITY TRAILER - perfect for ATC, $125. Bill, Ext. 4986 or 563-1940.

TIRES - Firestone, P195/75R14, like new, $30. $50/2. Tony, 698-9274.

CASSETTE DECK - Pioneer, auto reverse, loudness button, no am/fm, like new, $50. Sue, Ext. 4931.

RAMPS - heavy gauge steel, good cond., $10. Wink, 286-4291.

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

Tools, House & Garden

FIREWOOD - approx. 1½ cords, you haul, $120. Paul, Ext. 7577 or 286-7127.

FIREWOOD - seasoned oak. J. Scesny, 732-2849.

GENERATOR - Generac, 4kW, from Hurricane Gloria, good cond., manuals, plug, extra muffler, stored indoors, $350. Ext. 2296.

POINSETTIAS - florist-quality, various sizes, low prices. 727-6818 after 4 p.m.

Sports, Hobbies & Pets

BICYCLE - 3-spd., 26", girl's, $30; Sears typewriter, port., basic model, $10. Hansen, Ext. 2381.

BIKE - girl's, 20" tires, 1-spd., coaster brake, $20. Joe, Ext. 2898.

BIRD CAGES - many different sizes, for small birds; ski machine, cheap. Jerry, Ext. 7427.

DOG KENNEL - pet taxi, 26"W x 40"D x 32"H, $20 or trade for medium-size kennel. Steve, Ext. 7336, leave message.

HEALTH CLUB MEMBERSHIP - Jack LaLanne Premier Plus, lifetime. Sue, Ext. 4461.

PARAKEET - book, breeding box, great Xmas gift, $25 value, best offer, will hold. 281-3515.

PIANO - Baby Grand, fair cond., needs tuning, $800 neg. Marylin, 286-3508 after 6 p.m.

PUPPIES - Golden retriever, 8 wks. old, vet checked, shots, AKC, parents on premises, $350. Tirre, Ext. 3288 or 281-0360.

PUPPIES - AKC, standard poodles, 1 black, 2 chocolate, 3 male, 1 female, shots, vet checked. Nancy, Ext. 4440 or 928-7539.

SKATE BOARDS - 2, $25/ea.; boogy board, $40; 2 bikes, $25 & $35. Bill, Ext. 924-7357.

SKIS - cross country, 180 cm, wax free, Fischer, good cond., $30. Wink, 286-4291.

SKI RACK - little used, $85; skis, 130 cm, 160 cm, no bindings, $10/ea. Tony, Ext. 2501.

Audio, Video & Computer

CALCULATOR - Hewlett Packard 28-S, scientific, w/all manuals, like new, $100. Michael, Ext. 3469.

CD PLAYER - Sony, brand-new, still in box, $125 neg; Commodore 64 computer, keyboard, disk drive, best offer. 698-1523 any time.

COMPUTER - Commodore 64, 1541 disk drive, Okidata printer, programs, $200 neg; Nintendo, game, $40. Walter, Ext. 4986 or 757-6392.

NINTENDO - 22 games, power glove, turbo controller, Game Genie, many extras, orig. $1,000, sell for $300 neg. Don, Ext. 7237.

GAMES - Lynx, $15/ea. or $40/three. Ext. 7505.

LENS - El Nikkor, 50mm, 2.8 enlarging, excel., $75; diskettes, 360k, 25/pack, $6. Susan, Ext. 7647.

PRINTER - Star SG-10, works well except for ribbon tension, w/manual, $30. Bill, Ext. 2807.

TAPES - approx. 75, 8-track, assorted, $25/all. Carole, Ext. 7100.

TV - GE, color, 19", cable-ready, $150. Leo, Ext. 2952.

TV - Sanyo, 26", remote, cable-ready, mint cond., 1½ yr. old, $350. Joe, 277-8590.

TV - Sanyo, 19", color, $150; Panasonic VCR, wire remote, $100; TV or microwave stand, storage, $50. Nancy, Ext. 4177.

TV - Sony Mega Watchman, 4½", am/fm radio, 3 yr. extended warranty, 3 mo. old, $80 or best offer. Brent, Ext. 3116.

VCR - Panasonic VHS Omni movie, never used. Ext. 4669.

Miscellaneous

AIRLINE TICKETS - 12/14, LA to Islip, 1-way, American Airlines, $100/ea., $25 to change date. Ext. 3983 or 341-1039.

BABY'S ITEMS - high chair, $10; stroller, $20; comforter, $30/all; changing table, $10; travel bed, $30; crib, $75. Bente, Ext. 4106 or 474-5939.

BABY'S ITEMS - port-a-crib, $25; bike seat, $30; swing, $10; 2 carry packs, more. Ext. 2752 or 751-6571.

BABY'S ITEMS - Evenflo carseats NB-6 mos., $20; bassinet w/skirt, $40, both excel. cond. Patriche, Ext. 2463 or 286-4037.

BABY'S ITEMS - cloth sling-style bouncing seat, w/infant insert & toy bar, $15. Leslie, 286-7127.

BABY'S ITEMS - Fisher Price sandbox, $35; Fisher Price pony, $5; Graco double stroller, $60; Kolcraft single stroller, $40, more. Pat, 924-3307.

BRACELET - 14k gold, ¼" wide, nice link w/lobster catch, asking $85. Linda, Ext. 7187.

CRIB - Williamsburg, oak, w/Simmons mattress & matching changing table, $1,350. Tom, Ext. 7287 or 744-4535.

DITTO MACHINE - electric, ditto masters, works fine, $25. Bill, Ext. 4000.

ENGAGEMENT RING - 14k yellow gold, Tiffany setting, w/.49 carat round center stone, appraised $1,750, asking $1,000. Pete, Ext. 4581.

KEEPSAKE HUTCH - kit, 5½"x10", $3; metal box w/key, 4"d x 11"H x 7½"W, $8. Susan, Ext. 7647.

NATIVITY SCENE - Christmas Around the World, stable, no figures, 20" tall. Donna, Ext. 2818.

RINGS & MINERALS - Whitey, Ext. 2913.

RING - "T" letter ring, woman's, 14k gold, diamond chips, orig. $250, best offer. 281-3515.

STROLLER - tandem, back-to-back, $45. Bill, Ext. 4986 or 563-1940.

OPERA TICKETS - Met, Sat. matinee, 12/12, *Lucia di Lammermoor*, row K orch. center. Ext. 3922.

OPERA TICKETS - 2, Met, 12/19, Sat. eve, *Jenofa*, 2nd row balcony center, $33/ea. Arnie, Ext. 2606.

OPERA TICKETS - 2, Met, Tchaikovsky's *Eugene Onegin*, 12/7, 8:00 p.m., first row balcony, $30/ea. Carmen, Ext. 4135.

Free

BICYCLE - 26", girl's style, rusty, works. M. Rowe, Ext. 2081 or 878-9384.

DOG - 2-mo.-old Dobie puppy, needs a good home. Fred, Ext. 5319.

PUPPIES - mixed breed, male & female, 5 weeks old. Sue, Ext. 4461 or 696-6148.

Lost & Found

LOST - brass perfume bottle, part of necklace, 11/16. Donna, Ext. 2818.

Car Pools

STONY BROOK/LAKE GROVE - existing car pool needs more member(s). Ext. 4192 or Ext. 5080.

PITTSBURGH, PA - riders to share round-trip driving expenses from BNL to Pittsburgh on weekends/holidays. Bill, Ext. 3698 or 2569 eves.

Wanted

AUTO MANUAL - motors, repair & auto wiring diagrams, 1968 covering 62-68. 924-4237.

JAGUAR XKE SERIES I PARTS - for same or information leading to such. Jack, 281-2382.

GARAGE DOOR - fiberglass, 8'x7'. Duke, Ext. 2957.

HOUSE - rent or buy, immediate occupancy preferred, within ½ hour of BNL, will consider condo or apt. Pat, Ext. 4519.

PC/XT OR AT - w/hd to use w/word processor, prefer w/720k disk drive. Bob, Ext. 4707.

PIANO - full-size, studio, cube-type, slide projector, washing machine. Mike, Ext. 5030 or 821-4083.

ROOMMATE - Middle Island, share townhouse, master bdrm. walk-in closet, furn., pool, tennis, cable, $400/all. Ext. 3160 or 289-5704 after 5 p.m.

SINGLE MEN & WOMEN - 30 yrs.+ for a buffet party, Thurs. 12/10, food, dancing, fun. Ext. 3426 or 399-3381.

Services

Services are listed in the first Bulletin *of every month as a courtesy to BNL employees. They are neither screened nor recommended by the* Bulletin. *Services forms are available in the* Bulletin *lobby, Bldg. 134.*

BABY-SIT - caring mother of infant son will baby-sit in my Wading River home. Lorraine, 929-3910.

BABY-SITTING - in your home, have refs. & certified in CPR totsavers, I have many creative ideas to share. Jessica, 395-1958.

BAKERY CAKES - decorated cakes for all occasions, pumpkin, pecan, apple, cherry & more, mini pastries also avail. Jon Laster, 822-2863.

BAND - "The Finishing Touch," music for all occasions. Bob Dee, 333-0789.

BRICKWORK - masonry, patios, walks, retaining walls, landscaping ties, Belgium block, 25 yrs. exp., Lab disc. Tony, 698-9274.

CARPENTRY - all phases of carpentry work, dormers, bsmt., extensions, windows, siding, etc., no job is too big or small. John, 821-6587.

CARPENTRY - all phases home improvement, decks, dormers, extensions, no job too big or small. Mike, 744-0388.

CARPENTRY - roofs, extensions, dormers, windows, fin. bsmt., decks & driveways, beat most prices, call for free est. Dennis, 395-6055.

CARPET/UPHOLSTERY CLEANING - spot, pet stains, odor removal, auto interior, fabric protector, free est., Lab disc. Jerry, 924-6019, days.

CATERING - home-made pasta, all homemade Italian dishes, will cater any occasion, reas. prices, call for menu. Luisa, 395-6055.

CHILD CARE - SUNY sophomore, avail. 12/17-1/20, trained in CPR & first aid. Patty, 878-3593.

CHILD CARE - mature, exp. mom seeking one special child to care for, on site, competitive rates, toys, crafts, games, more. Karen, Ext. 1007.

CHIMNEY SWEEP - wood, coal & oil flues, stainless steel, chimney caps, Lab discounts. Mike, 821-5226.

CHRISTMAS COOKIES - perfect holiday gift, by the pound, trays wrapped in cellophane, on-site delivery, order early. Millie Laster, 822-2863.

DECKS - custom, cedar, CCA, 20 yrs. exp. Danny, 698-9274.

DJ/KARAOKE - add life to your party, professional MC, state of the art equip., book now, reas. Carol, 281-5060.

DJ/MC - "Locomotion" party tunes & dance music 40s-90s, quality sound, all occasions, now booking holiday parties, BNL refs. Lou, 698-8210.

ELECTRICIAN - service upgrades, motion lights, high-hats, all phases electrical work, lisc. & ins. Gregg, 874-8631 after 5 p.m.

FLOORS - waxing, stripping, carpets & upholstery shampooed, house cleaning, windows, free est. Leo, 447-6522.

GIFTS - wrapped gifts inside balloons for parties, birthdays, centerpieces, holidays, stuffed animals & much more. Fred Molone, 732-1528.

HEATING - ac, refrigeration & hot water heaters, repair, install, licensed, insured. Jerry, 399-6457.

HOUSECLEANING - reliable, reasonable, honest, hardworking, refs. Cathi, 281-0360.

HOUSECLEANING - reasonable, very efficient, refs. Marty, 399-3496 any time.

KAYAK LESSONS - basic course, six 2-hr. sessions, Sat. eves., SUNY Stony Brook pool, starting 2/20/93, rolls. Ernie, 281-7873.

LOCKSMITH - sales & service, 10% Lab discount, keys cut during luch. Pete, 399-2813 after 5 p.m.

MAILBOXES - custom-made wood & metal, free lettering, many colors & shapes, free catalog. Mike, 821-5526.

PARTIES - make every party a special event, every detail covered, all size parties, any occasion. Rosalie, 289-5704.

SHEETROCKING - and spackling, free estimate. Kevin, 563-9855.

SKYLIGHTS - complete, prof. service, cleaning, preventive maint., installations. Joseph, 924-6019.

VIDEOGRAPHER - capture those precious moments on video, will tape weddings, parties, all occasions. Larry, 281-7240.

WINDOW CLEANING - all work squeaky clean, very reasonable prices. 928-3189.

Ads left out of this issue due to lack of space need not be resubmitted to appear in the next issue.