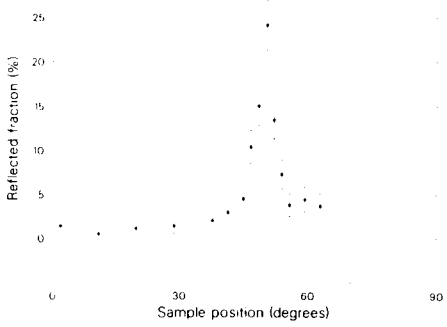
BROOKHAVEN BULLETIN
Vol. 42 - No. 48 December 16, 1988
BROOKHAVEN NATIONAL LABORATORY

Positronium Beam Proves Capable Of Probing Surface Structure

Using the world's most intense positronium beam, researchers at BNL have shown for the first time ever that positronium atoms do bounce.

Positronium is an unstable atom made up of matter and its antimatter opposite — the bound state of an electron and positron. Before the electron and positron paired in each positronium annihilate each other, they make up a weakly interacting, neutral and light species — an ideal combination for an atomic probe.

Kelvin Lynn, Marc Weber and their collaborators have been bombarding positronium atoms at a crystal's surface since 1987. Within the year, they found that about 30 percent of positronium is reflected specularly — that is, 30 percent of positronium atoms bounced off the surface with an angle equal to that of the bombarding positronium atoms.



A graph showing specular reflection of 30% of the positronium beam when the angle of the lithium fluoride sample with regard to the beam was 50°. The angle of the detector with regard to the beam was kept constant at 50°.

Specular reflection of positronium shows that positronium atoms can be used for probing the surface structures of solids.

"In ten years, we hope to be probing surfaces with positronium in much the same way that neutrons are now used to probe bulk solids," explains Senior Physicist Kelvin Lynn, of both the Physics Department and the Department of Applied Science.

Lynn and Weber's collaborators include Len Roellig of City College of New York (CCNY), where Weber was a physics graduate student before joining the BNL staff last month; Sheng Zhang Tang, another CCNY graduate student; as well as Allen Mills of AT&T Bell Labs, and Stephan Berko and Karl Canter of Brandeis University. Funding for this collaboration comes from the Department of Energy's Office of Basic Energy Sciences and the National Science Foundation.

For over 40 years, solid state researchers have been bombarding solids with neutrons; in bouncing back, the neutrons that scatter off a solid sample give information about the solid's crystallographic and magnetic properties. In penetrating the solid sample, neutrons usually do not yield information about a sample's surface structure.

The idea to bombard solid surfaces with a positronium beam came about in 1982. However, solid state researchers did not pursue the use of positronium atoms because they thought that the chances of a low energy positronium bouncing off a crystal's surface were too low — as low as a tenth of one percent.

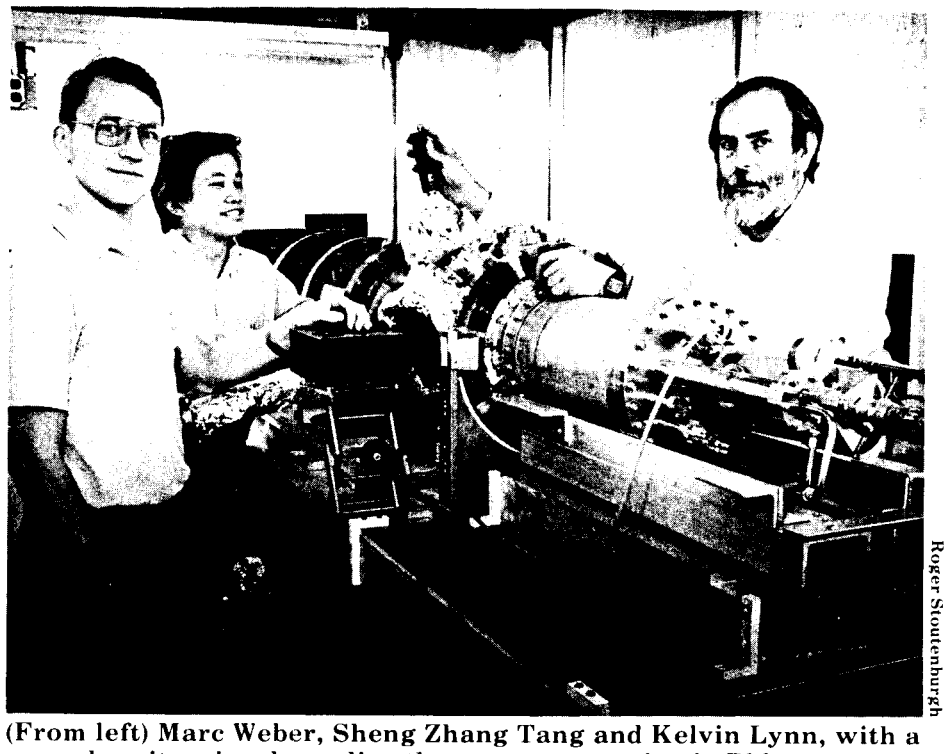
On the other hand, astrophysicists, who worry about antimatter in the galactic center of the Milky Way, predicted that 90 percent of positronium at low energy would bounce.

"When theorists can't agree within three orders of magnitude, then you know you at least have a chance," says Weber. In addition to being the most intense, the positronium beam is one of two in the world and the only one used exclusively for solid state physics.

Having an energy up to 60 electron volts, the positronium beam is created by a charge exchange reaction involving a positron beam interacting with the electrons surrounding argon gas atoms. The positron beam had been built by the same collaboration in 1984.

By irradiating enriched copper in the High Flux Beam Reactor, some of it becomes radioactive copper-64, a source of energetic positrons. Within the copper, these positrons are slowed down through many collisions with the copper atoms. A small fraction of moderated positrons reach the copper source's surface, are expelled into a vacuum chamber and transported by magnetic fields through a gas cell filled with argon.

Within the cell, a positron can rip off an electron from an argon gas atom to form a positronium. The positronium beam is then directed at a sample. The 30 percent of the positronium atoms that bounce off the sample's surface are seen by a detector looking at the gamma rays that result when the positron in each positronium annhilates with an electron from a metal plate near the detector.


Roger Stoutenburgh

(From left) Marc Weber, Sheng Zhang Tang and Kelvin Lynn, with a second positronium beam line they are constructing in Bldg. 480.

For their first experiment, the collaborators used a crystal of lithium fluoride because it was the standard employed in surface studies using helium beams 20 years ago. As it turned out, helium was found to be more useful for other studies, as helium does not bounce back at the surface, but before it hits the surface.

"Using helium to study surface structure is like trying to tell what the Himalayas in Nepal look like from India," explains Weber. "Using positronium is like crash-landing airplanes into Mount Everest — 30 percent survive and fly back to tell about it."

— Marsha Belford

Operators Keep the Neutrons Flowing To Reach New Record at HFBR

At 11:08:24 on November 25, the High Flux Beam Reactor (HFBR) reached an accumulated operating record of 250,000 megawatt days — a milestone along the steady flow of neutrons that have so far provided some 23 years of experimental research.

A megawatt (MW) day is a measure of the energy produced by the reactor. At the HFBR's normal power level of 60 MW, the energy produced each day is 60 MW days. The reactor began producing the neutrons needed for many kinds of scientific investigation in 1965, and 250,000 MW days, or six million MW hours, is the total energy produced in its 23-year lifetime — resulting in the production of nearly 1,000,000,000,000,000,000,000,000,000 — one octillion — neutrons.

"Since the safety and programmatic record of a facility depends to a very large extent on its operating personnel," said Ray Karol, HFBR Plant Manager, "the HFBR obviously has had and continues to have a dedicated, well-trained, competent operating crew."

Roger Stoutenburgh

Gathered in the control room at the High Flux Beam Reactor are (back, from left) Shift Supervisor Joel Scott, Operations Group Leader Lance Junker, Shift Supervisor Art Harris, Operator Shawn Smalls, Deputy Division Manager Dave Rorer; (front, from left) Operator Lou Evers, Operator Skelly Frei, Plant Manager Ray Karol, Assistant Operations Group Leader Al Queirolo and Operator Ed Sierra. Not shown are Operators David Bingham, Ora Colson, Henry Hauptman, Randolph Hudson, Gary Jayne, Joseph Logan, James Nelson, Michael Niewiarowicz, Robert Rooks and Richard Tache; and Shift Supervisors Robert Bergoffen, Craig Diaz, Mark Davis and Douglas Ports.

On the Job Every Minute

"The reactor operates 24 hours a day, seven days a week, for about 270 days each year," said Karol. "The operation is overseen by a shift supervisor and two reactor operators who are on the job every single minute of their eight-hour shift — no breaks, no scheduled lunch period. They arrive, get a full report from the outgoing crew, then start checking the reactor and equipment status. They leave only after formally turning over the watch to the next crew. The Lab's being closed doesn't affect the shifts. In a blizzard, or during a hurricane, the operating crews will still be at their posts."

Operating the HFBR is a core of six shift supervisors and 13 operators, all with certification for the HFBR, including two operators who are also certified to run Brookhaven's Medical Research Reactor. They start the reactor, run it and shut it down. During routine shutdowns, which are usually for about seven days after each 25-day operating period, they handle fuel changes, many of the maintenance requirements, and all testing prior to starting it up again.

Getting Certified

Certification to operate the HFBR usually takes from one year to eighteen months. Trainees learn to do everything according to written, fully tested procedures. "Nothing is done by the seat of the pants," said Karol.

At the same time, the reasons behind each procedure are stressed. If anything unusual happens, especially during off-hours, the crew on duty has to handle it. They must be able to make competent decisions on their own, until additional support arrives, if necessary.

(Continued on page 2)

The Season's First Snow

Roger Stoutenburgh

A storybook cottage in the Black Forest? No, it's our own Brookhaven House, as captured by Lab photographer Roger Stoutenburgh on the Wednesday morning following the unexpected, early snowfall of December 13. Seven inches of snow were measured at BNL by the Atmospheric Sciences Division of the Department of Applied Science.

Operators (cont'd)

The other support groups — Mechanical Maintenance, Reactor Instrument, Water Chemistry, Research Coordination, Quality Assurance, Safety Evaluation, Training and Procedures, and Engineering and Standards — are all as vital to the efficient working of the facility as the operating crew. "We can't function without any one of them," said Lance Junker, HFBR Operations Group Leader.

Reiterative Redundancy

The operating and support groups work for one goal — to provide a smoothly running, safe facility. One way to insure safety is to double up on the same safety devices. "We use redundancy deliberately," said Junker. "Then if something fails, we're still well covered."

Just as equipment is checked over and over, so is the shift supervisors' and operators' knowledge of the facility.

"We're recertified every two years," said Reactor Operator Skelly Frei, the "longest running" operator of the group. Like Junker, he moved from the Brookhaven Graphite Research Reactor to the HFBR when it came on line in 1965. Frei's first day at the Lab was November 28, 1955. But exactly thirty-three years later, on November 28, 1988, though fully certified and experienced, Frei was still studying, this time for a test on safety procedures to be taken the next day.

"We keep going to school and taking written, oral and practical tests," said Frei. "We also run surprise drills — for example, a hands-on-type drill for individual shifts, having to do with shutting down the HFBR in the event of an electrical storm."

Then and Now

Frei described some of the differences between his early days at work, and today. "In the 50's and 60's, no one had much previous experience at the job," he said. "Truckers or farmers applied, were accepted and trained. Now, many applicants have already worked on a nuclear power program, often in the Navy. We also have more training now. Look."

From a shelf in the control room, Frei took out the original operators' handbook, — about three-quarters of an inch thick. Then he indicated the present Operation Procedures manuals — three stout volumes, each backed up with several others explaining the importance and the "why" of each procedure. Frei likes the full explanations. "That way you're not just a robot," he said.

Staying Power

Like Frei, other HFBR reactor operators get satisfaction from their job. Turnover is low — since 1980, only two reactor operators have left other than for retirement. "It's not as routine as some jobs," commented Junker. "One minute you may be doing some ordinary chemistry sampling, monitoring radiation levels — then you may be troubleshooting, locating failed equipment. But the ideal is for virtually nothing to occur."

Junker added, "With this work, you feel important to the Lab. You are running a machine that's making significant research possible."

— Liz Seubert

Figuring It Out

Attaining 250,000 megawatt days at the HFBR means that:

- One-half pound of matter became energy.
- 555.56 pounds of uranium-235 atoms were split.
- About 3½ pounds of neutrons, or 10^{27}, were produced.

The Gift of Life: Lauren's Story

Three months and five blood transfusions after she was born on March 26, Lauren McIntyre left the hospital and came home — on June 16, the date she was originally due to be born.

Now a chubby, healthy, eight-month-old, Lauren is the darling daughter of Kathleen and Gary McIntyre, who work in the Safety & Environmental Protection Division (S&EP) and the Alternating Gradient Synchrotron (AGS) Department, respectively.

Lauren came into the world three months early and weighing only two pounds because Kathleen suddenly developed a condition called pre-eclampsia, which caused her blood pressure to skyrocket dangerously. Because Kathleen's risk of stroke or heart attack was very high, her doctors decided to take the baby immediately.

Lauren started out in Stony Brook University Hospital's neonatal intensive care unit. Within a few days, Kathleen recalls, "She needed a transfusion because her hematocrit level was very low." In other words, the volume of cellular elements in the baby's blood was well below what it should have been.

When Kathleen learned that Lauren needed a transfusion, she was still in the hospital herself. "On top of concerns about Lauren's present and future health and progress, I was worrying about the quality of blood," Kathleen says. "Knowing how depressed I was about this, [S&EP Secretary] Susan Carlsen put up notes all around the division asking people to donate blood to help Lauren."

The word went out at the AGS also, and soon, four BNL'ers went to University Hospital on Lauren's behalf: Alan Kuehner and Al Wallner of S&EP, and Jack Barry and Steve Gill of the AGS. Also heeding the call was Donna Miltenberger, wife of S&EP's Bob Miltenberger.

Actually, more than five individuals offered to give, but only those with O^+-type blood were asked to donate. For several reasons, Lauren could not use all of the blood donated in her name, but two of the five transfusions she ultimately received came from among the five donors. As for the other three pints, there were many others at University Hospital — from infants to the elderly — to whom it could go.

Roger Stoutenburgh

Gary and Kathleen McIntyre, with Lauren

The McIntyres were "very happy with the response," says Kathleen. "It was such a relief to us. It's so nice to know that people were concerned enough to come to the hospital and take time out of the day."

She and Gary urge all BNL'ers to do the same thing for others next week, when the Lab hosts the annual winter blood drive. As Kathleen learned during the three months Lauren was hospitalized, "Many people have ailing babies — there are regularly about 34 infants in the Stony Brook unit. Most need transfusions, for heart surgery and other problems. Of course, there are lots of other reasons people need blood too, and I know how good it feels to know it is there when you need it. Please give."

Because people donated blood, because she had excellent care in the hospital, and because she is a fighter, Lauren is eight months old now. Occupational, educational and physical therapy are helping her to catch up with others her age — and her older brother Gavin, 3½, likes to help out. Milestones come regularly; last weekend, for example, Lauren began rolling from her stomach to her back. And Kathleen notes happily, "There are no long-term problems expected."

Arrivals & Departures

Arrivals

Richard V. DeRocher ..... Reactor

Departures

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

John E. Plonski ..... Physics
Mary Anne Quigley ..... Plant Eng.

In Stormy Weather: Dial 282-INFO

In Addition . . .

In last week's story announcing Diane Mirvis' appointment as the new Manager of the Technical Information Division (TID), the Bulletin neglected to note that Library Administrator Marilyn Galli had served as acting Division Manager since July, when former TID Manager Kenneth Ryan left the Laboratory. We apologize for the oversight.

Of Galli's important assistance during this five-month period, Deputy Director Martin Blume said, "We deeply appreciate the excellent job Marilyn has done in advancing the TID role during her service as acting Manager. She has been far more than a caretaker in this role, and the Laboratory is grateful to her for serving in this difficult position."

On-Site Medical Care

Routine employee health services are available from the Occupational Medicine Clinic (OMC) during regular working hours, Monday through Friday from 8:30 a.m. to 5 p.m.

In case of an emergency between 5 p.m. and 8:30 a.m. Monday through Friday, or on a weekend or holiday, call Ext. 2222 or go directly to the BNL Firehouse. The services of the Fire/Rescue Emergency Medical Technicians are always available.

For non-emergency health care, consult a personal physician or the nearest hospital.

Employees should anticipate the need for back-to-work slips and other employee health matters and notify the OMC during normal working hours.

For assistance that is not covered here, telephone the BNL Police Group, Ext. 2238.

Call Now — To Save a Life

If you'd like to give the gift of life, call the Blood Drive hot line, Ext. 5126, for an appointment. The BNL Blood Drive will be held Wednesday and Thursday, December 21 and 22, from 10 a.m. to 3 p.m., in the Brookhaven Center. To help keep the drive running smoothly, please make every effort to be on time for your appointment.

Speaking Out: About the Science Shop

Reporter: Marsha Belford **Photographer: Peter Horton**

Make your list and check it twice — then make your holiday purchases today, during the last day of the winter sale at the Science Shop. Located in the Exhibit Center on the west side of Bldg. 701, the shop is open today from 10 a.m. to 3 p.m., for your holiday shopping convenience.

At the winter sale's grand opening two weeks ago, we stopped some busy shoppers to ask them what they had purchased, for whom and why — and what they might want as a gift from the Science Shop.

Ralph Fullwood, Nuclear Energy—I purchased a radiometer, a hand-boiler, three prisms, a Top Secret and some magnetic marbles as some Christmas gifts for my three children, who range in age from 24 to 32. I give them children's toys because they never completely grew up. I like the Top Secret, but the family likes the prisms the best — just to sit and look at the light.

Christine McEvaddy, Plant Engineering — I have two nephews, six and seven, and I'm tired of buying them junk for Christmas, so I came to shop here. I hope I got them something that will get them interested in the world around them, besides TV. I bought three kits — mechanics, the magnetic car and the zig-zag machine — plus two star wands, which I know will keep them amused.

Wlodek Guryn, Physics — I bought magnetic marbles, pencil sharpeners, magic trees and telescope/microscopes — they are Hanukkah presents for my two children, Rachel and David, ages six and four. I hope these gifts will get them interested in science.

Bill Thomlinson, NSLS — I got some stocking stuffers, including magic trees, which grow pretty crystals. They are for my children, Wendy and Robin, 17 and 12, but I'll probably grow one of the magic trees myself. What someone could buy for me is a crystal radio kit because I had a crystal radio as a boy. I had built it from scratch because the kits didn't exist back then, and I still think they are fascinating.

Larisa Rudenko, Biology — I bought a star wand for my niece who likes that sort of thing; pocket lenses for some friends who don't see as well as they would like to but won't put on their glasses; sun prints for cousins who like to do arty projects — and that's something I'd like; and magnetic marbles for my husband — but don't ask me why.

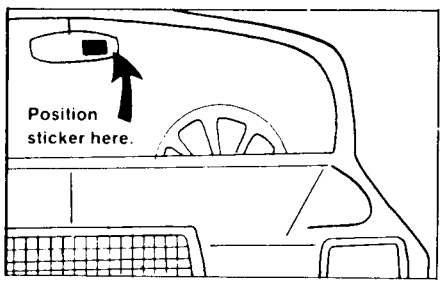
Vehicle Stickers Now Available

Vehicle stickers for 1989 are now available. For vehicles already registered at BNL the number 89 will be issued to be placed directly over the 88. To obtain stickers:

- For previously registered vehicles — Employees should return the computerized vehicle registration cards they have already received in the mail.
- For vehicles being registered for the first time — Vehicle registration cards are available in the lobby of Police Headquarters, Bldg. 50

All vehicle stickers must be affixed to the windshield side of the rear-view mirror (see drawing).

For more information call Hank Raimondo, Ext. 7258.



Social Club

The Social Club has cancelled the Switzerland winter vacation trip for this year but will try to make arrangements for next winter. Further, the club does have trips to Davos, Gstaad or St. Moritz available on a first-come basis. And don't forget the ski trip to Gore Mountain on March 10-12, 1989.

The Social Club also has the following tickets available for the Nassau Coliseum:

- Four tickets for wrestling, January 13.
- 25 tickets for the N.Y. Islanders vs. Soviet Red Army, Thursday, December 29, $19 each.

The Club is also taking ticket reservations for the Ice Capades on February 10.

Call Doris Terry, Ext. 7610, for more information on any of these outings.

BROOKHAVEN BULLETIN

Published weekly
by the Public Affairs Office
for the employees of
BROOKHAVEN NATIONAL LABORATORY

ANITA COHEN, Editor
MARSHA BELFORD, Assistant Editor
LIZ SEUBERT, Reporter

35 Brookhaven Ave., Upton, N.Y. 11973
(516)282-2345

team safety

The 20th week of the Team Safety Program dealt a harsh blow to the Central Shops Division's Light Shop Team. Just when the team members were in sight of their first victory, another back injury put them on the sidelines until March 2. A back injury also sent Plant Engineering's Custodial A Team back to the bench with a new goal of March 3.

Back injuries have been the most serious threat in the Team Safety Program, accounting for over half of the stalls. Team members with recognized back problems should be especially careful when lifting, twisting and bending. Information on back care is available from the Occupational Medicine Clinic.

Other teams are continuing toward their goals without incident. The commissioner is pleased to note that the entire Supply and Material Division is continuing with its no lost-time accident record, which began with the start of the program. Good show and keep up the safe work!

Cafeteria Menu

Week of December 19

Luncheons

Monday, December 19

Soup: Beef noodle	(cup)	.75
	(bowl)	.95
Meatballs & mushrooms in brown gravy over noodles		3.10
Cheddar broccoli quiche & veg.		2.95
Lite-line: Turkey cold plate		2.25
Hot deli: Chicken patty sandwich		2.85

Tuesday, December 20

Soup: Italian vegetable Parmesan chowder	(cup)	.75
	(bowl)	.95
Chicken & mushrooms in sauce over rice		3.10
Meat loaf w/brown gravy & veg.		3.00
Lite-line: Broiled chicken & veg.		3.00
Hot deli: Grilled cheese & tomato		1.50

Wednesday, December 21
Christmas Dinner

Soup: French onion	(cup)	.75
	(bowl)	.95
Prime ribs, potato & veg.		4.95
Cornish hen, potato & veg.		4.95
Seafood Newburg over patty shell & veg.		4.95

Thursday, December 22

Soup: Cream of chicken	(cup)	.75
	(bowl)	.95
Stir-fry beef over rice		3.10
Corned beef w/cabbage & potato		3.00
Lite-line: Cold tuna plate		2.25
Hot deli: Turkey		2.85

Friday, December 23

Soup: Cream of tomato	(cup)	.75
	(bowl)	.95
Roast beef w/brown gravy & veg.		3.10
Batter-dipped cod & french fries		3.00
Lite-line: Roast beef au jus & veg.		3.10

Breakfast specials

Monday:	French toast & sausage patty	1.15
Tuesday:	Western omelet & slice of toast	1.45
Wednesday:	Swiss cheese omelet & toast	1.55
Thursday:	Pancakes & sausage links	1.10
Friday:	Ham & egg on roll	1.65

BERA Bus Trip To Atlantic City

If you're still searching for that unique holiday gift, the BERA Board has a suggestion: How about tickets for the next bus trip to Atlantic City, on January 21, 1989?

The bus will travel to the Tropicana Casino. The initial cost will be $20, and the casino will return $10 in coins to everyone on the bus. The bus will leave BNL promptly at 9 a.m., and make an additional stop at LIE Exit 63 Park and Ride.

Make your prepaid, nonrefundable reservations at the BERA Sales Office in Berkner Hall weekdays between 9 a.m. and 2 p.m. If you have questions, call Louisa Barone, Ext. 3347, M. Kay Dellimore, Ext. 2873, or Rosalie Piccione, Ext. 3160.

Gym and Pool Holiday Schedule

During the holidays, the schedule for the swimming pool and gymnasium will be as follows:

Closed — Friday-Monday, December 23-26
Open — Tuesday-Friday, December 27-30
Closed — Saturday-Monday, December 31-January 2

The pool and gymnasium will reopen and resume normal hours on Tuesday, January 3, 1989, when the new pool season will begin.

Deer Watch

It is time, once again, to be on the alert for deer, particularly when leaving the site in the evening. They are hard to see at that time so take it easy on the accelerator. In fact, during the last two weeks, there have been four motor vehicle accidents involving deer on site.

Local Users Group

Networking will be the main subject of discussion at the next Upton Local Users Group Meeting on Wednesday, December 21, from 11 a.m. to noon, in Room B, Berkner Hall.

Camera Club

The Camera Club will meet at 5:30 p.m. on Thursday, December 22, at the Recreation Building. Topics of discussion will include photography classes for the coming year and use of the darkroom.

In January or February, the Club will sponsor a Speedotron Professional Strobe Seminar. This event will be a good opportunity to try out a professional system and get a free family portrait as well. More details will be announced when the date of the seminar has been set.

Bowling

Red/Green League

H. Dawson bowled a 222, R. Skelton 220, R. Mulderig 219/602 scratch, J. Mayeski 215, S. Dimaiuta 215, K. Riker 213, A. Warkentein 211, H. Arnesen 208, C. Flood 206, C. Scarlett 202.

White League

Andy Warkentein had a 205, Ken Riker 204, Pat Manzella 187/185, Gerry Riker 180.

Purple League

Dick Adams rolled a 212, Joe Mayeski 208, Marsha Kipperman 207, Frank Gaetan 204, Ben Belligan 203, Gail Schuman 186.

Volleyball

Standings — Week of December 5

League I		League II	
Upfagrabs	19-2	Fossils	19-5
Dinkers	17-7	Set-Ups	19-5
Xrayted	13-8	Nuts & Bolts	18-6
Cannonballs	11-13	Krush	17-7
Phoubars	6-18	Ziegfield Vollies	9-15
Netminders	3-21	Slammers	7-17
		Upton-Ups	4-20
		Chunga's Revenge	3-21

League III		Open League	
Frazzled	20-1	Meriem's Team	15-3
MISfits	15-6	Phoenix	15-3
Sourcerers	13-8	Dig Your Lips	15-6
High Volley'em	11-10	Tom's Mutants	13-5
Printouts	9-12	Magnum	10-8
Spikes	9-12	Vollies	8-13
Renegades	4-17	Rowdy Radicals	5-13
Good Timers	3-18	Pi Chu	3-15
		Constables	0-18

Classified Advertisements

Placement Notices

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

Each week, the Personnel Office lists new personnel placement requisitions. The purpose of these listings is, first, to provide open placement information on all non-scientific staff positions; second, to give employees an opportunity to request consideration for themselves through Personnel; and, finally, for general recruiting purposes. Because of the priority preference policy stated above, each listing does not necessarily represent an opportunity for all candidates. As a guide to readers, the listings are grouped according to the anticipated area of recruitment.

Except when operational needs require otherwise, positions will remain open for one week following publication date.

For further information regarding a placement listing, contact the Employment Manager, Ext. 2882.

LABORATORY RECRUITMENT - Opportunities for Laboratory employees only.

3045. METAL WORKER - Maintenance A, Group Leader. Plant Engineering Division.

3046. SECRETARIAL POSITION - Requires AAS in secretarial science or equivalent experience, and excellent communication skills. Responsibilities will include procedure, report and correspondence preparation for an engineering group. Additional responsibilities include scheduling appointments, arranging travel, processing vouchers and organizing and maintaining files. IBM PC experience desired. Must be able to obtain and maintain a security clearance. Reactor Division.

3047. SECRETARIAL POSITION (part-time) - Requires AAS in secretarial science or equivalent. Duties will include typing, filing, telephones, record and form processing. Word processing experience necessary (MICOM preferred). Affirmative Action Office.

OPEN RECRUITMENT - Opportunities for Laboratory employees and outside applicants.

3048. BIOLOGY ASSOCIATE (term appointment) - Requires a Bachelor's degree in biochemistry, microbiology or genetics and appropriate laboratory experience. Work will involve molecular biology, genetics, and recombinant DNA involving microbial, molecular and biochemical techniques. Must be willing to work outdoors in the summer doing corn pollinations and in the fall harvesting. Biology Department.

3049 ENGINEERING POSITION - Requires Master's degree (Ph.D. desirable) in electrical engineering or physics with experience or strong background in high-speed analog signal processing. Working in a team environment, will develop and design monolithic, integrated, low-noise signal-processing circuits for large radiation detectors for experiments in high energy physics, relativistic heavy ion physics and in research with synchrotron radiation. Proficiency in circuit design with strong interest in monolithic circuit solutions is essential. Instrumentation Division.

3050 DESIGNER POSITION - Requires AAS in mechanical technology or the equivalent, with at least four years' mechanical design/drafting experience with ability to perform professional-level design functions. Must have complete formal AUTOCAD training program or a minimum of two years AUTOCAD experience. Basic knowledge of engineering fundamentals, machine design, machine shop procedures and understanding of MIL-STD-100 and ANSI Y14.5-1982 required. Ability to perform basic stress and thermal calculations a plus. Accelerator Development Department.

3051 STEAMFITTER A - Under minimum supervision lays out, constructs, or installs, repairs and maintains heat, steam and water distribution systems, related facilities and auxiliary equipment and piping and equipment utilizing heat, steam and water distribution services. Plant Engineering Division.

3052 CARPENTER - Under minimum supervision lays out, constructs, modifies and maintains buildings and component parts from construction drawings, rough sketches or verbal instruction. Works with wood, wood substitutes, and combination materials and flooring, roofing and wall materials. Plant Engineering Division.

3053 TECHNICAL POSITION - Requires AAS in mechanical technology or equivalent and one to five years' experience in one or more of the following areas: mechanical assembly, precision inspection, maintenance of mechanical equipment. Duties will include fabrication and assembly of superconducting particle accelerator magnets. Some electrical experience desired. Accelerator Development Department.

3054 TECHNICAL POSITION - Requires AAS in electronic technology. Experience in fabrication and debugging of analog and digital circuits and instrumentation required. (Booster Project) Accelerator Development Department.

Motor Vehicles & Supplies

89 HYUNDAI GL - 2k mi., am/fm cass., a/t, a/c, must sell, $7,600. 422-3118 after 5 p.m.

86 DODGE CARAVAN SE - 7 passenger, 2.6L engine, a/t, a/c, am/fm cass., roof rack, 37k mi., $9,500. Ext. 5403 or 821-3373.

86 OLDS CALAIS - 2-dr., a/c, a/t, velour int., mint, $7,500. Ext. 3163 or 286-1024 after 6 p.m.

86 TREDIA - A-1 cond., 32k mi., a/c, p/b, am/fm cass., a/t, $6,700. 588-4703 after 5 p.m.

84 OLDS CUTLASS SUPREME - clean, runs well, new tires, etc., p/s, p/b, a/t, am/fm, $1,500. Ext. 3698.

83 PLYMOUTH RELIANT - station wagon, 55k mi., s/t, trailer hitch, am/fm radio, excel. cond., asking $2,200. W. Morse. Ext. 3859.

82 VW RABBIT - 4-dr., 4-spd., am/fm, runs well, good transportation. Ext. 3852.

82 DATSUN 310 - 2-dr., hatchback, 4-spd., am/fm, good cond., best offer over $1,200. Mark, 941-3612.

82 HONDA WAGON - 5-spd., am/fm cass., 92k mi., well-maintained, $1,995. John, Ext. 7726.

81 PLYMOUTH RELIANT - 4-dr., white, a/t, a/c, am/fm, 81k mi., $1,300 neg. Robin, Ext. 2420.

81 BUICK SKYLARK - 6-cyl., grey, 4-dr., runs well, 77k mi., a/c, p/s, p/b, $2,075. Betty, Ext. 4536.

80 TOYOTA TERCEL - a/c, 5-spd., 2-dr., hatchback, very good cond., $1,000. Ext. 5716.

80 MONTE CARLO - V-6, 2-dr., a/t, p/s, p/b, a/c, need work, best offer. Ext. 2498 or 472-9349.

80 OLDS OMEGA - 4-cyl., 2-dr., p/s, p/b, a/c, am/fm cass., 4-spd., new battery, radiator, tuned, excel. cond., $1,400 neg. Franz, Ext. 7103.

79 TOYOTA CELICA GT - 5-spd., a/c, sunroof, am/fm stereo cass., good cond., $1,500. 277-2067 after 6 p.m.

79 PONTIAC GRAND PRIX - V-6, a/t, p/s, p/b, am/fm cass., $975 neg. 474-1243.

78 CAMARO LT - 350, a/t, p/s, p/b, light blue, runs well, body fair, $1,500. Sharon, 722-4944 eves.

78 TRANS AM - 6.6L, rebuilt T-10, 4-spd., new Hays clutch, rear leaf springs, p/s, p/b, am/fm cass., $2,000. Tom, Ext. 3965.

78 DATSUN 280Z - light blue, 5-spd., am/fm cass., a/c, sunroof, new eng., differential, tires, custom wheels & batt., mint cond., $3,900. Sue, Ext. 4931.

77 CHEVY - 9 passenger station wagon, a/c, a/t, p/s, p/b, excel. cond., class 1 hitch, trans. cooler, air shocks, $1,100. Harry, Ext. 5248 or 744-2715.

MOTORCYCLES - 76 Honda CB360, good cond., needs electrical work; 60's Bridgestone, 200cc, good shape, will run, $200 for both. Chris, 751-2655.

75 VOLKS CAMPER - new motor, 2-barrel carb., clutch, sleeps 6, ice box, sink, am/fm, 18-20 mpg, $1,500. Dan, Ext. 7518 or 929-3195.

74 INTERNATIONAL TRAVELALL - rebuilt engine, new clutch & brakes, $1,250 or best offer. John, 286-1829.

81 FORD MUSTANG - 4-spd., gauge pkge., new clutch, 71k mi., good cond., $1,600. 744-9812 after 5 p.m.

81 PLYMOUTH RELIANT K - 4-dr., a/t, a/c, am/fm, rebuilt transmission, 81k mi., $1,400 neg. John, Ext. 2931.

80 MERCURY ZEPHYR - 2-dr., 4-cyl., 4-spd., good cond., $525 neg. 744-4386.

80 VW DASHER WAGON - new tires, clutch, muffler, excel body, 100k mi., must sell, $800 neg. Mike, Ext. 7892 or 3111 eves.

80 VW RABBIT - diesel, new tires, new battery, a/c, 88k mi., $400. 744-2461 after 6 p.m.

80 BUICK SKYLARK - V-6, 2-dr., 76k mi., blue, good cond., $1,300 neg. Ext. 3851.

79 DATSUN 210 - h.b., 5-spd., runs well, reliable, body poor. 924-7476.

79 DODGE SPORT VAN - needs engine work, make offer. Ext. 3064.

79 SUBURBAN - 4wd, 9-pass., p/s, p/b, trailer pkge., class III hitch, front & rear air, am/fm cass., excel. mech. cond. Pete, Ext. 3868 or 878-1225.

78 OLDS OMEGA - V-6, a/t, p/s, p/b, am/fm, new brakes & air shocks, $550; 1986 Honda Spree Scooter 300. 732-1916 or 732-1913.

77 PLYMOUTH VOLARE - 4-dr. sedan, p/s, p/b, a/c, good mech. cond. Peter, Ext. 4982.

77 COUGAR WAGON - cb, am/fm radio, rebuilt trans., good cond., body excel., $600. Joe, Ext. 2384 or 924-8558.

77 HONDA CIVIC - orig. owner, many extra parts, neg.; 1971 Chevy Van, runs well, V-8, 350 cu. engine, best offer. Joe, Ext. 7507 or 744-3729 after 6 p.m.

75 MERCURY - 4-dr., good body, new engine, radiator, shocks, not running, $400 neg. J. Biemer, Ext. 4028.

74 JEEP J-10 - cap, 7' plow, Meyers, new electro-touch unit, needs trans., $1,000. Pete, 399-2813 after 5 p.m.

74 PLYMOUTH DUSTER - 6-cyl., 2-dr., a/t, p/s, runs, $300. Ext. 2104 or 928-3863.

74 PLYMOUTH DUSTER - front grill, hood, trunk lid; 1977 Volare hood, good cond., best offers. Roger, 824-8213.

73 DODGE DART - 6-cyl., 2-dr., a/t, p/s, runs well, body good, $400 neg. 363-6753 after 6 p.m.

73 CADILLAC SEDAN - d'Elegance, good cond., $900; 1973 VW station wagon, body fair, engine great, new battery, $800. Schoener, 878-1584.

72 VW GHIA - canary, yellow/black, leather interior, mint cond., $2,500. Earle, Ext. 4308.

70 CHEVY MALIBU - V-8, runs well, $500; car-top carrier, canvas, like new, $30. Vinnie, Ext. 2483.

67 MUSTANG - good for parts, make offer. 584-6002.

WINNEBAGO MOTOR HOME - diesel, sleeps 4, mint cond., low mileage, must sell. 286-0237.

SUZUKI QUADRUNNER - excel. cond., low mileage, many extras. 878-6074 eves.

SKI RACK - Barecrafter, holds 4 skis, made for CJ-7 rear tire, w/lock, $70. 744-7549.

KX125 DIRT BIKE - 1988, excel. cond., must see, $1,500. Ext. 4904 or 929-4753 eves.

64 SS BOX NOVA 350 - worked tranny, m/t, $1,500 neg. Brenda, 366-1860.

48 CHEVY - needs flatbed, asking $300. Keith, 474-3863.

FORD 302 MOTOR - low mi., $400 neg. Wayne, Ext. 3499.

SNOW TIRES - 2, F78-14, w/rims, new, $40 for 2. 878-6637.

ENGINES - Buick 455 engine, good, $200; Chrysler 440 engine, good cond., $200 w/car. Harry, Ext. 3783.

TIRES - 4, Goodyear Wrangler St Lt 215/85R16 on Dodge rims, like new, $200. Ext. 4312.

FIBERGLASS CAP - for 8' pickup body. 289-4198.

Boats & Marine Supplies

22' SPORTCRAFT - 1987, cuddy, 225 Evin. o/b, LCD-FF, VHF, CG package, mint cond., 87 trailer, E-Z Loader Tandem, $20,500. 744-7549.

17½' LARON - 1970, Tri-hull Bowrider, late model, Cox galvanized trailer, 60 h.p. Johnson needs work, extras, asking $800. 681-6292.

13½' BOSTON WHALER - 1970, 18 h.p. Evinrude, runs, like new, $1,250. Ext. 4030 or 878-2484.

Furnishings & Appliances

SOFAS - 2; 1 chair, $60 for all. 751-4539.

EASY CHAIR - traditional-style, subdued multi-color plaid, good cond., $50. 345-3170 after 6 p.m. & wknds.

SOFA & LOVESEAT - lamps, tables, desk, dresser, & asst. misc. items. 821-3938 eves.

FURNITURE - couch, loveseat, chair, $75. 399-3712.

CAPTAIN'S BED - twin, on 4 drawers, 2 cabinets, 2 bookcases, closet, solid oak, stained walnut. Jack, Ext. 4447 or 744-3919 after 5 p.m.

CHAIRS - contour, 2 steel frame, padded fabric, brown, $20 ea.; large microwave oven, Sears Kenmore, 4 yrs. old, $50. 698-1740 after 5 p.m.

DINETTE - w/4 chairs, $65; couch, 2 arm chairs, cream, $200 neg.; girl's capt. bed mattress, $100. Joyce, Ext. 4215 or 369-2849.

DINING SET - pine, 60" round table, w/2 leaves, 6 chairs, hutch, dry sink, excel. cond., $1,500. 744-1110.

FREEZER - United, perfect, running, $200. Jack, Ext. 5565.

KITCHEN TABLE - formica, 4 chairs, $30; 26" Zenith color TV, remote, $35. Jerry, Ext. 3711.

WALL UNIT - 67"wx71"h, w/doors & drawers, $25; table w/formica top, 40"wx25"d, $5. Ext. 7505.

MICROWAVE - Tappan, full-size, $150; vacuum cleaner, 3.2 hp, Kenmore, $125; wire closet organizer, 5' to 8' wide, $25. 929-3987 eves.

TABLE - pine, dining rm. drop-leaf, 4' long. 589-0625.

PORTABLE WARDROBE - w/shoe rack, 35" wide, $35; microwave cart, assembled, good as new, $35; air bed, regular size, $20. Chris, Ext. 2907.

MICROWAVE OVEN - Sears Kenmore, countertop model, $65. John, 286-1829.

WALL UNIT - 67"w x 71"h, w/doors & drawers, $20; 40"w x 25"d table, expandable, w/Formica top, $5. Ext. 7505.

GRANDFATHER CLOCK - triple chime movement, moving moon dial, $400. Joe, beeper 925 or 728-1859.

SOFA - good cond., $25. 727-6607.

MATCHING LOVESEATS - camelback style, tan velvet, excel. cond., $150 for both. 286-3357.

DINING SET - large, table, w/6 chairs, 6 months old, excel. cond., $175 or best offer. Donna, Ext. 4764.

HI-RISE FRAME - two bolsters, cover, needs mattress, $25. 289-0687.

TABLE - w/leaves; end tables; fold. chairs; hang. & floor lamps, 4-7' curtains; stoneware; flatware; cook. supplies, $5-$55 each. 929-3987 eves.

COMFORTER - twin-size, maroon/brown/beige print, never used, orig. $60, sell for $25. Pat, Ext. 2452.

REFRIGERATOR - Hotpoint, 22 cu. ft., harvest gold, excel. cond., 10 years old, freezer on top, $150 or best offer. Harry, Ext. 5248 or 744-2715.

CONVECTION OVEN - Farberware, used, works very well, $35. 727-3830.

MAPLE TABLE - 48" round, w/2 leaves & 4 chairs, $75. 584-6002.

DINING ROOM SET - honey pine, oval, 2 leaves & 4 chairs, china closet, excel. cond., $550. Ext. 4262.

WASHING MACHINE - Sears, top load, 12 lb., white, fair cond., $25; kitchen table, 6 chairs, extra leaf, good cond., $60. Ernie, Ext. 3357.

Tools, House & Garden

PAINT - Interlux Polythane gloss, 2 quarts, white, both for the price of one, $30. Ext. 2525.

LP GAS HEATER - 100,000 Btu, $120. 584-6002.

FIREWOOD - seasoned oak, full cord, delivered, $130. 732-2849.

STEPLADDER - aluminum, 8', like new, $40; 2 Honda CRX wheels, new, $20/each; 2 wooden saw-horses, new, $20. 924-3082.

GLASS SLIDING DOOR - thermal pane, 3 panels, 12' wide, $200. 722-3338.

BRAKE - 6', box, pan, finger, new, $2,500. John, 286-1829.

Sports, Hobbies & Pets

SKIS - 160, w/size 9 boots & poles, used one season, asking $125. Doris, Ext. 4669.

SKI BOOTS - made in Germany, size 5W, $30. Ext. 3926.

GOLF CLUBS - Sure Flite, 5-irons, 3-woods, bag, $25; dirt-bike tire, brand-new, 100cc, $15; antique tables, 1 oak, 1 mahogany. 924-3082.

ICE SKATES - boy's size 5, excel. cond., $20. Bill, Ext. 7961.

BICYCLE - boy's, 20", good cond., $30; 10 lb. beginner's bowling ball, $10. A. Feldman, Ext. 3264.

BICYCLE - Peugeot, men's, 10-spd. racer, excel. cond., new fittings, 27½" frame, $100. Alastair or Gill, Ext. 5508 or 821-0745.

COLLECTOR'S PLATES - certified Rockwell, Rediscovered Women; Christmas; Light; Heritage; Knowles; others, below quote. 669-5181.

STAMPS - first day issue w/gold leaf replicas, in two handsome albums. Ext. 3846/4493 or 286-7561.

TRAINS - "N" gauge, 3 engines, assorted cars, 65' track, 2 power packs, switches, crossovers, houses, trees, etc., $150. Bob, Ext. 4782.

HO TRAINS - complete outfit, scenery, misc. extras, great starter set, $60 firm. Ext. 2007 or 751-1474 eves.

CAMERA - Canon Sure Shot 35mm, model AF35M SE, w/case, built-in flash, $60. 584-5244.

HANG GLIDER - Quicksilver B, monoplane, $200. John, 286-1829.

BANJO - used, 5-string, good cond. 473-2473.

VIOLIN - 1981, Pickering, excel. sound, excel. cond., $2,500; 1935 Heberlein violin, $900. 744-3744.

DRUMS - Ludwig, blue, bass, snare, tom, cymbal, pedal, excel. cond., $125. 399-0537 after 5 p.m.

CLARINET - Buffet R-13, B-flat, excel. cond., $650. Ext. 4914 or 821-4179.

PIANO - Lester Betsy Ross spinet, light finish, good cond., $700. Tony, Ext. 3658.

ORGAN - double keyboard w/rhythm section & strummer, bench. Ext. 2625 or 467-8297.

KEYBOARD - Carlo-Robelli, w/stand & carrying case, like new, $75. Ext. 2050.

Audio, Video & Computer

COLOR TV - RCA, 25", $125. Ext. 2888 or 286-0422 eves.

COLOR TV - Sharp, 13", remote control, $150. Wen, Ext. 3206.

CAMCORDER - Sony, 8mm, excel. cond., w/accessories, records & plays, compatible w/any video system, $700. Paul, 727-4859.

VCR - Rabbit, multiplying system, model TR7000, $35. 727-3830.

SOFTWARE FOR ATARI ST - 107 disks, w/PC board designer & 5 books w/tips, $200. Glenn, Ext. 5439.

CAMCORDER - G.E., case, car cord, extra battery, 10 Lux, zoom, auto focus, full size VHS. Jud Davis, 473-0495.

COMPUTER - IBM PC Jr., extended memory, 640k, 16 color monitor, 2 joysticks, compact printer, $800. 751-1474 eves.

Miscellaneous

CHILDREN'S ROCKER - Hobbie Rocker, 2-2½ years old, 28 lbs. max weight, $55. Hank, Ext. 7828.

STROLLERS - Gerry Double Umbrella, like new, $100; Cosmos single folding stroller, good cond., $75. Mark, Ext. 5350.

HANGING CHAIR - wood & macrame, very confortable, $40; Sun-shower, 5 gallon, for boat & camping, $30. Janet, Ext. 4049.

WEDDING GOWN - w/veil, size 7, designer original, needs cleaning, orig. $500, sell for $150. 821-0695.

CHAIN - 14k gold, V-herringbone, fancy cut, 16" long, $50. Elaine, Ext. 5329.

ANTIQUE TREADLE SEWING MACHINE - in cabinet, needs belts, $49.99 or best offer. J. Hansen, Ext. 4030.

HOLIDAY GIFTS - from Southeast Asia, jewelry, scarves, batik, more. Corinne, Ext. 4493 or 286-7561.

MEN'S TRENCH COAT - Botany 500, size 36R, lined, tan, double-breasted, worn once, $25. Joyce, Ext. 3801.

WOODEN STAIRCASE - new, 90° winding, left turn, 5-steps, 40" total height, best offer. 475-1844.

CHRISTMAS CRECHE - 3-piece, reasonable. 475-4394.

COPIER - Sharp SFY-347, does everything, excel. cond., must sell, orig. $1,300, sell for $500. 226-1828 after 5 p.m.

CHRISTMAS TREE - Mt. King, 7', 3 years old, $50. 399-3401 after 5 p.m..

Free

DOGS - male & female, need good homes before winter, good with children. 727-7370.

TREE HOUSE - ruggedly built, shingled roof, 2 windows, 9' triangle floor, take down & away. Ext. 2833.

KITTEN - adorable, fluffy, stray, 6-month-old, extremely friendly, needs good home before winter. 399-3910.

Car Pool

BELLPORT/EAST PATCHOGUE - driver needed. Fritz, Ext. 2348 or 286-8521.

Lost & Found

LOST - Oranda women's watch, Swiss made, gold color, black dial, lost 10/3. Sam, Ext. 3631.

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

BAYPORT - large studio apt., upstairs, furn., carpet, private ent., single, non-smoker, no pets, $495/mo. incl. util., 1 mo sec., avail. 1/89. 472-1734, 10 a.m.-8 p.m.

BELLPORT - 3-bdrms., 3-baths, kitchen, d/r, l/r, study, f/p, furn., beautiful, avail. 2/89 - 2/90. Rau, Ext. 3864.

CORAM - Bretton Woods condo, 2-bdrm., 2-bath, l/r, d/r, eik, w/w, cac, 5 appl., golf, tennis, I/O pool, clubhouse, no pets, $875 + util., 1 mo. security. 289-0413.

EAST SETAUKET - furnished room, private bath & entrance, clean, quiet, good for one professional only. Josie, 689-9234.

NORTH SHIRLEY - 1 large bdrm. apt, new, full bath, large l/r-kitchen combo, cable, $625/mo. all. 395-9112 eves.

RIDGE - 1-bdrm. apt., new, bath, l/r, kitchen, dining area, private ent., 5 min to Lab, single/couple, no pets, $600/mo. incl. util. Ext. 5076 or 744-4615.

RIDGE - 3-bdrm. ranch, eik, l/r, d/r, attached garage, full bsmt., 2 acres, f/p, 5 min. to Lab, $900/mo. + util. Ext. 4606 or 654-5049 after 5:30 p.m.

ROCKY POINT - 2-bdrm. house, avail. Jan. - May, $750/mo. incl. all except heat. 821-0379.

HILTON HEAD, SC - 2-bdrm. condo, sleeps 6, tennis, golf, beach, pool, November special $350/wk. 585-9149.

For Sale

FLANDERS - 2-bdrm. ranch, 20x40 in-ground pool, new carpet, security system, full bsmt., prof. landscaped, 1+ acre, eik, 14x22 porch, 16x34 deck, 2-car garage, 20 min to Lab. Audrey, Ext. 5382.

RIDGE - Leisure Village condo, 2-bdrm., large, light, airy. Jack, Ext. 4447 or 744-3919 after 5 p.m.

NORTH SHIRLEY - immac. 3-bdrm., 2-bath Cape/-Colonial, l/r, d/r, like new, low taxes, $119,900. Mark, Ext. 4289.

NORTH SHIRLEY - 4-bdrm. high-ranch, 2 baths, eik, 5 rooms, garage, patio, shed, attic, ½ acre, poss. M/D, 5 min to Lab, appl., $143,900. Mike, Ext. 4605 or 395-5991, leave message.

WADING RIVER - 4-bdrm., 3½-bath, country kitchen, l/r, d/r, f/p, oak floors, rec. rm., full bsmt., 2-car gar., 2 decks, inground pool, wooded 1¼ acres, many extras, $235,000. 929-6179.

WEST SAYVILLE - 4-bdrm. high-ranch, 8 rooms, eik, l/r, d/r, 1½ baths, 2-car garage, a/c, ¼ acre, Sayville S.D., avail. immed., $173,000. Meade, Ext. 3452 or 499-8816.

ORLANDO, FL - double-wide mobile home, 3-bdrm., 2-bath, l/r, fam. rm., screened porch, shed, carport, landscaped, 20 min. from Disney World, $21,000. 929-6179 or 407-275-7951.

BOLTON LANDING, LAKE GEORGE - 6-bdrm. house, partly furn., 4 acres w/stream, 2-car garage, full bsmt., near Gore mountain, West mountain, will rent also. Barbara, 821-3729.

HILTON HEAD, SC - 3-bdrm. condo, sleeps 8, 2 baths, w/d, wet bar, 6 tennis courts, 3 pools, whirlpool, golf, ocean view, asking $85,000, will rent. 929-8912.

Wanted

REFRIGERATOR - table-top. John, Ext. 7671.

TRAINS - Lionel, American Flyer, accessories, any cond., brings good price. Carole, Ext. 7100 or 924-4097 eves.

ROOMMATE - to share 2-bdrm. house in Sound Beach, f/p, 15 min to Lab, $825/mo., incl. heat, view of LI Sound. Boris, Ext. 2251/5505.

RIDERS - for train trip from Patchogue to New York City, Dec. 28, leaving 7:55 a.m., $6.50 round trip. Rob, Ext. 4317 or 289-8167 after 6 p.m.

LENS - Leica, 90mm, for M-3 camera. 589-1185 after 6 p.m.

ROTTWIELER PUPPY - needed before Christmas, reasonable price, papers are a plus if available. Marysa, Ext. 4756.

DECOYS - ducks, geese, reasonable shape & price. Dan, Ext. 7518.

AQUARIUM - 20-gallon, low-profile tank w/light & hood. Ron Yuhas, Ext. 4113.

CHINA CLOSET - Oriental style. Bert. Ext. 5156.

In Appreciation

The Olenick family expresses our deep appreciation for the support and prayers offered for my late mother-in-law. Thank you.

— Muriel Olenick

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