BROOKHAVEN BULLETIN
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BROOKHAVEN NATIONAL LABORATORY

Spotlight on NSLS Research

Protein Crystallography

Scorpions are feared for the deadly poison in their stings. Why is their toxin poisonous? The answer surely lies in the three-dimensional atomic structure of the protein toxin. The study of the crystalline structure of scorpion, snake, sea anemone and diptheria toxins are some of the projects that are being pursued on beam line X-12C of the National Synchrotron Light Source (NSLS). At this beam line, a protein crystallography station has been developed by the Center for Structural Biology of the Biology Department and by the Beam Line Research & Development Section of the NSLS.

In addition to the toxins, the projects being carried out at the protein crystallography station concern other protein molecules, mostly enzymes involved in gene expression and other processes. "Using X-12C we are able to produce diffraction data from crystals that would not yield anything before," says Biologist Robert Sweet, who, with Biology Associate Paul Levin, developed the experimental station at the X-12C beam line and assists visiting scientists. "In most cases, the high intensity x-rays from the NSLS ring provide substantially better diffraction data than the visitors can measure at home."

The Center for Structural Biology is responsible for the Biology Department's instrumentation at the NSLS. In addition to the protein crystallography station at X-12C, the Center has one station for biological spectroscopy at the U-9 beam line on the ultraviolet ring and another station on the x-ray ring, X-12B, for small angle x-ray scattering.

Since October, seven research groups from universities and other national laboratories have visited X-12C. Six of these spent their time testing crystals to gauge their potential usefulness; they will return with better specimens to collect data. However, the group studying scorpion toxin returned home to the University of Alabama at Birmingham with excellent, high resolution data.

In addition to assisting the visitors, Sweet and Levin have measured high resolution data from crystals of an immunoglobulin provided by crystallographers from Argonne National Laboratory. With Assistant Biophysicist Steven White and Biologist John Dunn of Biology, they also have investigated newly prepared crystals of the enzyme RNA polymerase.

Mort Rosen

At NSLS beam line X-12C, Robert Sweet (left) and Paul Levin adjust a rotation camera used in the data collection process in protein crystallography.

According to Sweet, there are two good reasons why protein crystallographers would like to use the X-12C beam line. One is that specimens, such as the toxins and immunoglobin, that give adequate results when conventional x-ray sources are used produce spectacular results at a synchrotron light source. "The other reason is we can sometimes turn dross into gold," says Sweet. In other words, crystals, like RNA polymerase, that are too small or not well ordered and show no diffraction when exposed to a laboratory source yield results at X-12C.

Diffraction occurs when light waves, such as x-rays, scatter from a three-dimensional array of molecules in a crystal to produce a pattern of bright spots on a detector or a piece of film. The diffracted x-rays appear as spots because they constructively interfere as they scatter from the regularly repeating units that make up the crystal.

A crystal will produce sharp, bright diffraction spots only if the molecules within it are arranged in a perfectly spaced, repeating pattern. Often, protein molecules will not crystallize so neatly. When the crystalline order is not perfect or when the crystals are small, a usable diffraction pattern can be produced by exposing the crystal to an intense beam, one focusing many x-ray photons into a small volume, like the one produced by the NSLS x-ray synchrotron.

Because the NSLS x-ray ring produces an intense photon beam, protein crystals can be exposed for shorter times while yielding better data than can be obtained from a conventional source. Even using low intensity sources, long exposure to x-rays damages protein crystals. Therefore, more diffraction data can be obtained using a high-intensity synchrotron light source than a conventional source.

Another useful feature of the Center's beam line is that the x-rays are nearly parallel to one another when they strike a sample. This finely collimated beam, produced by x-ray optical elements developed by Jerry Hastings and the NSLS Beam Line R&D Section, can provide resolution of diffraction points from very small crystals or from crystals of very large units, such as of complete viruses.

During this year, visiting scientists will begin rapid diffraction experiments designed to determine the structure of transient intermediate compounds during reactions involving enzymes. In addition, Sweet and Benno Schoenborn, head of the Center for Structural Biology, are collaborating with Instrumentation Division Head Veljko Radeka and Associate Physicist Graham Smith of Instrumentation on the development of a fast multi-wire area x-ray detector for protein crystallography with synchrotron radiation. When the detector is completed in about two years, experimenters using X-12C will be able to carry out even more rapid structure determination. — Marsha Belford

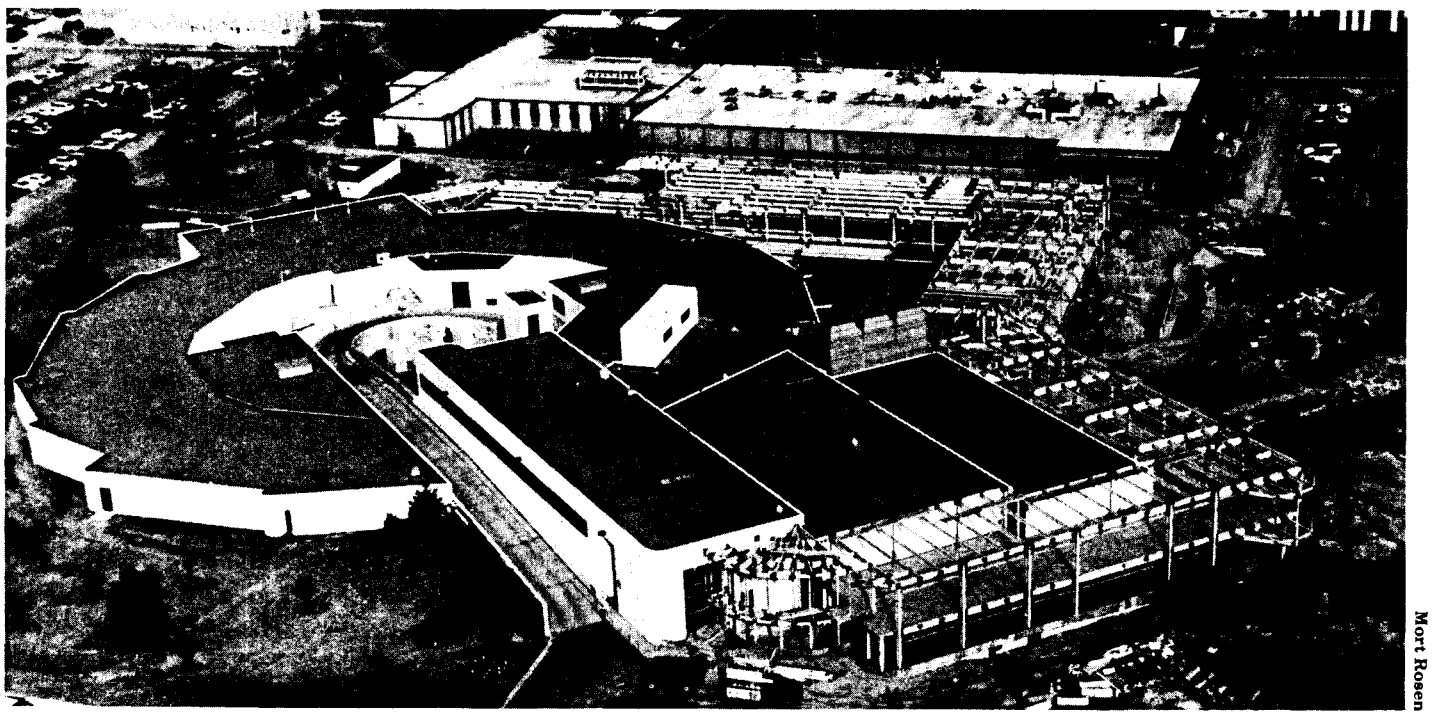
Science Tech '86

About 40 Nassau and Suffolk County science teachers attended talks at the Lab last Saturday as part of Long Island Science Tech '86, a two-day meeting co-sponsored by BNL's Office of Research & Technology Applications (ORTA) and the Science Museum of Long Island, Sands Point.

In accordance with the theme "Understanding New Developments in Technology," William Higinbotham, DNE, delivered the talk "The Electronic Revolution;" William Marcuse, head of the ORTA talked about "Identifying Problems in Transferring Technology;" and Jack Fontana, DAS, spoke about "Polymer Concrete: A Long Island Invention with Universal Applications."

Coming Up

Oceanographer Gilbert Rowe, Department of Applied Science, will discuss "Life and Death on the Continental Shelf," in the next Brookhaven Lecture. His talk will be given at 4:30 p.m., Wednesday, March 19, in Berkner Hall.



Mort Rosen

Bird's-Eye View of Phase II

This aerial view of the National Synchrotron Light Source (NSLS), taken from a helicopter, shows the extent of the ongoing construction work that's part of Phase II. About 52,000 square feet of two-story space is being added to the original facility.

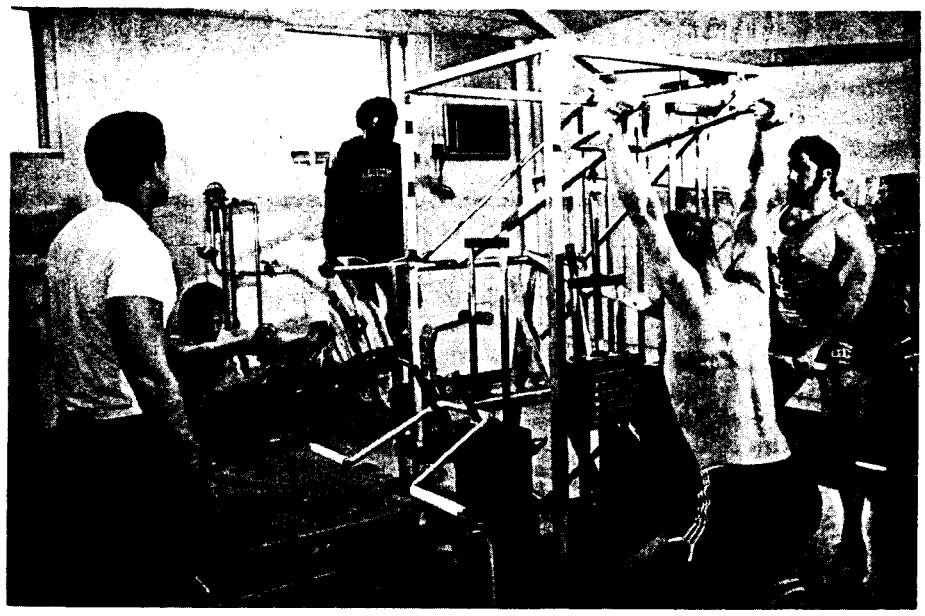
The first floor addition, almost 29,000 square feet, will expand the experimental floor on two sides (pointing right) of the vacuum ultravioltet ring and around the northeast quadrant (upper right) of the x-ray ring. Extended beam lines, an experimental support area and a number of laboratories will be accommodated. The second floor addition will add about 23,000 square feet, to provide office and work space for the NSLS staff, which is now spread out in several buildings around the Lab site.

Not visible in the picture is a tunnel being built to connect the Light Source with the basement of Bldg. 535 (top). Already housed in 535 are various technical shops, a clean room and a metrology laboratory.

While the NSLS lobby is being expanded to include a two-story curved glass wall (bottom), a temporary entrance has been put in around the corner, on the left side of the building.

Space is still needed for the nearly 300 users of the more than 80 beam lines of the Light Source. Already proposed is an office and laboratory building, to be built on the spot formerly occupied by the firehouse (far right).

(From left) Elliott Levitt, Bill Rabitan and Bob Callister spot John Rubino.



(From left) Bruce Penn, Luis Aguilar, Mac Thomas and Bob LeRoy.

No Pain, No Gain

The weight room in the gymnasium is like a medieval dungeon: a stronghold of muscle, brute force and instruments of torture designed to break down even strong men and make them cry out in pain. Weight lifting and body building demand excruciating pain — and "no pain, no gain" is the motto of the recently reorganized BNL Exercise Club.

The pain in pumping iron is nothing that anyone with determination to be bigger, stronger or more beautiful can't take. You cannot be strong-armed into lifting weights up and down until you can't pick them up even once more — you have to want to do it. And if you do want to metamorphose into a more muscular being, to look good on muscle beach or to become stronger for another sport, you can join the Exercise Club and its 56 members in the weight room.

The Exercise Club was revived by John Rubino, its newly elected president; vice president Bill Rabatin; treasure Elliott Levitt; Mel Bonanno; and Rich Scheidet, because, says Scheidet, "We want to offer a more organized program and systematic approach to weight training, especially for those who want to start lifting, but don't know what to do or are intimidated by those who do." Dues are $10 per year, which includes the cost of a BNL Exercise Club tee shirt, and can be paid to Elliott Levitt, AUI, Bldg. 134A, Ext. 2495.

In addition, the club is interested in obtaining new weight-lifting apparatus and maintaining the present equipment, which includes a seven-station Universal Gym machine and 600 pounds of free weights, many of them donated by club members.

While they do not meet formally, members can be seen pulling on a barbell or pushing on a weight machine station weekdays between 11 a.m. and 2 p.m,. and from 5 to 9:30 p.m. when an attendant is on-duty; on Saturday, they can lift from 10 a.m. to 6 p.m., if an attendant is there. They also can be heard grunting and groaning as they struggle to lift an added weight just one more time. And they can be heard encouraging one another to be strong: to endure and go beyond the pain, for the reward is a blood-inflated "pump" for the muscle and a beta-endorphin ecstasy for the brain.

"Training with weights strengthens and tones the body," says Rubino, a former power lifter and health club instructor, "and is done to build your body or to improve athletic performance in other sports." For the latter reason, Rubino began lifting weights; now, his main sport is body building, and he is considering competing in that sport.

Rubino and the other members train regularly, if not every day. Because muscles need 48-hours rest before being worked again, the weight lifters do not exercise the same muscle groups every day. For Rubino, for instance, if it's Monday, it's an arm day; Tuesday, chest; Wednesday, shoulders and back; Thursday, arms again; and Friday is a "max" day, which means Rubino pushes himself to bench press the maximum amount of weight he can. Members spot each other during these workouts to ensure that no one gets pinned under a barbell.

They all exercise their different muscle groups differently. If bulk is desired, a small number of repetitions with heavy weights is performed; if muscle definition is wanted, a larger number of repetitions with light weights is prescribed in combination with a high-protein diet.

While most members are male, the six women in the club work just as hard in the pursuit of strength. "I've been working out at lunchtime four days a week for over a year, and found it has definitely improved my racketball and bowling games," reports Louise Chinn, whose routine calls for fewer repetitions with heavier weights. "Many women don't lift because they have no experience with the equipment and are too shy to ask. But everyone is very friendly and helpful, especially to newcomers."

When new members join the club, they are asked what their goals are. If your goal is not to become Mr. or Ms. Universe, but to develop the muscles used in your favorite sport, a strength-training program tailored to that sport will be outlined for you.

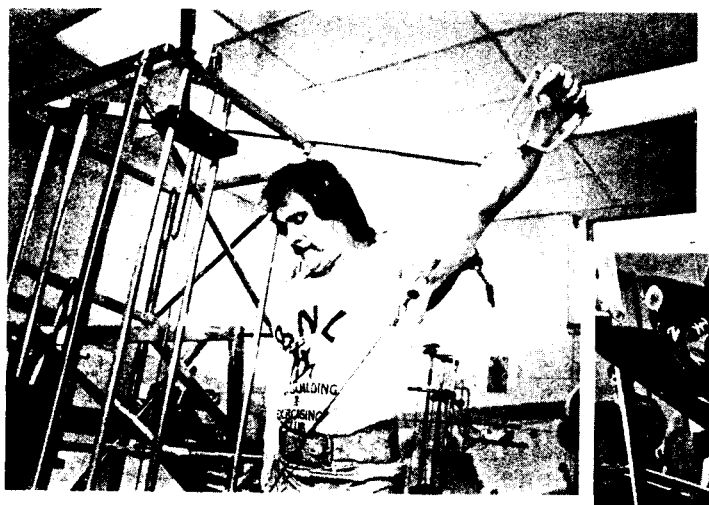
For instance, Rubino recommended five exercises to a member of the Swim Club who wants to improve her arm pull (and who shall go nameless, but whose tired muscles are involved in writing this article). The exercises include three sets each of Universal "pulley curls" to strengthen the biceps, "crossover flys" with dumbbells for the pectoral muscles and Universal "military press" to make the deltoids and triceps stronger.

"I used to belong to a health club, but I found I wasn't going because it was too far away and there wasn't time," admits Chinn. "Because the weight room is on site and there is camaraderie among the club members, I like to lift and get my exercise in at lunch." Concludes Rubino, "Why pay Jack LaLanne $1,000 a year, when for $10 you can join the BNL Exercise Club?" — Marsha Belford

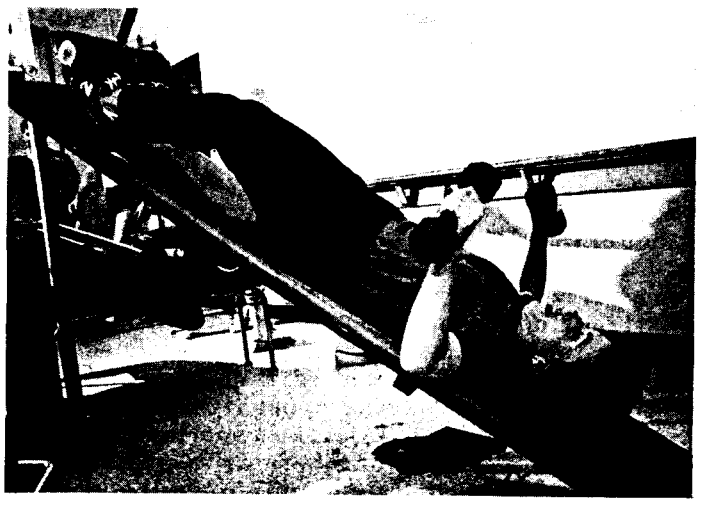
Pooran Singh

— Photos by Mort Rosen

(Left) George Grigg and Bob LeRoy



John Rubino



Judy Ferrero

Mac Thomas

Wine Appreciation

Oenologist Mary Ann Bernero will discuss the science of wine making and appreciation of the fruit of the vine in a talk entitled "Oenology: a Practical Application of Pure Science," on Tuesday, March 11, at 6:15 p.m. in Room C, Berkner Hall. The Laboratory community is invited to this lecture sponsored by Brookhaven Women in Science.

In addition to working in the Division of Biological Sciences at SUNY-Stony Brook, Bernero is an instructor for the "Introduction to Oenology" course and member of the Wine Appreciation faculty at the Union Crafts Center. Those who wish to dine before the lecture will meet at the Cafeteria at 5:15 p.m. and go through the line.

Last Chance For Options

The final night for ordering generator options will be Wednesday, March 12, from 5-7 p.m. in the Snyder Seminar Room, Bldg. 911.

Be sure to pick up order forms ahead of time at the BERA Sales Office in Berkner Hall. Prices and method of payment are specified on the forms. The options are: a muffler, a multi-fuel operation kit, an electric start kit, an extended run oil kit and an auxiliary fuel tank. Still needed are about 40 multi-fuel options to reach the 100 minimum order.

To Your Health

"Coping with Terminal Illness in the Family" will be the topic of the fourth Health Promotion Seminar, on Thursday, March 13, at noon, Room B, Berkner Hall. The speaker is Social Worker Frank Monestaro, from Comprehensive Health Care Services, Smithtown. He specializes in helping the terminally ill and their families cope with dying and death, and has studied with Elisabeth Kubler-Ross, who has greatly influenced the counseling of terminally ill patients.

Arrivals & Departures

Arrivals

Anthony B. Boemio	DAS
Joseph G. Murray	DAS
Kanhiya L. Shukla	DAS
Robert J. Abruzzese	Sfgds/Sec
Jeffrey W. Culver	Sfgds/Sec
Christopher G. DeRubio	Sfgds/Sec
Robert A. Dohrenwend	Sfgds/Sec
Andrew A. Gonzalez	Sfgds/Sec
William C. Horn	Sfgds/Sec
Bruce A. Kavan	Sfgds/Sec
Robert J. Lombardi	Sfgds/Sec
John S. Muller	Sfgds/Sec
Thomas O. O'Shea	Sfgds/Sec
David J. Peter	Sfgds/Sec
Kevin C. Rutkowski	Sfgds/Sec
Reinaldo Santiago	Sfgds/Sec

Departures

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

Thomas Abraham	DNE
Armando Antillon	AGS
Carl A. Christianson	AD
Eleanor C. Dahl	DNE
Michael J. DiGregorio	AD
Harold R. Euler	Pl. Eng.
Helmuth Thorwarth	AGS
Mona M. Vitale	AD

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Comet, 1986

The end of 1985 produced an expected increase in activity at the observatory, with dozens of hopeful visitors stopping by for a glimpse of Comet Halley. By the early part of January, the comet was easily visible in the west and was showing signs of a tail. During the following two months, the comet has been hard to observe because of the relative positions of comet, Earth, sun and moon.

Around March 8, Comet Halley will be much brighter and back in good position for viewing, although at an inconvenient hour for most viewers. During the second two weeks of March, the comet will be a predawn object moving from western Capricornus to eastern Sagittarius. Those wishing to view it during this period, should be at a location with a clear southeast horizon, about two hours before sunrise. The comet should be bright enough to locate without optical aid or finder charts.

During early April it will be closer and much farther south in the sky. At 3:30 a.m. on April 11, it will be on its closest approach to Earth, about two degrees above the south point on the horizon; the tail will extend possibly ten to fifteen degrees to the northwest and may be bright enough to be visible. In the latter part of April and early May, it moves very rapidly west and north and becomes dimmer, although more easily visible from our latitude.

The Astronomical Society will continue to observe the comet during its spring passage through our skies. Lab employees and guests interested in participating may contact Rick Jackimowicz (Bldg. 902, Ext. 3803) to check scheduling. — Robert E. Mills

Astronomical Society

The open observatory night this month is scheduled for tonight, beginning about 6:30 p.m., with next Friday as the rain date. Those wishing to participate should call Bob Mills, Ext. 5043, or Rick Jackimowicz, Ext. 3803, this afternoon.

The Society is now inviting new members to enroll. Dues are $15 per year. Call Mills for more information.

Aerobic Dance

If spring is in the air, can summer be far behind? And if summer is that close, are you in shape for it? You can be, if you sign up for the next ten-week session of aerobic dance and/or stretch classes.

Classes in aerobic dance are held on Tuesdays and Thursdays, and stretch classes are held on Wednesdays. All classes are held after work, from 5:15 to 6:15 p.m. Participants may take any or all of these classes, but the fee for each ten-week session (T, W or Th) is $30, due at registration.

Registration and the first classes for the next session will be held in the North Room of the Brookhaven Center, as follows:

- Aerobic Dance — Thursday, March 20, and Tuesday, March 25.
- Stretch — Wednesday, March 19.

For more information, call Anita Cohen, Ext. 5054, or Bill Leonhardt, Ext. 2378.

Equipment Demo

P-CAD will demonstrate their schematic entry and printed circuit board for computer-aided design on the IBM PC, on Tuesday, March 11, from 1:30 to 4:00 p.m. in Berkner Hall, Room A.

Cafeteria Menu

Week of March 10

Monday, March 10		
Chicken noodle soup	(cup)	.65
	(bowl)	.85
Super deluxe pizza		2.25
Cantonese style pork over rice		2.45
Hot Deli: Pastrami hero		2.45
Tuesday, March 11		
Cream of cauliflower soup	(cup)	.65
	(bowl)	.85
Breast of chicken Italiano w/choice of 1 veg.		2.55
Baked macaroni & cheese w/choice of 1 veg.		2.45
Hot Deli: Roast beef	(bread)	2.35
	(roll)	2.50
Wednesday, March 12		
Minestrone soup	(cup)	.65
	(bowl)	.85
BBQ spareribs w/choice of 1 veg.		2.55
Baked Italian lasagna w/garlic bread		2.45
Hot Deli: 4 oz. steak	(bread)	2.35
	(roll)	2.50
Thursday, March 13		
Beef barley soup	(cup)	.65
	(bowl)	.85
Beef stew w/baking powder biscuits		2.45
Baked fish of the day w/choice of 1 veg.		2.55
Hot Deli: BBQ meatloaf	(bread)	2.25
	(roll)	2.40
Friday, March 14		
Boston clam chowder	(cup)	.65
	(bowl)	.85
Fried clam special — all you can eat w/choice of 1 veg.		2.95
Turkey pot pie w/choice of 1 veg.		2.45
Hot Deli: BBQ beef	(bread)	2.35
	(roll)	2.50

Swim Lessons

Registrations are now being accepted during the hours the pool is open for an eight-lesson swimming course for adults, which is scheduled to begin on Wednesday, March 26, at 5:15 p.m. The course is open to employees and their adult dependents (spouses and children over 18). A fee of $20 will be due at the time of registration. Checks should be made payable to BERA.

Lessons will not be given if a minimum enrollment of twelve is not met.

Rifle & Pistol Club

The next meeting, on Wednesday, March 12, will begin promptly at 5:15 p.m., in room 202 of Bldg. 911B. Number one on the agenda is the new indoor range. For more information, call Otto Jacobi, Ext. 4420.

At the Upton Nursery School

For the Young

Viki Diamond, a children's entertainer, will be singing and entertaining the children this Sunday, March 9, at 1:30 p.m. at the Upton Nursery School located in the Recreation Building. The concert is open to the public and a donation of $2.50 per family is suggested.

This visit can also be used as an opportunity to come and see the school and meet the teachers. Enrollment of three and four-year olds is now open for classes beginning in September. For more information, call Marian Dreimann, 924-6723.

Bowling

The winners of the Scotch Doubles were:
1st place — Karen Vogel, John Hanlon
2nd place — Mary and Jere Austin
Last place — Linda Wasson, Ed Sperry IV

Bowling in the L.I. Industrial Tournament are Jim Morris who rolled a 211, Rich Larsen 209, Ken Riker 200, Ken Asselta and Ed Sperry IV. The BNL team, after the first week, is in 4th place incentive and 5th place scratch, out of a total of 16 teams.

New Zurich Quartet in Concert

The internationally acclaimed New Zurich String Quartet will perform at Berkner Hall on Tuesday, March 11, at 8:30 p.m. Concert goers will be treated to a program featuring Schubert's Death and the Maiden Quartet, D Minor; Haydn's Frog Quartet, D Major, Op. 50, No. 6; and Ravel's Quartet in F Major.

Founded in 1969, the New Zurich String Quartet has become known for its varied repertoire. In addition to the classical literature for string quartet — including the "classic" works of the 20th century —the group has given many world premieres and enjoys performing very new or seldom played compositions.

Proclaimed "an ensemble of world class" by Yehudi Menuhin, the quartet is regularly invited to perform at Mr. Menuhin's festival in Gstaad, Switzerland. They have also appeared at the Jerusalem Spring Festival in Israel, the International Festival in Lucerne and the International June Festival in Zurich.

Tickets for the March 11 concert will be available at the door. Single admission is $9; students and those over 65, $6; and those under 18, $5.

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.

THE VACANCIES LISTED BELOW HAVE BEEN EXEMPTED BY THE DIRECTOR'S OFFICE FROM THE CURRENT FREEZE ON OPEN REQUISITIONS.

OPEN RECRUITMENT - Opportunities for Laboratory employees and outside applicants.

2405. CHEMISTRY ASSOCIATE - Requires BS or MS in Computer Science or equivalent experience to work for the PETT VI Facility. Responsiblities include setting up and overseeing tomographic scan procedures and the subsequent reconstruction of the images. Knowledge of FORTRAN 77 and some familiarity with time-sharing operating systems is required. General familiarity with computer and electronic hardware, simple repair procedures and an interest in biomedical sciences is desirable. Chemistry Department.

2406. PERSONNEL/INFORMATION SECURITY POSITION - Requires bachelor's degree in a pertinent field or equivalent experience and 3-5 years of personnel and information security experience in the application of government security regulations to personnel security programs and the protection of classified documents. Will develop, implement and manage the Personnel Security Clearance and Classified Document Accountability programs and assist in special projects in program security. Requires ability to obtain DOE "Q" clearance. Safeguards and Security Division.

2407. INFORMATION SECURITY POSITION - Requires AAS or equivalent work experience and 2-3 years of information security background in the application of government security regulations and the protection of classified material. Will maintain the Classified Document Accountability and Control System and provide technical assistance in program security projects. Will report to the head of the Personnel/Information Security section. Requires ability to obtain DOE "Q" clearance. Safeguards and Security Division.

2408. SECURITY TRAINING INSTRUCTOR - Requires AAS degree, equivalent military or police experience and significant previous security training and teaching experience. Must have excellent communication skills, both oral and written, and a record which indicates dependability and flexibility. Must be a qualified or qualifiable weapons instructor. Must be willing to work irregular hours and be available for travel. Must be able to obtain DOE "Q" clearance. Safeguards & Security Division.

Autos & Auto Supplies

79 BUICK REGAL - two-tone, 301 V8, p/s, p/b, a/t, a/c, stereo, sport wheels, high mi., excel. cond., $2,100. 924-3928 after 6 p.m. Leo, Ext. 4615.

74 CAPRI - 4 spd., 2000cc, reb. eng., brown metallic, $700. 585-2563 eves.

79 OLDS DELTA 88 - p/s, p/b, stereo, new tires, brakes, c/c, $3,500. Ray, 289-0883.

78 CHEVY EL CAMINO - 350, a/t, p/s, p/b, new tires, very clean, $2,500. 744-9776.

81 CAMARO - V6, a/t, p/s, p/b, t-tops, am/fm stereo cass., excel. cond., 32k mi. Ext. 4962.

78 OLDS CUTLASS SALON - 75k mi., V8, am/fm cass., good cond., $2,300. 399-4561 after 6 p.m.

70 DODGE DART - engine runs, for parts only, $125. 924-8213 after 6 p.m.

PIONEER STEREO - am/fm cass., $100. Ext. 2752 or 751-6571.

78 CADILLAC - Fleetwood Brougham, like new. $3,995. 475-4596.

TIRES - (2) snow w/studs & rims, to mount on GM car, H-78-15, $25/pair. Ext. 4309.

74 DATSUN 610 - new radials, gen., batt., coil & wires, 4 spd., $650. Ext. 5288 or 878-8177.

77 CHEVY CAPRICE CLASSIC - 4 dr. sedan, tan, body/int. excel., needs cam. Ext. 3605 or 736-5316.

67 CHRYSLER - convertible, new top, p/s, p/b, p/w, a/t, 383 V8. Tony, 698-9274.

76 CHEVY LUV TRUCK - 40k mi., tool boxes, new exhaust, new clutch, am/fm cass. 563-2751.

73 CAPRI - 2000cc, good motor & body, bad brakes & steering, $150. Ext. 7603 or 821-0754.

65 CHEVY II - good for parts, low mi., make offer. Paul, Ext. 4212 or 732-0981.

81 DODGE 024 - sunroof, am/fm stereo, 30 mpg, sport pack., a/t, f/w/d, c/c, excel. cond., 74k mi. 878-6274 after 6 p.m.

69 CHEVY PICKUP - C10, $900. 878-4498.

CHEVY RIMS - 15", 5-bolt. Jay, Ext. 4994.

74 CHEVELLE MALIBU - a/t, p/s, p/b, a/c, good cond., $350. Chris, Ext. 4185 or 698-9116.

76 AMC HORNET - h/b, a/t, p/b, p/s, snow tires, good cond., 6 cyl. 589-5980.

81 CHEVY CITATION - 4 spd., 4 dr. sedan, h/b, new clutch, $2,450; '81 Mercury Lynx, 4 spd., excel. running & int., $1,850. 724-7354.

RIMS - great for snow tires, 14" for Chrysler, Plymouth, Dodge, also 15" for Ford, $10 ea. Frank, Ext. 4584 or 277-0464.

70 BUICK SKYLARK - 46k mi., new tires, mint int., runs great, $1,800 neg. Scott, Ext. 4584 or 727-1429 after 5 p.m.

71 TORINO - 70k mi., 302 V8, $350. Steve, Ext. 4008 or 821-0686.

82 MAZDA 626 - luxury 2 dr. sedan, mint cond., 29k mi., mag wheels, p/s, p/b, am/fm cass., a/c, 5 spd., $6,000 firm. Ext. 3007 or 924-9041 eves.

79 MERCURY ZEPHYR - 6 cyl., a/t, a/c, excel. in/out, needs eng. work, $1,300. Mike, 669-9482 eves.

83 PLYMOUTH HORIZON - p/b, p/s, 4 spd., 35 mpg, excel. cond., $4,500. Jon, 689-8740.

83 DATSUN 200SX COUPE - 5 spd., am/fm stereo cassette, excel. cond., $6,300. 325-0567.

74 JEEP WAGONEER - 360 V-8, a/t, quadtrac w/low range, eng. perfect, $1,800 firm. 924-4541.

76 HONDA CIVIC - good running cond., 74k mi., body fair, $750. 744-5096.

VW HATCHBACK - good cond., low price. 475-2028 after 7 p.m.

75 CHEVY MONZA - 2 dr., a/t, 86k mi., h/b, sunroof, snow tires, good cond., reb. eng., many new parts, $580. Ext. 3187/2823.

78 OLDS CUTLASS SUPREME - very low mi. 475-2028 after 7 p.m.

68 FORD WAGON - runs well, $400. Ext. 4312.

85 TOYOTA CELICA GT - liftback, black/grey, sunroof, digital package, 5 spd., cruise, $11,000. Scott, 661-3777.

AUTO RAMPS - new, 3250 lb capacity, $15. Niels, Ext. 7749/4613.

77 OLDS CUTLASS - 2 dr., bucket seats, console, a/t, ps, p/b, 72k mi., no problems, $2,000 firm. 286-1214.

77 TOYOTA CELICA GT - h/b, good cond., KYB gas shocks and struts, louver, Pirelli tires, maintained. Ext. 3571.

81 CAMARO - 29,800 mi., 6 cyl., a/t, a/c, new tires, alternator, battery, excel. cond., $5,200. 585-9149.

74 DUSTER - a/t, p/s, new starter, snow tires, $650. Dave, Ext. 4360 or 269-5319.

76 FORD PINTO WAGON - good cond., many new parts, a/t, cassette, just tuned. Jim, 744-9597.

80 AMC SPIRIT - squareback, orig. owner, very good cond., stick shift, extra wheels w/snows, 65k mi., $2,300. 286-3374.

79 FORD PINTO - a/t, p/s, a/c, $1,400. 363-6940 eves.

79 CADILLAC SEDAN DEVILLE V8 - cream, tan leather, spokes, cruise, all access., $5,000. 698-5046 after 7 p.m.

75 OLDS CUTLASS - 4 dr., $1,400. Vince, Ext. 4660.

76 HONDA CIVIC - good running cond., 74k mi., body fair, $750. 744-5096.

76 FORD PICKUP - 4 WD, 3/4 ton, new motor, V8, excel. cond., price neg. Ext. 4452.

75 TURINO WAGON - p/s, p/b, a/c, new tires/master cyl., recent alt., batt. $700. Ext. 2591.

Boats & Marine Supplies

MOORING - 300 lb., complete w/float, shackles, 40 ft. chain, used for 1 season, $325. 732-6838.

OUTBOARD - 1977 Evinrude, 15 HP, short shaft, low hours, $350. 475-4199.

17' ISLAND DAYSAILOR - 1978, roller furling, galv. trailer, 1978 Evinrude, 4 HP, excel. cond., $2,750. Rich, 472-9034.

17' GLASSMASTER BOWRIDER - 1982, 115 Merc., Shoreline galv. trailer, power winch, full canvas, excel., $6,200. Ext. 3341 or 981-9474.

18' GLASTRON - fiberglass, 115 HP Evinrude, galv. trailer, very good, $3,800. 269-9510.

30' BROADWATER - 1969, FWC, FB, DF, VHF, $3,000. Ext. 7593 or 878-0653.

16' V-HULL BOWRIDER - 1983, 4 Winns, 120 HP Merc., cruiser, 15 hrs., full canvases, galv. trailer, power winch, garaged, $7,800 firm. 286-8797.

20 HP MERCURY - Dilly trailer, 16' plywood Dory, flounder ready, $650. Stewart, 273-6993.

19' BOWRIDER - 1985 Bayliner, Loadrite trailer, loaded w/options, under warr., $9,100. 234-4580.

Miscellaneous

PRINTER - Okidata-82, orig. carton, $100; IBM-clone color graphics board; Cardco + G/Romco interface, best offer. Cheryl, Ext. 2272 or 732-7634.

WALLPAPER - rusty brown, new, (5) double rolls, $8 per roll; Atari protective cover, $4. Susan, Ext. 4267.

HANGING WALL UNITS - wood, covers 8 ft. area, excel., $75; exercise bike, new, $55. Ext. 4173 or 751-4822.

KITCHEN SET - butcher block type table, (4) swivel chairs, excel. cond., $225. Ray, 289-0883.

WOOD BURNING STOVE - good cond., incl. copper plate, $125. Ron, Ext. 3238 or 744-1194 eves.

FUR STOLE - like new. Ext. 3701 or 751-8128 eves.

TRIPLE LOCKER - industrial, double door, beige, new, $200. 654-5905.

LOVESEAT - country French, wood trim, blue/beige print, orig. $600, sell for $175; coffee table, $95; both for $260. 286-4652 after 6:30 p.m.

HART TURBO SKIS - 170", Solomin 337 bindings, Lange boots, size 10-1/2, like new, $200. 588-6417.

KITCHEN DISHES - & utensils; full size mattress; 10 gal. fish tank. Ext. 3222 or 3755.

FULL SIZE BED - $100; ski & hiking boots, $20 ea.; pot belly stove; drop leaf table; vintage tape deck, make offer. Ext. 3578 or 878-4864.

THERMAL DRAPES - brown, 8 ft., $50; 9x11 rug, pale green & white, $75. 473-2473.

COLONIAL LIVING ROOM SET - queen conv. couch, love seat, chair/ottoman, pine coffee table, end & corner tables, $950. Ext. 7727 or 929-4631.

LADIES RIDING BOOTS - 2 pairs, new, size 6-1/2, $40/pair. 289-8182.

SEWING MACHINE - Singer, commercial, very good cond., $400 or best offer. 395-3582.

RS232 SERIAL BOARD - for TRS80 model III/IV computer, paid $70, sell for $40. Lee, Ext. 7286 or 821-3963.

PORTABLE PHONOGRAPH - GE, $10; racquetball racquet, $10. Joe, Ext. 2898.

PIANO - Hardman Peck, mahogany, needs minor repair, $100. 473-7210 eves.

ELECTRIC RANGE - GE, harvest gold, good cond., $50. 472-1479.

COLONIAL FURNITURE - sofa, chair, rocker, ottoman, pine frames, coffee table, 3-side tables, excel., $1,000; Franklin stove, Atlanta Stove Works, cast iron, (2) brass knobs, excel., $150. Ext. 2529.

UPLAND WOOD STOVE - fits 2 ft. log, $250. Ext. 7192.

PIANO - Yamaha Studio, upright, ebony finish, w/bench, 1973, excel. cond. Ext. 4853 after 1 p.m.

KEROSENE HEATER - Corona, 22000 BTU, excel. cond., $50; portable heavy duty engine hoist, $200. Dick, Ext. 3499 or 589-9103.

GARAGE DOORS - 7'x9' wide, overhead, wood w/1 row glass, very good cond., $75 ea. 878-0621 eves.

CLOSED CAPTION CONVERTER - for hearing impaired, new in box, $170. Paul, Ext. 4665 or 727-4859.

COMBINATION WASHER/DRYER - washer needs work, best offer. James, Ext. 5318 or 399-4912.

WOMAN'S DRESSER - 60" matching mirror, night table, fruitwood, maghogany upright. Roy, Ext. 2384 or 878-0074.

BMX MURRAY DIRT BIKE - 1 yr. old., like new, cushioned seat and pads, black, $60 or best offer. Ext. 2007.

PROF. WEIGHT BENCH - 3-position incline, squat & dip station, scott curl, all welded steel, like new. 878-2233 eves.

RANGE - double oven, 40", self cleaning, w/matching hood, fan & light, $150 both. Ext. 4421 or 744-0722.

PIANO - upright, Sohmer, mahogany finish, $800. 585-2563 eves.

BEDDING - mattress, boxspring, frame, double size, $90. 286-1214.

DINING ROOM SET - French Prov., table, (2) ext., (4) chairs, 1 yr. old., mint, $500. 585-9149.

R/C AIRPLANE - Falcon 56, Citizenship radio, engine, $100. John, Ext. 2269 or 281-2623 after 6 p.m.

STORM DOOR - white, alum., w/louver windows, 35" x 79". Ext. 3859 or 286-1712.

TV - 12", Panasonic, b/w, works well, $20; steam iron, like new, $15. Ext. 3963 or 928-0516 eves.

SOFA - contempory, Haitian cotton, 85", excel. cond., clean. Carol, Ext. 4398.

FLUE HEAT EXCHANGER - $30; new wallpaper, 5 double rolls, $8 ea. Susan, Ext. 4267.

MEN'S SKIS - 205 cm, 200 cm boots, women's 10' med., 185 cm boots. 475-0509 after 6 p.m.

CHAIRS - living room or den; $89 pr.; contemp. club chairs, $89 pr.; triple width drapes, $49 pr.; Strolee car seat, $19; and more. 273-5574.

PRINT CRADLE - TI PC-100C for TI-58, 58C, and 59; cassette interface, Casio FA-2, for FX-501P/502P/601P/602P/702P, list for $79.95, sell for $50. Trigg, 286-1262.

POP-UP CAMPER - Coleman, good canvass, needs screens, $875. Dick, Ext. 4255 or 744-6794.

CLASSROOM DESKS - (2), $20 ea.; child's bicycle seat, $10; fan and attachment for tubular fireplace grate, $20; ice skates, sizes 7, 8, 9, 10, $6 pr. Vince, Ext. 4660.

FURNITURE - den, living room, small appl., etc., 16 Oxford, Pt. Jeff. Sta., Sat. only.

BOY'S CLOTHING - size 16, name brands, never worn, long sleeve shirts, $5 ea.; winter jacket w/hood, $20. S. Spark, Ext. 4111.

Free

LONG HAIRED CAT - male, altered, 6 month old, grey. 473-6432.

LONG HAIRED CAT - white and/or calico kittens. 744-2821.

Real Estate

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

For Rent

PORT JEFFERSON - Harbor Hills, 3 bdrms., 2-1/2 baths, l/r, d/r, f/r, patio, gas heat, central a/c, near beach/country club, partially furn. or unfurn., $900 mo. 928-0466.

CATSKILLS - 3 bdrm. chalet, fully furn., w/sleeping loft, near Hunter & Windham Mts., rent weekly or weekends. Judy or Kay, Ext. 3595 or Bea, Ext. 3642.

SHIRLEY - 1 bdrm. apt., priv. ent., walk to beach, cable, single mature woman only, no pets, util. included, 1 mo. sec., $475 mo. Ext. 2905, Wed., Thurs. or Fri.

CORAM - new Bretton Woods condo., 2 bdrms., 2 baths, l/r, d/r, eik, w/w, 5 appl., a/c, golf, tennis, swimming, flexible lease, 3 mo. summer lease avail. Ext. 2017 or 821-2878.

N. PATCHOGUE - pvt. 3 bdrm. apt. in house, kit., l/r, fenced-in yard, $750 mo. + 3/4 util., 15 min. to Lab, no pets. Carol, 289-3917.

S. CAROLINA - Hilton Head, 2 bdrm. condo., sleeps six, golf, tennis and warm weather, $300 wk. 585-9149.

BELLPORT - lg. furn. room, pvt. ent., bath, cable, own refrig. & util. includ., $65 wk. 286-8356.

RIDGE - 2 bdrm. townhouse, l/r, d/r, 1-1/2 baths, w/w, 5 appl., 5 min. to Lab, no pets, prefer no children, $600 mo. + util. Ext. 4525 or 924-7029 after 6 p.m.

For Sale

FLORIDA - Vero Beach condo., on golf course, 2 bdrms., 2 baths, Florida rm., mint cond., many extras, $64,000. 698-5046 after 7 p.m.

OAKDALE - Idle Hour section, near water, 2-story Tudor, 4 bdrms., 2 baths, garage, attached full apt. w/pvt. ent., located on 1/2 acre on dead end street, $210,000. 363-6940 eves.

CALVERTON - mobile home park, age 55+, double width, 2 bdrms., 1-1/2 baths, all appl., furn. opt. Sheryl, Ext. 5384 or 929-8741 eves.

AQUEBOGUE - 3 bdrm. ranch, town water, full basement, 1/3 acre, 20 min. to lab., fenced-in backyard. 722-4644.

STONY BROOK - MD cape, 1/3 acre, greenhouse, jacuzzi, newly carpeted, painted, near colleges, hospital, "S" Section. 751-4822.

BROOKHAVEN HAMLET - (12) prime acres, Fire Place Neck Rd., former nursery, trees & shrubs, estate surroundings, 12"-14" top soil, lg. barn, (2) 4" wells, terms. Jim, Ext. 4040 or 289-0876.

PORT JEFF. STA. - Sagamore Hills, townhouse, pool, tennis, clubhouse, etc.,

quiet court area. 928-8522.

YAPHANK - Colonial Woods condo., 2 bdrms., 2 baths, basement, central air, storms & screens, extras, $95,000. 269-9510 after 7 p.m.

YAPHANK - condo./townhouse, Whispering Pines, 2 bdrms., 1-1/2 baths, full bsmt., int. access garage, all appl., storms & screens, f/p, many extras, pools, tennis, clubhouse, $99,900. Leo, Ext. 4615.

YAPHANK - condo./townhouse at Colonial Woods, 3 bdrms., 1 full & 2 half baths, full bsmt., central air, all appl., storms & screens, many extras, $103,000. 924-3928 after 6 p.m.

Car Pools

MASTIC - would like to be a rider starting 3/24/86, will pay what driver deems fair towards gas, 8:30 to 5:00 shift. Jody, Ext. 2907 or 654-9094 after 6 p.m.

STONY BROOK - TRANSVAN needs two members. Paul, Ext. 2476 or Sid, Ext. 4125.

Wanted

TRAINS - Lionel, American Flyer, access., any cond. brings good price. Carole, Ext. 3362 or 924-4097 eves.

YARD SALE ITEMS - March 15 & 16, Yaphank Boy Scout Troop. John, Ext. 4243.

HOUSE TO RENT - min. 2 bdrms., South Country SD, secure neighborhood. Bill, Ext. 2378.

ENCYCLOPEDIAS - very good cond., reasonable price. Ext. 2888.

XC SKIS - 205 cm, good cond., w/poles. Paul, 298-4398 after 6:30 p.m.

HOUSE TO SHARE - close to lab, $200 mo. Janet, Ext. 7112 or 472-1922.

SMALL BOAT - for child's playground, will pick up. Paul, Ext. 2017 or 821-2878.

HOUSE TO SIT - going away on vacation or business. Ext. 3671 or 736-2131 eves.

LIVE-IN HOUSEKEEPER - companion, Bellport, needed immed. 347-3777 eves.

PERSON TO SUBLEASE - La Bonne Vie Apts., Patchogue, 1 bdrm., upstairs, $615, May 1 occupancy. Ext. 3352 or 289-2153 eves.

HO SLOT CARS - Tyco, AFX, access., any cond. Bob, Ext. 4257 or 727-1146 eves.

TIRES - (4) or (5), 7.50 x 16". Walt, Ext. 5316.

CASSETTE PLAYERS - any cond., no hi-fi components, reasonable. Dan, Ext. 4725 or 281-7021.

PORTA CRIB - reasonable. Peggy, 727-4859.

GARDEN ROTOR TILLER - Maurice, Ext. 2487 or 928-6930.

TENNIS RACKET - 1 or 2; exercise bike. Ext. 3015/2854.

ATARI 2600 - or Coleco gameboard. Ext. 2469 or 744-9596 eves.

Services

*Services are listed as a courtesy to BNL employees. They are neither screened nor recommended by the **Bulletin**.*

GENERAL CONTRACTOR - carpenter, extensions, dormers, garage conversions, basements, decks, kitchens, licensed. Jim, 698-2501.

VIDEOTAPE - weddings, parties, sports events, sports events, transfer home movie films onto video cassette, contents of houses for insurance records, etc. Bob, 286-3280.

PRECISION MACHINE SHOP - avail. for prototype & prod. work. Bob, 286-3280 eves.

MASTER TEACHER - licensed, experienced, opens homebased School Readiness Program, ages 3-5, Tu./Th., 10 a.m.-5 p.m., enroll now. 929-3795.

HOUSE CLEANING - reliable person to dust, mop, vacuum & etc., ref. avail. Sue, 475-3527.

LAND CLEARING - using excel. rake on JD 450 track loader, $55/hr. w/operator. Tom, Ext. 4084 or 878-1060.

SHEETROCKING & SPACKLING - free est. Kevin, 563-1189.

WEIGHT LIFTING BENCHES - all types and apparatus made up. Tony, Ext. 4605.

TAXES PREPARED - by tax consultant, your home or mine, reason. John, 732-2472.

BRICKWORK - walks, patios, brick & sand, Belgium block, landscaping ties, custom decks. Tony, 698-9274.

FLOOR WAXING - comm./resid., strip, clean & wax. Henry, 727-7227 or Mark, 654-4670.

BABYSITTER - Shoreham, my home, exper. mother, part or full time. Amy, 821-3373.

BABY SITTING - my home, Bellport, experienced, references. Mary Ann, 286-2435.

FLANDERS BAY NURSERY CO. - 1449 Flanders Rd; Rhodos., Azaleas, custom containers, hanging baskets, annuals, assorted. Ext. 2839.

JEWELRY REPAIR - gold & silver. Dan, Ext. 2319.

FLUTE TEACHER - 24 yrs. playing exp., masters degree, NY credentials, all ages welcome. 736-6387.

In Appreciation

Many thanks to the good samaritan lady who helped me when my car conked out on Upton Road by the North gate on Wed. night. All worked out well. Thank you again. Roberta J. Samaritter.

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

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