BROOKHAVEN BULLETIN
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BROOKHAVEN NATIONAL LABORATORY

Tracers Used to Locate Underground Cable Leaks

Under the streets of New York City and the nation's other urban centers run thousands of miles of high-voltage electrical cables, carrying power throughout the cities.

The pipe-type cables, enclosed in steel pipes, are filled with a dielectric fluid medium to cool and insulate them.

Many of these cables are decades old. Utility company experts can tell when a line develops a leak by sensors that measure the volume and pressure of the dielectric fluid at the end of each cable line.

The question is: Along the 1- to 20-mile length of the typical cable buried three to five feet below street level, *where* is the leak?

In New York City, Consolidated Edison Company of New York has expended considerable effort and money to answer this question — to find the leaks quickly and without deenergizing the cable. But now, scientists at BNL's Tracer Technology Center headed by Chemical Engineer Russell Dietz have developed a faster and possibly less expensive method that could translate into savings for utility companies across the country.

Roger Stoutenburgh

Chemical Engineer Russell Dietz, head of BNL's Tracer Technology Center, injects a sample of a standard gas perfluorocarbon tracer (PFT) into one trap of a dual-trap analyzer (DTA). Meanwhile, the DTA's gas chromatograph analyzes the sample in the other trap, the results of which are plotting out at the top of the machine.

The BNL team is developing a process to tag the dielectric fluid with a small amount of liquid perfluorocarbon tracer (PFT), a carbon compound saturated with fluorine. When a leak occurs, the harmless PFT vapor rises to the street surface, acting as an invisible chemical flag marking the presence of a leak. PFTs can be detected in minute quantities by analyzers also developed at BNL.

Con Edison's Manager of Transmission Research Reza Ghafurian said the results of a recent test of this technology could be very helpful in expediting the process of finding the location of leaks.

Dietz says several useful applications of PFT tracers have been developed at the center since its inception in the Department of Applied Science's Environmental Chemistry Division in 1985. Perfluorocarbons are the chemical tracer of choice, he says, because "these compounds have a very low background in the atmosphere, so less of the material needs to be released to be detected."

And, he says, PFTs "are extremely stable, nonreactive in the environment, harmless to man, and don't affect the ozone layer."

Con Edison's current methods of locating leaks require deenergizing the cable. According to Henry Chu, Con Edison consultant engineer, it could take crews of several workers days or weeks to find a leak along the many miles of a particular cable circuit.

In early 1983, BNL and Con Edison began to discuss a new way of locating leaks using PFT tracer technology. Under a contract between BNL and the Electric Power Research Institute, with support from Con Edison and the Empire State Electric Energy Research Corporation, work started in May 1987.

Dietz and his crew first modified existing PFT detectors for use in the project and performed tests to demonstrate that conditions in the underground environment would not interfere with the PFT's migration to the surface.

The team also had to determine how much liquid PFT dissolved in the dielectric fluid was needed in order to be detectable in various urban situations. Dietz says the minute amount of PFT required — less than 1 percent by weight — increases the

(continued on page 2)

He may look like he is divining for water, but BNL Chemistry Associate Bob Goodrich is actually using a portable analyzer to sniff for vapors of a perfluorocarbon tracer (PFT) rising from an underground pool of utility line dielectric fluid. Other BNL Department of Applied Science staff involved in this project are Russell Dietz, head of the Tracer Technology Center; Research Engineer Walter Loss; Chemistry Associate Ruby Fajer; Technical Specialist Ed Cote; and summer students Susan Peters and Chris White.

Coming Up

Annette M. Saturnelli, who is the Director of Science for the Newburgh Enlarged City School District in Newburgh, New York, will present the next Brookhaven Women in Science Seminar. Her talk on "The Restructuring of Science Education K-12: Equipping Students to Live in the 21st Century" will begin at 4:30 p.m. on Wednesday, September 12, in Room B, Berkner Hall.

BWIS Awards Two Chasman Scholarships

This year for the first time, two $1,000 Renate W. Chasman Scholarships for Women have been awarded.

In a ceremony on August 16, Brenda Daniels and Nora Galambos each received a scholarship from Brookhaven Women in Science (BWIS), which sponsors the scholarship program to encourage Long Island women to resume their formal education in scientific or technical fields.

Says Ruth Kempf, BWIS scholarship committee chair, "We had two applicants who were so outstanding that the committee decided to supply them both with financial aid now, even though it meant that we had to cut into the Chasman fund's principal to award two scholarships."

Daniels, a physics associate in BNL's Physics Department and a resident of Roosevelt, is enrolled in the physics doctoral program at the State University of New York at Stony Brook. Galambos, a resident of Commack, is pursuing a Ph.D. in applied mathematics at Stony Brook.

Named in honor of the late BNL physicist Renate W. Chasman, the scholarship is supported by corporate and individual contributions, as well as fund-raising events held at BNL. Tax-deductible contributions may be made to the Chasman Scholarship Fund, P.O. Box 183, Upton, New York 11973.

Nora Galambos and Brenda Daniels (fifth and sixth from left) are winners of the 1990 Chasman Scholarship Award, given annually by Brookhaven Woman in Science (BWIS). Congratulating them are members of the BWIS scholarship committee (from left): Eva Bozoki, Susan Hobbie, Harriet Martin, Victoria McLane, Alyce Daly, Millicent Baggett, Ruth Kempf and Gail Williams.

Brenda Daniels (right) is presented a 1990 Chasman Scholarship by Ruth Kempf, Brookhaven Women in Science. Daniels is the first BNL employee to win a Chasman Scholarship. Joining the Lab's Physics Department in 1988, Daniels originally worked on experimental equipment for the D-Zero detector. She is now doing physics computer analysis for that experiment, which will get under way about a year from now at Fermi National Accelerator Laboratory in Illinois. She says, "I've now had a sample of the real world of physics and would like to contribute to it in a more substantial way." To that end, Daniels is pursuing a Ph.D. in physics at the State University of New York at Stony Brook. She expects to graduate in about five years.

Class of '84 Meets Again

Roger Stoutenburgh

In 1984, Dwayne Branch (top right), Curtis Highsmith Jr. (bottom left), and Bridget Philips (bottom right) were among the first students to take a course in computer basics offered by BNL's Office of Equal Opportunity at the First Baptist Church in Riverhead.

This summer, these students met again, this time in on-the-job training programs at BNL.

Branch and Philips, along with 17 other students, have been participating in the Science and Engineering Opportunities Program for Minorities and Women. The program offers full-time summer employment in their field of interest for minority and female students who are pursuing a college degree in a technical area, such as science or engineering.

Highsmith is among 12 students who have been working in the Lab's Youth on Campus program, which offers high school students full-time summer employment at BNL to help prepare them for the work world. Generally, students are in grades 10 to 12, and emphasis is given to placing women and minorities.

These programs are just part of a larger effort at BNL to encourage minorities and women to enter scientific and technical fields. The computer course in Riverhead, where the three students met six years ago, is a community-based program run by volunteers from the Laboratory. Funding for these programs is provided by BNL's Office of Equal Opportunity (OEO) and the Lab's Office of Educational Programs (OEP).

Others in the photo include: (from left) Donald Metz, head of OEP; volunteer William B. Higinbotham, Computing & Communications Division (CCD); Frances Ligon, program coordinator, OEO; and volunteer Ed Taylor, CCD.

Tracers (cont'd)

cost of the dielectric fluid by less than 5 percent.

In July, Dietz and four associates ran their first major test of this technique with a five-gallon underground spill released for this purpose by Con Edison. Accompanied by a Con Edison protection vehicle, the BNL team drove in a van along the designated 30-block area — about 1.8 miles — using a device called a dual trap analyzer (DTA) to detect PFT vapors.

DTA is a twin sampling unit: one trap absorbs and concentrates a 12-liter air sample every six minutes; while that sample is being read by a gas chromatograph, the second trap is operating to take an equivalent sample. Dietz says the DTA can register atmospheric PFT levels of less than 50 parts per quadrillion (50 per 10^{15}).

With the DTA, the crew covered the 1.8 miles in 20 minutes. After additional passes in the van narrowed the location down to one or two blocks, one person went on foot with a portable, but less sensitive device that produces readings in 10-15 seconds to "sniff" the ground for what Dietz calls "hot spots."

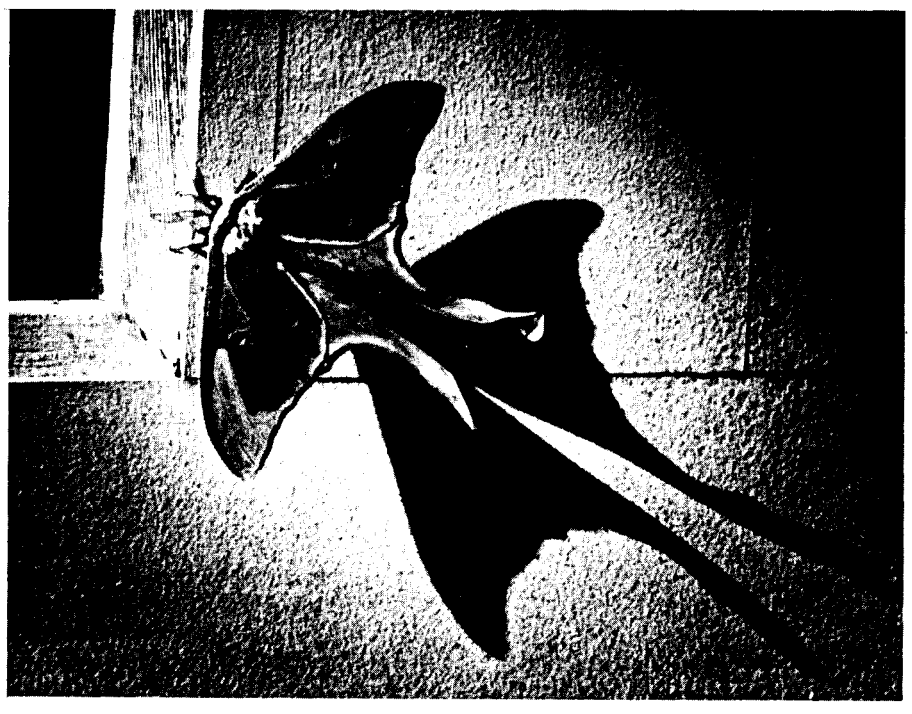
With this technique, the crew located the only PFT hot spot: a crack in the street's center island within the 80-foot area determined by the DTA. Con Edison crews bored small holes in the pavement a few feet apart, and the portable analyzer was used again to test the emerging vapors. Soon, they had pinpointed the location of the leak to within a foot.

"We were quite elated that within a 24-hour period a crew of five had found this leak to within plus or minus one foot," says Dietz. "There were no unforeseen problems — everything went extremely smoothly." Looking forward, Dietz says that with tracer technology, a utility company will not have to deenergize a leaking high-voltage line to locate the leak.

Before this technique can be tested on a real leak by injecting PFTs into dielectric fluid in actual underground lines, two things must happen: The full electrical compatibility tests, which are nearing apparent satisfactory completion by Cablec Corporation, Yonkers, must be finished, and an injection system must be developed.

The Tracer Technology Center will also be working with industry to transfer the technology for manufacturing reliable, easy-to-use PFT detectors. Dietz says he hopes to see utility companies using PFT tracers by 1992. — Lisa O'Rourke

Sighted Around Site



This Luna moth was sighted earlier this summer on a window of Meteorology, Bldg. 50, by photographer Roger Stoutenburgh, acting on a tip from Flo O'Brien, who works in that building. Because it is nocturnal and often found around lights at night, the Luna moth is often called the "Empress of the Night." Common, but never abundant, the Luna moth is spectacularly colored, with delicate, exquisite green wings set off by a rose-purple velvet border on its front wings and white fur on its body. Its wingspan can range from three to 7.5 inches.

Sighted last June by photographer Roger Stoutenburgh, these Canada geese were living in the ring of the proposed Relativistic Heavy Ion Collider.

Telephone Work Will Affect Some Off-Site Service

According to the Computing & Communication Division, work on emergency routing procedures in the BNL telephone switch will require a suspension of off-site service from all Lab telephones for up to three hours between midnight and 3 a.m., Tuesday, August 28. If the work cannot be completed on August 28, another three hours will be required on the morning of August 29. Incoming calls will not be affected.

During these periods, all calls will be initiated from the Brooklyn-Queens-Staten Island area code 718, over the Lab's microwave connection. Therefore, to place off-site calls from Treatment I telephones:

- Do not dial the area code for 718 calls.
- Dial 1 plus the proper area code for all other calls, which means using 1-516 for *all* calls to Long Island telephone numbers.

For information about the progress or completion of this work, call Ext. 5392.

Stockroom Closings

All Supply & Materiel Division (SMD) stockrooms will be closed for inventory on Thursday and Friday, September 13 and 14. Please make all necessary withdrawals of stock prior to 3 p.m. on Wednesday, September 12, to give SMD personnel sufficient time to prepare for the inventory.

Emergency requirements should be processed through John Scharpeger, Ext. 2974.

Note to Employees:

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

Holiday Notices

The Laboratory will observe a four-day Labor Day weekend, closing on Friday, August 31, and on Labor Day, Monday, September 3. The following schedules are affected:

- **Brookhaven Bulletin** — There will be no Bulletin published next week. Furthermore, the classified ad deadline for the Bulletin of September 7 has been moved up to 4:30 p.m. on Wednesday, August 29.
- **Food Services** — Only the Cafeteria snack bar will be open from 9 a.m. to 2 p.m., Friday through Monday, August 31-September 3. The Tap Room at the Brookhaven Center will be closed Friday through Sunday, August 31-September 2, and it will reopen at 5 p.m. on Monday, September 3. The vended food service in Bldg. 912 will be in operation throughout the holiday weekend.
- **Pool and Gymnasium** — The pool and gymnasium complex will be closed from Friday, August 31, through Monday, September 3. The complex will reopen on Tuesday, September 4, when the gymnasium's fall schedule and the new pool season will begin.

Addled Addresses

- Suffolk County
  c/o Brookhaven University Labs
- Mr. Moshe Zilka
  c/o Chrien National Lab. Inc
  Brookhaven Uptown New York

Metropolitan Opera Tickets To Go on Sale

Family-circle tickets for certain performances of the 1990-91 Metropolitan Opera season will go on sale on Thursday, September 6, at the BERA Sales Office in Berkner Hall.

All tickets are $20.50 each. The complete list of BERA subscription tickets and dates available are listed below. Copies are also available to read at the Sales Office, weekdays from 9 a.m. to 2 p.m. Employees may purchase as many pairs of tickets as they wish. All sales will be final: no refunds or exchanges.

Friday, Oct. 12	*Boris Godunov*
Saturday, Oct. 20	*Der Rosenkavalier*
Friday, Nov. 2	*Un Ballo in Maschera*
Saturday, Nov. 3	*Porgy and Bess*
Saturday, Nov. 24	*Un Ballo in Maschera*
Saturday, Dec. 8	*Andrea Chenier*
Friday, Dec. 14	*Andrea Chenier*
Friday, Jan 4	*Rigoletto*
Saturday, Jan. 5	*La Traviata*
Friday, Jan. 25	*Die Fledermaus*
Saturday, Feb. 2	*Die Zauberflote*
Saturday, Feb. 16	*La Boheme*
Friday, Feb. 22	*Le Nozze di Figaro*
Friday, Mar. 15	*Der Rosenkavalier*
Saturday, Mar. 16	*Le Nozze di Figaro*
Friday, Mar. 29	*Parsifal*
Saturday, Mar. 30	*Tosca*
Friday, Apr. 12	*Luisa Miller*

Penny Fetch Today For Young Swimmers

All children who have participated in BERA's summer swim program are invited to join in the end-of-the-summer Pool Penny Fetch — today — at 3:30 p.m. at the pool. It's free!

Softball Day

Teams are now forming for a day of softball fun on Saturday, September 8 (rain date September 9). Individual players, parts of teams or whole teams — mixed and open — are welcome and needed. Teams from Great Britain will be joining us. All people eligible for BERA activities are invited.

To play, contact your team captain, league representative or a member of the softball board by August 30: Marty Leach, Ext. 3813; Tirre Farmer, Ext. 3258; Bob Brown, Ext. 3569; Denise Miesell, Ext. 4962; or Andrea Epple, Ext. 4424, or write to Leach, Bldg. 51.

Call for Bowlers

Bowlers are still needed as full-time players or as substitutes in the Mixed League that bowls in Shirley every Thursday at 6:30 p.m. Sign up as an individual or sign up with a minimum of three other people as a team — but sign up as soon as possible! Call Fern Simes, Ext. 3969.

Racquetball

If enough people are interested, the BERA Racquetball Club will start a racquetball league. Matches will be held once a week at Royal Racquetball, located on Middle Country Road, Coram. The time and day of matches have not yet been determined. If interested, contact Rich DeRocher, Ext. 7013.

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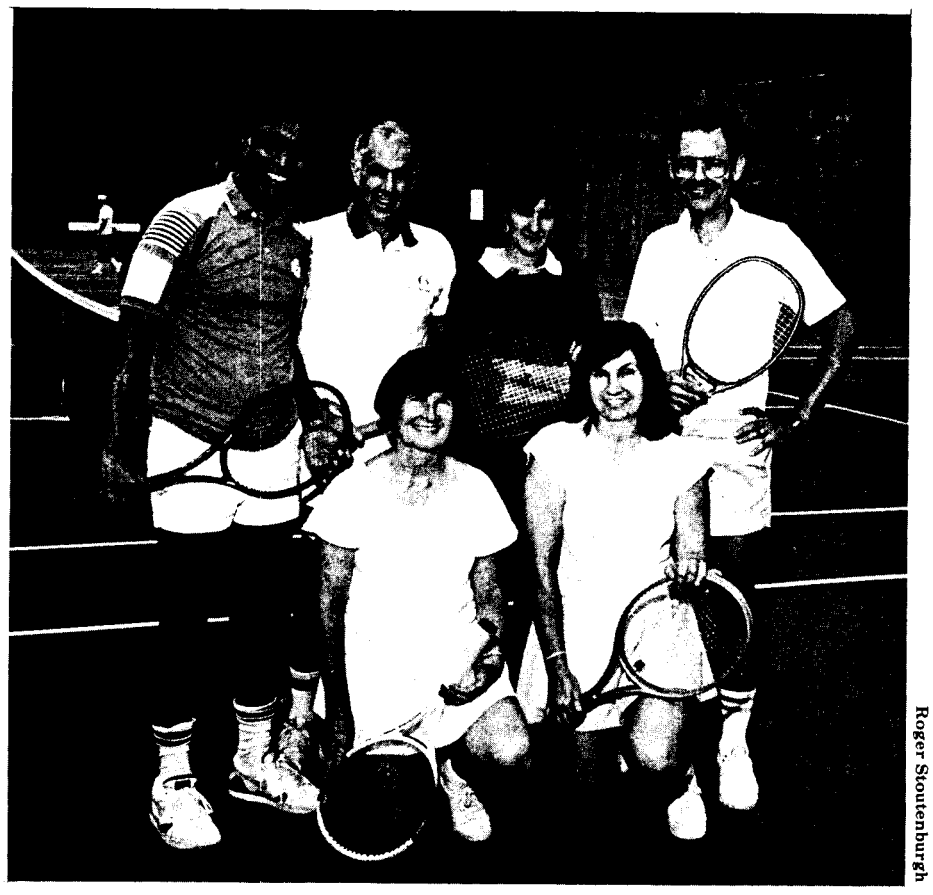
Tennis Champs



Roger Stoutenburgh

The "Game, Set, and Match" champions of the BERA Tennis Committee's 1990 Tennis Tournament are: Veronique Szabo (back row), victor of the women's singles; Steve Shapiro (back second from left), the men's singles winner; (front, from left) Gail Williams and Rita Kito, winners of the women's doubles; Om Singh (back left) and Peter Vanier (back right), the men's doubles stars; and mixed doubles' winners Szabo and Peter Dull (not present).

New Season At Swimming Pool

The new four-month season at the pool will begin Tuesday, September 4, and will end Monday, December 31. Tickets can be purchased at the pool during open hours. The pool is closed on all Lab holidays.

Monday through Friday

11 a.m.-1:30 p.m.	employees only
1:30 p.m.-2 p.m.	reserved for speed swimming and training
5 p.m. to 9 p.m.	employees, families and guests*

Saturday and Sunday

1 p.m.-5:30 p.m.	employees, families and guests*

Daily Admissions

employee or family member	$2.00
guest	$3.00

Season Tickets (fees not prorated)

Individual membership	$40.00
Family membership	$50.00

**One guest per employee is permitted. Advance arrangements for additional guests, up to a maximum of five at any one time, must be made at the Recreation Office, Personnel Division, Bldg. 185. In this case, an admission card will be issued to the sponsoring employee and must be presented at the main gate and at the pool upon request. Guests must always be accompanied by employees.*

Amateur Radio Club

The Amateur Radio Club will meet in Berkner Hall, Room D, on Thursday, August 30, at noon. The agenda includes current club business and upcoming activities for the fall.

All licensed radio amateurs who are employed at the Lab, those wishing to obtain amateur radio licenses, and Lab guests are invited to attend.

For more information, call Andy Feldman, Ext. 3264, or Bob Bacharach, Ext. 7790.

Schedule: U.S. Open Trip

The bus for the Tuesday, September 4, trip to the U.S. Open Tennis Championships will leave from the tennis court parking lot at 8:30 a.m. and from the Park & Ride at LIE Exit 63 at 8:50 a.m. Please be on time. Also, if you have not already picked up your prepaid tickets from the BERA Sales Office, remember to do so.

Time to Register For Nursery School

Registration is now going on for 1990-91 classes at the Upton Nursery School, a nonprofit, parent-cooperative school for three- and four-year-old children that is held three days a week.

Teachers Renée Bloch and Judith VanAsselt will be at Berkner Hall from 11 a.m. to 1 p.m. today to meet parents, answer questions, and accept registration materials.

The school year runs from September 11 through mid-June; children must be enrolled for at least three months of that period. Parents can register their children anytime between now and the first day of school, but the classes fill quickly, so sign up as soon as possible.

Hospitality News

Marian Davis-Parzen, president of the Northeast Region of Women's International League for Peace and Freedom, will be the guest speaker at the next Hospitality Committee get-together on Tuesday, September 4, at 9:30 a.m. in the Brookhaven Center. "Women Taking Charge of Their Lives" will be the topic of her presentation.

Spouses of Laboratory employees and guests are welcome to join us. Coffee, tea and danish will be served. Bring the children: baby-sitting will be provided free of charge.

Arrivals & Departures

Arrivals

Kenneth G. Baumeister Sfgds. & Sec.
Robert P. Hernandez.....Sfgds. & Sec.
Vishwas N. Joshi.....Biology
Lisa Lanzilotta.....Personnel
Igor Pogorelsky.....NSLS
Carol Ann Salata.....Chemistry

Departures

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

Lee Brammer.....Chemistry
Kan Chen.....Physics
Alvis L. Nash.....Con. & Proc.
Shen Li Qiu.....Physics
Youwen Xu.....App. Science

Equipment Demos

The John Fluke Manufacturing Co./Philips will have a demonstration van in the parking lot of Berkner Hall on Wednesday, August 29, from 8:30 a.m. to 12:30 p.m. Featured products will include data acquisition solutions, instrumentation, digital storage scopes, meters and function generators.

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On Wednesday, September 5, Davis Electronics Corp. will exhibit products in Berkner Hall and the adjoining parking lot, from 10 a.m. to 2 p.m. In Berkner Hall will be products and catalogs from Amp, Belden Wire and Cable, Paladin Tool and Panduit, as well as factory personnel to answer any questions; in the parking lot will be a mobile Panduit display trailer where visitors can use the products and talk to Panduit support staff.

Software Demo

On Thursday, August 30, at 2 p.m., in the Computing & Communications Division seminar room, Bldg. 515, Ashton-Tate will give a presentation on dBASE IV 1.1 and changes to dBASE III+, including advanced features. Tshaye Llorens, an Ashton-Tate sales representative, will be on hand to meet with users of dBASE IV and discuss their applications.

In addition, there will be brief demonstrations of Control Room, a custom control utility, and Applause II, a graphics package.

BERA Bus Trip To Atlantic City

There are still seats left for the BERA-sponsored, one-day trip to Resorts Hotel and Casino on the Boardwalk in Atlantic City on Saturday, September 15. The initial cost will be $20, and the hotel-casino will give a $5 coin return and a deferred bus-return voucher.

The bus will leave the Brookhaven Center promptly at 9 a.m. and return about 11 p.m. There will be an extra pickup at LIE Exit 63 if necessary.

Tickets are on sale now at the BERA Sales Office in Berkner Hall, weekdays from 9 a.m. to 2 p.m. If you have questions, call Louisa Barone, Ext. 3347; Rosalie Piccione, Ext. 3160, or Kay Dellimore, Ext. 2873.

On the Menu

At the Cafeteria

Luncheons

Monday, August 27

Soup: Cream of tomato	.75/.95
Entree: Grilled beef liver smothered w/onions & 1 veg.	3.10
Entree: Stuffed shells w/spaghetti & sauce	3.10
Fitness: Oven broiled fish amandine & 1 veg.	3.10
Carvery: Hot pastrami sandwich	2.85
Grill: Grilled Reuben	2.85
SPICE: Biscuit breakfast	

Tuesday, August 28

Soup: Italian chicken w/pasta	.75/.95
Entree: Chicken Parmesan hero w/1 veg.	3.10
Entree: Pork fried rice w/1 veg.	3.00
Fitness: Vegetable quiche w/1 veg.	3.10
Carvery: Hot roast beef sandwich	2.85
Grill: Cook's choice	2.85
SPICE: Don't you need a fajita pita?	

Wednesday, August 29

Soup: Chicken gumbo	.75/.95
Entree: Barbecued pork ribettes w/1 veg.	3.10
Entree: Chef's choice w/1 veg.	3.10
Fitness: Baked ziti w/1 veg.	3.00
Carvery: Hot Black Forest ham	2.85
Grill: Grilled ham, cheese & bacon	2.85
SPICE: Submarines by the inch	

Thursday, August 30

Soup: Vegeterian vegetable	.75/.90
Entree: Spaghetti & meatballs w/1 veg.	3.10
Entree: Macaroni & cheese w/1 veg.	3.00
Fitness: Chef's choice w/1 veg.	3.10
Carvery: Hot corned beef sandwich	2.85
Grill: Shrimp in a basket	2.95
SPICE: Peach festival	

Friday, August 31

Snack bar open - 9 a.m. to 2 p.m.

Breakfast w/coffee, 7:30 - 10:30 a.m. 2.65

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

Classified Advertisements

Placement Notices

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

Each week, the Personnel Division lists new placement notices. The purpose of these listings is, first, to give employees an opportunity to request consideration for themselves through Personnel, and, second, for general recruiting under open recruitment. Because of the priority policy stated above, each listing does not necessarily represent an opportunity for all people.

Except when operational needs require otherwise, positions will be open for one week after publication.

For more information, contact the Employment Manager, Ext. 2882.

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

LABORATORY RECRUITMENT - Opportunities for Laboratory employees only.

4314. FIREFIGHTER - (Temporary position ending by 7/5/91) - Previous substantial firefighter experience is required. Completion of New York State EMT course and possession of training certificate is highly desirable; if not, completion of course within one year is required. Must be willing to work shifts at the completion of a 13-week training period. Safety and Environmental Protection Division.

4315. WATER AND SEWAGE OPERATING ENGINEER - Requires high school or equivalency diploma. Under minimum supervision, lays out, constructs or installs, repairs, maintains, and operates water and sewerage systems, related facilities and auxiliary equipment. Must obtain and maintain appropriate licensing or certification requirements, which include one-year acceptable operating experience at a water treatment plant with facilities for filtration. Plant Engineering Division.

OPEN RECRUITMENT - Opportunities for Laboratory employees and outside applicants.

4316. PRODUCTION/INVENTORY CONTROL POSITION - Requires a bachelor's degree in business administration or its equivalent, several years' related experience and excellent communication skills. Previous experience in the following areas is essential: shop production planning and control, inventory planning and control, material handling, shipping, receiving and warehousing. APICS certification highly desirable. Duties will include reviewing and processing orders for the procurement and/or fabrication of equipment, and extensive coordination between Laboratory and outside staff. (Reposting of Job No. 4300) Accelerator Development Department.

Motor Vehicles & Supplies

89 HYUNDAI EXCEL - for rent, ac, radio, etc., $200 per mo. for 1 yr. or less. Ernesto Gramsch, Ext. 3869.

88 HONDA ACCORD LXI - 4-dr., champagne, p/sunroof, loaded, 52k mi., excel. cond., $9,200. Don or Sue, 473-6570 after 7 p.m.

88 HOLIDAY MOTOR HOME - 29', ac, generator, microwave, sleeps 5, mint cond., asking $41,500. Patricia, Ext. 3427.

88 FORD ESCORT WAGON LX - p/s, p/b, ac, am/fm stereo, 22k mi., asking $5,800. Bonnie, Ext. 2875.

87 CHEVY S-10 PICKUP 4x4 - 4-spd., sunroof, 45k mi., transferable warranty avail. until 11/91 or 57k mi., $8,100. Ext. 3199 or 399-5715.

87 200SX XE - a/t, ac, sunroof, loaded, 30 mpg, 43k mi., $7,000. Doug, Ext. 3533 or 472-1830 after 6 p.m.

87 MAXIMA - 4-dr., fully equipped, excel. cond., $9,500 neg. Bob, Ext. 7785.

87 MERCURY COUGAR LS - orig. owner, full power, ac, cruise, tilt, 39k mi., immac. cond., $8,400 neg. Mike, 475-0889.

87 MAZDA 626-LX - 4-dr., gray, a/t, ac, p/s, p/b, cass., all power, new tires, brakes, excel. cond., $6,300. 929-4622.

87 JAYCO MOTOR HOME - 25', awning, gen., sleeps 6, 17k mi., ac, super cond., asking $28,000. Lois, Ext. 4904 or Bob, 929-4753.

86 NISSAN 300 ZX 2+2 - T-top, a/t, w/od, all power, new tires, pewter w/black int., mint cond., asking $8,500. Viorel, Ext. 7104.

86 SUBARU GL WAGON - like new, 30k mi., all power, options, great family car. Mike, Ext. 3755.

85 CAMARO - black/red int., 66k mi., new brakes, battery, very clean. $3,950. 722-4932 or 722-4567.

85 CHEVY CAPRICE CLASSIC - 9-pass., 89k mi., loaded, ac, p/s, p/b, roofrack, new battery, excel. cond., $5,000. Zamir, Ext. 4510/3106.

85 FORD CROWN VICTORIA - low mileage, mint cond., $5,000. John, Ext. 4220 or 924-3915.

84 MERCURY MARQUIS BOUGHAM - 6-cyl., 4-dr., ac, p/w, p/seats, vanilla, 74k mi., excel. cond., best offer. Ext. 3850/3235.

84 OLDS FIRENZA - runs well, asking $550. Tom, Ext. 5275.

84 FORD ESCORT - 96k mi., good cond., $700. Lin, Ext. 2671 or Ext. 3202.

84 MITSUBISHI CORDIA LS - p/s, p/b, p/w, 84k mi., am/fm, a/t, 2-dr., sunroof, h/b, gray, looks great, neg. Shu, Ext. 4454.

83 SUBARU GL - 1.8l, 5-spd., p/s, p/w, p/b, p/mirrors, tilt, excel. cond., must sell., Victor, 878-6764.

82 DODGE RAM CAMPER VAN - sleeps 4, refrig., heater, new battery & tires, 8-cyl., 88k mi., excel. cond. 924-6129.

82 DODGE ARIES WAGON - a/t, $950. Ext. 2475 or 751-4539.

82 MUSTANG GL - 4-cyl., 4-spd., 2-dr., runs well, asking $1,000. Julie, 928-1477.

81 KAWASAKI 440 LTD - 12k mi., new brakes, battery, tires, chain, sprockets, sissy bar, v.g. cond., must sell, asking $650. 474-5715.

81 AMC CONCORD - 4-dr. s/w, recently tuned, new brakes, runs well, 75k mi., good 2nd car, reasonable. Dorry or Linc, 286-8689.

81 FORD FAIRMONT WAGON - 4-spd., 4-cyl., radio, new brakes, other parts, well maint., ask. $600. Koon, Ext. 2963 or Ext. 3020 after 6 p.m.

81 HONDA ACCORD - 5-spd., 4-dr., am/fm cass., high mi., dealer maintained, runs well, $800. Lap, Ext. 2336 or 673-0688.

81 AUDI 5000S - 93k mi., loaded, good cond., $2,100. 289-5770 eves.

80 FORD F250 PICKUP 4x4 - 33" tires, eng. runs well, 3" lift kit., new brakes & transmission, cap, tool box, 4 extra tires. 475-9452 after 5 p.m.

79 CHEVETTE - 4-dr. h/b, 4-spd., 86k mi., body good, good running cond., $300. McKeown, 286-1169.

79 TOYOTA CELICA GT - 5-spd., 2-dr. h/b, 130k mi., no rust, runs well, $600. Hsing, Ext. 2958.

79 VW RABBIT - needs engine, all else in great cond., must sell, make offer. Seth, 744-0485.

79 BUICK LE SABRE - 98k mi., new tires, brakes, & radiator, ac, p/s, p/w, runs well, leaving, $300. Xun, Ext. 4357.

79 HONDA ACCORD - new battery, reliable, asking $350. Mike, 567-8281.

78 FORD PINTO - 8k mi., m/t, am/fm cass., new brakes, clutch, exhaust, needs thermostat, $400 or best offer. Ext. 4940 or 929-3464.

78 FORD VAN - fair cond., needs work, $600. Geo, Ext. 4547.

78 PORSCHE 924 - 33.7k orig. mi., new brakes, battery, exhaust, mint cond., must be seen, $6,000. Bob, Ext. 4970.

74 CHEVROLET G-10 VAN - 350 V-8 blown, a/t, front/rear heat & ac, stereo, sound body, clean, many extras, $500. Jim, Ext. 3169 or 434-3342.

74 CAPRICE CLASSIC - runs well, $500. Bill, Ext. 3803.

74 BRONCO - good for parts or getting on road, needs battery, elect. work, asking $450. Ext. 7238.

31 CHRYSLER - all orig., low mi., excel. cond., runs well, $7,000. Ext. 3160 or 289-5704 after 5 p.m.

CAP - for small bed pickup, deluxe model, cost $1,500 new, asking $350. 732-7090.

Boats & Marine Supplies

32' CRUISER - w/flying bridge, in water, twin V-8 Palmer eng., runable, poor cond., many useful parts, $300. Ext. 3288 or 281-0360 after 6 p.m.

22' CRUISER INC - 1980, forward aft cabins, stand-up head, stove, many extras, $8,500. Bob, 796-4322.

16' MFG - Gator tilt trailer, 75-h.p. Johnson ob., must sell, $350. Ext. 7697, leave message.

13' BOMBARD - 1987, inflatable, '87 30-h.p. Mariner, trailer, w/access., excel. cond., great scuba diving, must sell, moving, $3,500. 474-5715.

8' DINGHY - 1990, fiberglass. Dawn, 758-3830.

MOORING - 75 lbs., w/chain, good cond., $75. 689-9234.

OUTBOARD MOTOR - 115-h.p. Mercury, 1989, brand-new, never used, $3,500 firm. Michele, Ext. 2907 or 369-8411 after 6 p.m.

Furnishings & Appliances

CHAIR - swivel, brown, excel. cond. 473-7667.

UPRIGHT FREEZER - 17 cu. ft., excel. cond., $250. Chris, Ext. 4185 or 698-9116.

BED - full size, w/dark wood headboard & footboard, mattress 1 yr. old, boxspring old but good, $25. Ext. 3288 or 281-0360 after 6 p.m.

CHAIRS - spindle back, excel. cond., reasonable; upright freezer, make offer. 363-7032.

AIR CONDITIONER - Sears, 17,000 Btu, window unit, w/case, high EER rating, w/energy saver, excel. cond., Frank, Ext. 3120.

SOFA BED - good cond., $60. 399-4399.

DINING ROOM SET - dark pine, 42" round table w/2 leaves, 4 captains' chairs, good cond., reasonable. Lou, 744-2214 eves.

GAS DRYER - Kenmore, heavy duty, v.g. cond., $100. Ext. 2187 or 727-7602.

REFRIGERATOR - GE, almond, good for second, you take away, best offer. Donna, Ext. 2459.

DISHWASHER - Sears, 18", almond, $100. 878-9369 after 6 p.m.

BAR - handmade, 7' long, solid mahogany, excel. cond., $100. 744-7549.

SOFA - beige, contemporary, $60; dinette table w/glass top & 4 chairs, $80. Xun, Ext. 4357.

BEDROOM SET - 4 sectional pieces, $75; Flowtron bug zapper, 1½ acre coverage, $25. Carl, 286-0271.

CHAIRS - rattan & corner table. Dave, Ext. 5460.

COFFEE TABLE - glass top, best offer; king-size water bed, 100% waveless, w/heater, $75. 864-1478 after 6 p.m.

FREEZER - GE, 15 cu. ft., good cond. 325-0447.

FREEZER - Sears, 23 cu. ft., good cond; Electrolux vacuum w/power nozzel. Mark, Ext. 4347.

WASHER/DRYER - GE, apartment size. Zamir, Ext. 3106.

DINING ROOM SET - like new; living room set; desks, dressers, bicycles, lamps, etc. Ext. 3702 or 751-1042 eves.

Tools, House & Garden

SINK - & toilet, both yellow, v.g. cond. Nancy, Ext. 3309.

KITCHEN SINK - w/beautiful oak cabinets, above & below, w/faucet, 5' long, $325. Bill, Ext. 2378 or 758-3284.

LAWN MOWER - Simplicity, ride-on, elec. start, w/grass catcher, low hours, excel. cond. Ext. 5318.

GENERATOR - 4 kW, Niagara, never used, $395. Ext. 3589.

MACHINIST'S TOOLS - new & used, reasonable; maple desk, $15; Grundig console radio/phono; four P235/7.SR15 tires, $50. 878-6637.

LAWN MOWER - gas, $20; Black & Decker weed wacker, $20; house plants, $3-$5. Tim, 744-2203.

Sports, Hobbies & Pets

ROTTWEILERS - champion breed, birth due early Sept., will hold for Christmas. 654-1146.

BEAGLE PUP - 2 mo. old, male, pure breed, good hunting parents, $150. Joe, Ext. 4986.

CAMPING EQUIPMENT - 2 down sleeping bags, $45/ea.; backpack, external frame, $30; sleeping pad, $12. Jock, Ext. 4447 or 744-3919 eves.

R/C MONSTER VW - 1/12, Kyosho battery, Hobbico dc charger, Futaba attack radio, case, extras, asking $125. Mike, Ext. 7160.

HAM TRANSMITTER - Heathkit DX60, AM, CW, $40. Frank Rumph, 281-1457.

VIOLIN - ⅛ size, Suzuki, good tone, $80. Peter, Ext. 7687 or 744-1112.

FIGURE SKATES - woman's, size 8, $20; DP-Trac20 exercise machine, extra weights, must sell, orig. $500, sell for $250. Carl, 286-0271.

BIKE - Raleigh Gran Prix, 10-spd., 25½", blue, kickstand, fenders, toe clips, rack, Avocet touring saddle, cyclometer, handlebar bag, $90. 744-0892.

BICYCLES - 20", boy's, $30; 20", girl's, 3-spd., $40, both good cond. Paul, 727-4859.

BIKE - woman's, new, $50; sleeping bag, $15; roller skates, $10; various camping equipment. Tina, Ext. 3078.

Audio, Video & Computer

TV - color, 19", portable, v.g. cond., $75. Mike, Ext. 7160.

TV - GE, color, 13", remote control, auto program, 2 mo. old, warranty still valid, orig. $250, asking $150. Koom, Ext. 2963 or 3020 after 6 p.m.

CAMERA - Olympus OM-1, 28mm, 50mm & 135mm lenses, 80-205 zoom, flash, 2x telextender, power winder, $200/all. Mark, Ext. 7978.

CASSETTE STEREO - Sound Design, $30. 472-3254.

TYPEWRITER - IBM Selectric II, good cond., $50. Kathy, Ext. 2267 or 395-6520.

TV - Hitachi Solid State, color, 13", excel. cond., $80; Fidelity electronic Chess Challenger, 9", like new, $55. Ext. 3589.

Miscellaneous

BOTTLES - old, 6¼ & 6½ oz., Coca Cola. O. Booker, Ext. 3082 or 727-5912.

DOUBLE STROLLER - playpen, humidifier, blender, infant clothing. Zamir, Ext. 3106.

Free

CATS - orange tiger, 1 yr. old, neutered males, excel. for pets, gentle, love people. Tim, Ext. 3436 or 727-7741.

PATIO DOOR - alum., 6'x6'8" w/screen, pick up. Witkover, Ext. 4607, 368-0452.

CELLAR STAIRWAY - 8' rise, 3' width. Don, 286-2267.

Yard & Garage Sales

BELLPORT - furniture, toys, tools, collectibles, household items, more. Sat., Aug. 25, 9-4 p.m., 92 Circuit Road. Ext. 3569.

BROOKHAVEN HAMLET - Sat., Aug. 25, 10-4 p.m., rain or shine, 5 Beach St., off Carmen Blvd. 286-0353.

EAST PATCHOGUE - Sun., Sept. 2, & Mon., Sept. 3, lots of goodies, 10-5 p.m., 41 Bay Road. 286-3209.

EAST SETAUKET - Sat., Aug 25, 375 Old Town Road, opp. Ward Melville High School. Lew, Ext. 5193.

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

BELLPORT VILLAGE - 2 bdrms. + sleeping loft, 2 full baths, French doors & windows, skylights, 3 decks, outside hot tub, steps to golf & tennis, $1,200/mo. + util. Susan, Ext. 2888 or 286-0422.

BELLPORT VILLAGE SOUTH - 3 bdrm., 2 baths, furn., nonsmoker, no pets, near bay, Sept.-June occupancy. 286-0466 or 286-9389.

BROOKHAVEN - 6-rm. house, 2 baths, fully furn., avail. Oct. 15 for 1 yr., $800/mo. + util. 286-2267.

BROOKHAVEN HAMLET - top floor apt., l/r, bdrm., eik, full bath, priv. ent., walk to water, new appl. Dorry or Linc, 286-8689.

CENTER MORICHES - 2-bdrm. apt., new appl., $675/mo. + util. George, 878-1178.

CORAM - 7-rm. ranch, 17 min. to Lab, 20 min. to SUSB, $500/mo. + util., short term only. 928-7154 after 7 p.m.

CORAM - 2 bdrm., l/r, kit., bath, $700/mo. + util., Sept 2 occup., 1 mo. sec. Lynette, 732-4460.

CORAM - furn. 1-bdrm. apt., l/r, eik, full bath, priv. ent., $575/mo. + bottle gas, 1 mo. sec., Sept. 1 occup. Lynette, 732-4460.

FARMINGVILLE - 3-rm. apt., furn., priv. ent. & driveway, 10 min. from Lab, cable, $550/mo. pays all. Ext. 3160 or 289-5704 after 5 p.m.

GORDON HEIGHTS - 1-bdrm. apt., furn., priv. ent., extras, no children or pets, $550/mo. includes all. Renee, Ext. 3316 or 698-1362.

MATTITUCK - 2-bdrm. ranch, d/r, l/r, bsmt., w/d, gar., $1,000/mo. + util. & sec., avail. Sept. 1. Dave, Ext. 5460.

N. SHIRLEY - furn. apt., bdrm. & l/r combo, eik, w/w, skylight, priv. ent., nonsmoker, no pets, $490/mo. util. incl., sec. 281-8044.

PATCHOGUE - 1-bdrm. gar. apt., 2 baths, semi-furn., nonsmoker, no pets, $600/mo. + util. & sec. Ext. 4214 or 475-5543.

RIDGE - furn. studio apt., carpeted, kitchen, bath, fenced-in yard, 5 min. from Lab., nonsmoker, $500/mo. 744-8632.

ROCKY POINT - furn. studio apt., kit., bath, l/r-bdrm. combo, nice area, one person, nonsmoker, $425/mo. incl. all. 744-8659.

SETAUKET - 3-bdrm. ranch, 2 baths, eik, d/r, l/r, 2 car gar., all appl. 751-5667.

SHIRLEY - 1-bdrm. apt., l/r, eik, full bath, priv. ent., working couple, no pets, no children, $700/mo. + sec. 281-7891 eves.

SOUND BEACH - 2-bdrm. contemp., w/w, l/r Euro-style kit., d/r, master bdrm. w/cath. ceil., small bdrm. w/loft & skylight, deck, $800/mo. + util., avail. immed. Erik, Ext. 4603 or 929-6945.

SOUND BEACH - 2-bdrm. ranch, 1 bath, l/r, d/r, eik, w/d, Miller Place SD, bsmt., 11 miles from Lab., avail. Sept 10., $850/mo. + util. & sec. 821-4553.

SOUND BEACH - new 4-rm. apt., 2-car driveway and cable, couples preferred, $650/mo. + sec. includes all. F. Trapani, 744-6014.

STONY BROOK - 3-bdrm. Colonial, 2½ baths, l/r, d/r, eik, ⅓ wooded acre, new appl., 5 min. to SUNY, immed. occup. 751-8351.

WADING RIVER - 3-room apt., eik, full bath, one person, no pets, nonsmoker, $500/mo. incl. all, avail. Sept. 8. Janet, Ext. 2345 or 929-3910.

WESTHAMPTON - 3-bdrm. ranch, 2 baths, w/igp, deck, fp, 20 min. from Lab, $800/mo. winter, $1,200/mo. full year. Bob, Ext. 3782.

For Sale

BELLPORT VILLAGE - 2 bdrm. + sleeping loft, 2 full baths, French doors & windows, skylights, 3 decks, outside hot tub, steps to golf & tennis, $265,000. Susan, Ext. 2888 or 286-0422.

BROOKHAVEN HAMLET - circa 1738, 2-bdrm. cottage, wide planked flrs, hand-hewn beams, keeping rm. w/fp, greenhouse off kitchen, 2 baths, $225,000. Susan, Ext. 2888 or 286-0422.

CORAM - Strathmore East, 4-bdrm. ranch, 2 baths, cathedral l/r, 2-car gar., gas heat, fenced yard, $120,000. 928-7154 after 7 p.m.

EAST HAMPTON - East Hampton Mobile Home Village, '82 Redmond Mobile Home, 14'x56', 2 bdrm., 1 bath, fam. park, all appl., shed. John, 324-0220 after 6 p.m.

HAMPTON BAYS - 3-bdrm. ranch, fp w/stove, fin. bsmt., igp, wood deck, close to ocean, bay & town, $190,000. Charles, 728-1931.

MATTITUCK - 2-bdrm. ranch, full bsmt., gar., deck, walk to beach, near marina, $175,000. Dave, Ext. 5460.

MIDDLE ISLAND - Lake Pointe, 2 bdrm., l/r-d/r area, cac, all appl., w/d, wood deck off master bdrm., pool, tennis and clubhouse, reduced, ask. $76,000. Bob, 924-7316.

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

N. SHOREHAM - 3-bdrm. ranch, 2 baths, lr/, fd/r, eik, gar., ½ acre wooded lot. priv. backyard, immed. occup. $159,000. Penny, 214-708-2060.

RIDGE - 3-bdrm. townhouse, 1½ baths, cac, w/w, all appl., upstairs newly carpeted, encl. redwood patio, storage rm., low monthly maint., 5 min. to Lab, red. to $93,000. Mary, 924-4328.

SETAUKET - custom 3-4 bdrm., d/r, patio, 2 baths, 2-car gar., beach rights, red. to $229,000. 473-4666.

TAMPA, FL - Paradise Village Mobile Home Park, 82 Liberty Mobile Home, 14'x56', 2 bdrms., 1 bath, fam. park, all appl., cac, awning, shed, excel. cond. Glen, Ext. 7148 or 477-8699 after 6 p.m.

TOBYHANNA, PA - 3 bdrm., 2 baths, fam. rm., gar., 24-hr. sec., maint. free, pool, tennis, clubhouse, lake, paddle boats, close to everything, $110,000 neg. 471-2370.

HUBBARTON, VT - 38 deeded acres situated on town-maintained road w/power & telephone, largely wooded, sothern exposure w/.view of Lake Bomoseen, ask $39,000, neg. Tom, Ext. 2823.

Wanted

TRAINS - Lionel set for kids, reasonable price. Paul, 727-4859.

TUBED AUDIO COMPONENTS - by Macintosh or Marantz, working or not. Jim, Ext. 4584.

TRUMPET - Bach, silver, good cond. Peter, Ext. 7687 or 744-1112.

JUNK CARS & TRUCKS - will remove for free. 589-9103.

CRAFTSPEOPLE - to organize a private craft sale. Ginny, 727-5194 after 5 p.m.

PEOPLE TO JOIN - nondenominational Christian fellowship group, every Thurs. at noon, in the Rec. Bldg., apt. area. Pete, Ext. 3297.

MINILOP BUNNY - 4-6 weeks old, sometime around mid-Sept. John, Ext. 4379.

ORNITHOLOGIST - need advice on rearing wild bluebird. Frank, Ext. 2022 or 399-4480.

HOUSEMATE - to share 3-bdrm. house in Mastic Beach, 15 min. to Lab, $400/mo. incl. all. Jonathan, 395-5221.

HOUSEMATE - to share priv. home in Middle Island w/own bdrm., 7 min. to Lab, no drinkers, smokers, druggies. Bonnie, 924-2638.

HOUSEMATE - to share new 2-bdrm. condo w/female professional in Middle Island, 5 min. to Lab, $450/mo. + ½ util. 751-8351.

BABY-SITTER - for 6-yr.-old boy, Mon.-Fri., 3:30-5:30 p.m. school days, pref. on site. Rao, Ext. 5072 or 732-4016.

BABY-SITTER - for 2 children, days, 8 a.m.-3 p.m., 2 or 3 days per week, $3/hr. 345-3778.

HOUSEKEEPER - Mon, Wed., Fri., Sat., nonsmoker, 744-4611 after 6 p.m.

DRIVER - to share ride from New York to San Francisco and back, first week of Sept. Arup, Ext. 3687.

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