BROOKHAVEN BULLETIN
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BROOKHAVEN NATIONAL LABORATORY

On the Cadmium Trail

Lightning may never strike twice in the same place, but BNL's Medical Department does. Next week Ken Ellis, Roman Shypailo and Peter Yim will travel to Denver, Colorado, to conduct a follow-up study on workers at a smelting plant exposed to cadmium, a toxic heavy metal. Ellis's team will be monitoring changes in the amount of cadmium in workers seven years after the first measurements were made. They will also examine the effectiveness of air-quality control programs designed to reduce cadmium exposure.

To conduct examinations, Ellis is taking a mobile lab, which he designed for the first trip in 1979. The 30-foot trailer has facilities for medical examinations and houses a radiation source, shielding and a detector system needed to perform *in vivo* cadmium measurements.

The group will examine current and retired employees of the smelting plant. They will collect blood and urine samples for biochemical analysis and will measure *in vivo* the levels of cadmium in the liver and kidneys using a prompt neutron activation technique. This method uses a collimated beam of neutrons aimed at the target organ. When the cadmium captures the neutrons, it emits a characteristic gamma ray, which is then monitored by the detectors. This measurement requires about 15 minutes to complete.

Ellis's current study, which is funded by the International Lead Zinc Resource Organization and the Department of Energy, complements the 1979 study. By retesting the same workers, Ellis hopes to establish a mathematical model that describes how cadmium is distributed in the human body. "In man, the biological half-life of cadmium, for example, is anywhere from ten to thirty years," he said. This parameter refers to the average time in which half the original amount of the metal can be expelled from the body.

Ellis hopes that this study will determine if air-cadmium concentration regulations provide a sufficient margin of safety for industrial personnel. "In determining what are acceptable levels of cadmium exposure, it really matters whether the biological half-life is closer to ten or to thirty years," he said. By examining retired workers, he will be able to measure directly the loss of cadmium after the workers have terminated employment. Examination of current employees may show whether the cadmium half-life in the body is related to the level of exposure.

The primary means of cadmium uptake is inhalation through the lungs. After cadmium enters the blood, it becomes sequestered in the liver and kidneys. The liver primarily removes cadmium from circulation by producing a protein that has a high selectivity for binding cadmium. The cadmium-protein complex is then stored in the liver and kidneys. When the level in the kidneys is high, it can cause permanent damage to this organ.

The secondary cadmium accumulation in the kidney leads to irreversible damage and to diminished "reserve capacity" function. A healthy kidney has the capacity to filter wastes from the body at an increased rate during times of stress, which can occur during heavy exercise, for example. A kidney damaged by cadmium loses its ability to respond effectively to stressful situations.

The slow build-up of cadmium in the liver and kidneys has a toxic effect, which can be measured biochemically. Unfortunately, these indices appear only after the damage has occurred. Ellis and his group will perform biochemical tests upon blood and urine samples taken from workers and compare the results with their *in vivo* measurements. They will be looking for early indications of kidney damage and dysfunction. One marker will be the use of a radioimmunoassay specific to the cadmium-protein complex.

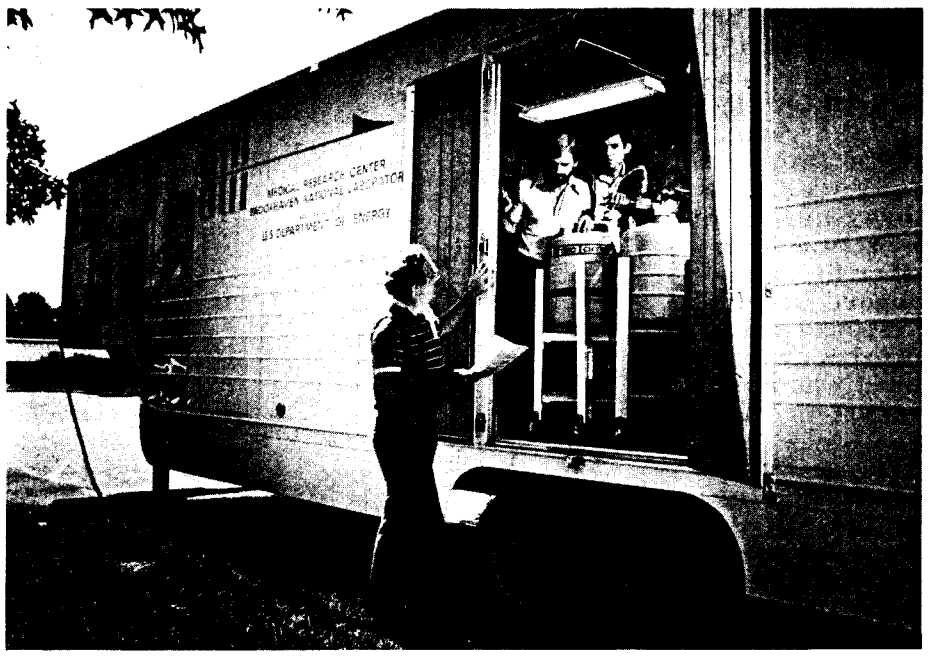
Ellis also notes that workers who smoke cigarettes have higher levels of cadmium in their bodies. But there is not enough in cigarettes alone to account for the increased amounts of the metal that have been detected. Cadmium fumes already in the air combine with the cigarette smoke that these workers inhale. Ellis explains that cigarette smoking and exposure to cadmium fumes appear to create a synergistic effect, in which the combination may be worse than the two separately.

A secondary way in which cadmium enters the body is through ingestion. Workers who get cadmium on their hands can ingest it when eating. Only about 2 to 3% of cadmium absorption occurs orally, however.

Although cadmium can be highly toxic, it has important industrial uses. It is used in photovoltaic cells, plastics, paints and electronics. Because it inhibits the formation of rust, it is frequently used for plating iron and steel. It improves solderability and surface conductivity of metals, and can function as a control absorber and shield in nuclear reactors. Cadmium can be released into the environment when coal is burned.

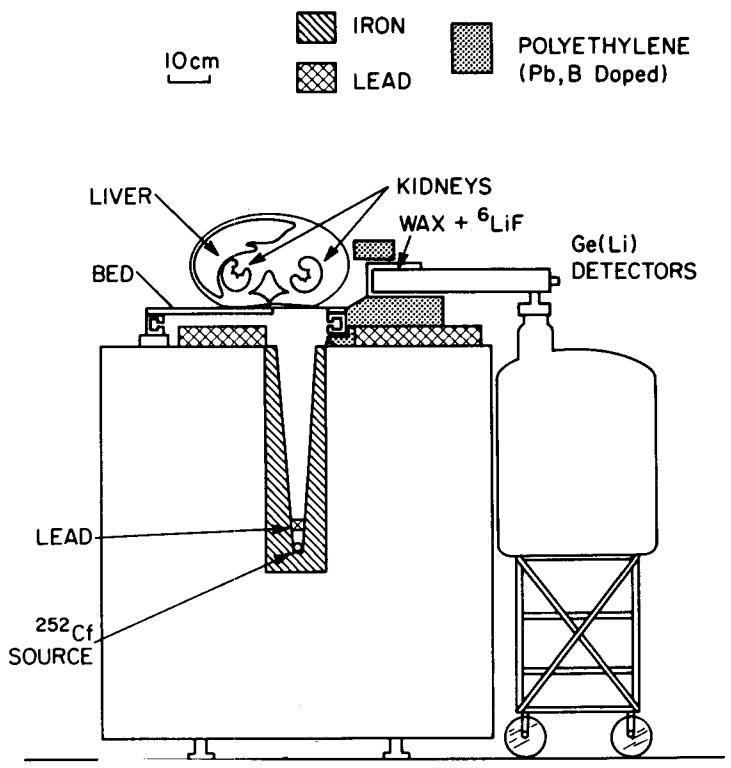
The trip to Denver, Colorado, will be no vacation. Ellis plans to examine 60 to 80 volunteers from the smelting plant and anticipates work days stretching from 6 am to 11 pm. When he returns to BNL, he will begin analyzing the data. He hopes to publish his preliminary findings at a conference at BNL at the end of September.

— Howard Rubin



Mort Rosen

From left, Ken Ellis, Roman Shypailo, and Peter Yim prepare the mobile lab for a trip to Denver, Colorado.



A schematic diagram of the *in vivo* measurement system to monitor the levels of cadmium in the liver and kidneys. A beam of collimated neutrons from a Californium source in a DOE certified transportation container is aimed at a target organ. When the cadmium in an organ captures neutrons, it emits a characteristic gamma ray, which the detectors can record. This technique is called prompt neutron activation.

Inside Info

Alfred P. Wolf, chairman of the Chemistry Department, has been honored by the Journal of Applied Radiation and Isotopes (JARI). He is the recipient of the JARI Award Medal for 1986. Wolf was cited for his "outstanding contributions to applications of radiochemistry to nuclear medicine and radiopharmacy, in particular, [for] his outstanding leadership in the cyclotron production of short-lived radionuclides and the development of techniques for their incorporation in radiopharmaceuticals."

The award was presented last week at the 5th International Radiopharmaceutical Chemistry Symposium in Boston. In his acceptance, Wolf said he shared the award with his colleagues who contributed to this work in a major way.

Wolf also has received the American Chemical Society Award in Nuclear Applications in Chemistry and the Society of Nuclear Medicine's Paul C. Aerbersold Award for outstanding achievement in basic science applied to nuclear medicine. In 1983, he was awarded an honorary doctorate from the University of Uppsala, in Sweden.

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At its 31st annual meeting, in Pittsburgh, the Health Physics Society honored **Victor P. Bond.** He received the 1986 Distinguished Scientific Achievement Award for having been a "tireless contributor to the basic concepts in radiobiology and radiobiophysics and to the application of these sciences to our basic needs in protecting man and his environment from the harmful effects of radiation."

Bond joined the scientific staff of the Medical Department in 1954 and became its chairman in 1962. Throughout his five years as chairman and the following 17 as Associate Director for Life Sciences, he continued with his research. In 1984, he relinquished his administrative tasks entirely and now devotes his working day solely to research.

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John (Jack) P. Russell, Senior Contracts Specialist, Contracts and Procurement Division, has been designated a Certified Purchasing Manager (C.P.M.) by the National Association of Purchasing Management. Of the membership in the Long Island Chapter of the Purchasing Management Association, approximately 10% has successfully completed the testing and certification requirements for the C.P.M. Russell has been at the Lab since 1979 and now specializes in construction contracting.

Karl Beckurts Held BNL Appointment

Karl Heinz Beckurts, research director for Siemens, West Germany's largest electronics company, was killed by a terrorist bomb on July 9. A nuclear physicist, he had a long-standing affiliation with BNL.

From February 1968 to February 1969, Beckurts was a research collaborator with the Nuclear Cryogenics Group at the HFBR, conducting low temperature experiments with polarized neutrons. At that time he was director of the Institute for Applied Nuclear Physics in Karlsruhe, Germany. Beckurts also worked at BNL during the summers of 1974 and 1978.

Vance Sailor, a retired BNL employee and colleague of Beckurts, recollects that he first met Beckurts in Germany. "I met him 30 years ago the day before he got his doctorate. He was working in the lab of Werner Heisenberg," (a Nobel prize winner in physics and a founder of quantum theory). "Karl Beckurts was an extremely talented physicist and good friend to me and many on the BNL staff. We will all miss him," Sailor says.

BNL Keeps Watchful Eye on Environment

Story: Marsha Belford
Photos: Mort Rosen

The Lab's goal is to keep the impact of its operations on the environm low as can be reasonably achieved. To ensure this, an on-going environm monitoring program is carried out by 12 staffers of the Safety & Environme Protection (S&EP) Division. They determine how well the Lab is controllin production, treatment and release of any environmental pollutants, and well the Lab is meeting environmental standards and requirements.

The water on site is examined for the presence of metals, organic compo and radioactivity; the air overhead is looked at for the latter as well. The nun and types of samples taken over the years have grown to include produce soil from local farms, milk from local dairies and fish from the Peconic River principal tributary of which arises in marshes in the northern and eas sections of the site. S&EP Senior Technician Richard Lagattolla makes d rounds along the back roads of the Lab to collect samples at about 30 monito stations on site.

Every Tuesday morning, Lagattolla sets out buckets at the five spray-aeration locations on site. Four hours later, he collects the water that was sprayed into the air and rained down into the buckets. The spray-aeration project was undertaken in April to remove organic compounds called chlorocarbons found in the water underlying the Hazardous Waste Management Area, thus avoiding contaminating the environment off-site. The decontaminated water is then returned to the aquifer, and it is projected that the decontamination will be completed by the end of the year.

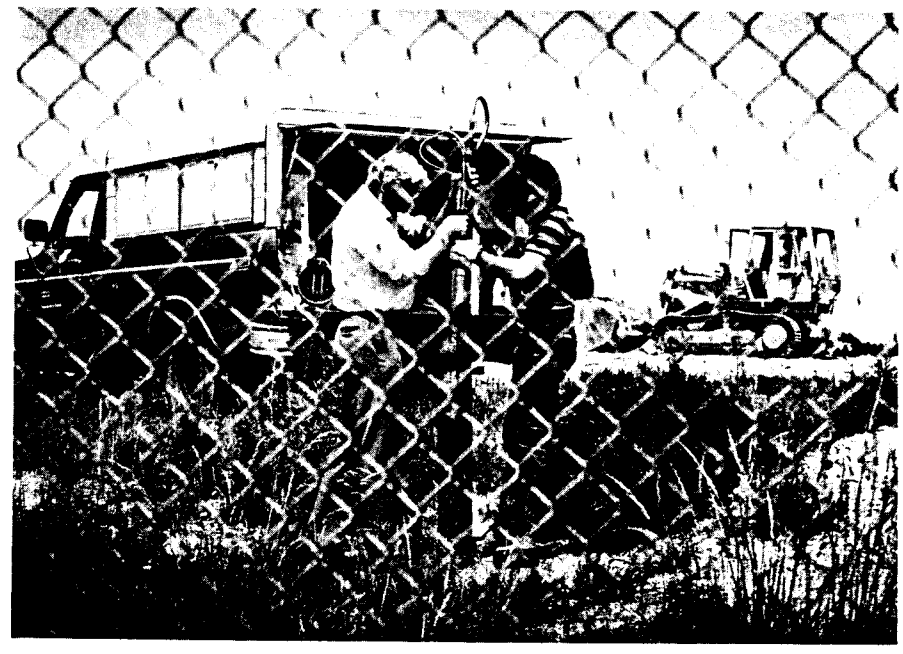
Rain water is collected by two large funnels, which channel the water into jugs labeled "daily" and "weekly." The water is processed to see how much alpha, beta and gamma radiation, and tritium is in rain water. A fraction of each rain-water collection is retained so a monthly determination can be made of the amount of strontium-90, which is a result of world-wide fall-out from nuclear weapons testing.

Lagattolla is seen removing the filters from the positive displacement air pump at BNL's sewage treatment plant, one of the five air samplers on site. Weekly, he collects a particulate air filter, which is analyzed for alpha and beta radiation using a proportional counter. And once a month, he replaces the charcoal cannister, which is examined for gamma-emitting nuclides.

As he can be found doing th times a week, Lagattolla che the Peconic River's pH, cond tivity and dissolved oxygen lev by the old site boundary, appr imately 225 meters downstre from the sewage treatment pl discharge point. Another sam site is at the present site bo dary, about 700 meters fr point of discharge, and the th 19.5 kilometers away, at Riv head. At these three stations, s face water samples are automa cally collected over specified intervals by a pump and a t. proportional sampler, located the hut.

Once a year, Ecologist Jan Naidu (right) goes fishing on the job. As head of S&EP's Environmental Protection Section, he fishes the Peconic on-site with three New York State Department of Environmental Conservation (NYSDEC) biologists. Since NYSDEC has designated the Peconic a Class C river, the Lab is permitted to discharge the effluent from its sewage treatment plant into the river.

Using an electrofishing unit to stun their catch, the NYSDEC biologists then classify, weigh and measure each fish. They return non-edible fish to the river; edible fish are sampled by S&EP for radionuclides. The Peconic at Donahue's Pond and near Riverhead are also fished annually for comparison.



BNL has nine drinking water wells, four for cooling the AGS, H and Medical Reactor — and about 100 wells for monitoring grou water quality. Lagattolla is seen with Senior Technical Supervis Joseph Steimers using a submersible pump to sample groundwat underlying BNL's landfill.

The aquifer underlying Long Island is our sole source of drinki water, and thus is guarded by Environmental Protection Agency reg lations. The Lab uses around six million gallons per day, and retur about four million gallons per day to the aquifer through on-si recharge basins.

The 3,000 samples per year brought in from the field by Lagattolla are examined in S&EP's analytical chemistry laboratory and radionuclide counting room. Chemistry Associate Ellen Gannon-Weider is seen in the analytical chemistry lab looking at the chlorocarbon analysis of a water sample. The analytical chemistry laboratory passed rigorous tests to become certified by the New York State Department of Health.

In the counting room, (from left) Joseph Steimers, Senior Technician Robert Litzke and Technical Specialist Philip Hayde analyze radioactive samples. The radionuclide counting room participates in the quality assurance program of the U.S. Department of Energy's Environmental Monitoring Laboratory in New York City.

The environmental monitoring data are continuously reviewed by (seated, from left) Jan Naidu, Robert Miltenberger, Lawrence Day, (standing, from left) Sujit Banerjee and Joseph Steimers. After the data is analyzed, changes in BNL's operations and the monitoring program itself are made, if necessary. All the information is compiled into BNL's annual Environmental Monitoring Report. As it has done for the past 24 years, BNL has again made public its latest report, this one for 1985.

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Did you know? On June 22, 1976, a time capsule, constructed of polymer materials by the Process Technology Division of the Department of Applied Science, was buried by the students of the Middle Island Elementary School, on the school grounds. The capsule, which contains information about its construction, should be opened in 2076. Only 90 years to go now.

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Did you know? Groundbreaking for Berkner Hall took place on July 14, 1966.

T-Shirts

Last call for "Brookhaven National Laboratory - Summer '86" T-Shirts. The deadline for ordering is August 4. The cost is $5 cash, or money order to "Renee Flack - T-Shirts '86," Bldg. 460.

Equipment Demos

A seminar and demonstration on digital image processing will be given on Tuesday, July 22, between 10 a.m. and 2 p.m. in the lobby of Berkner Hall, by Imaging Technology, Inc. The system is used on an IBM/PC.

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Long Island Computer Products, Inc., will show the new NEC APC IV computer and the NEC Printer line at Berkner Hall on Thursday, July 24, between the hours of 10 a.m. and 3 p.m.

Representatives from Long Island Computer & NEC will be on hand to provide information on application software (computer-aided design, desktop publishing) and the high resolution graphics available on these new systems.

NYC Train Trips

The Hospitality Committee is planning two group railroad trips to the city in the next two weeks.

One is on Saturday, July 26, leaving at 9:08 a.m. Round-trip fare is $6.50.

The second trip is on Wednesday, July 30, leaving at 7:55 a.m. The round-trip fare is $5.00. Refunds will be made only if cancellations are received by the Monday morning preceding the trip.

Fares for both trips must be received no later than Thursday, July 21. Children under five years ride free. All departures are from the Patchogue LIRR station. To reserve a ticket send your fare through the U.S. mail to BNL, P.O. Box 322, Upton, New York 11973. Do not send cash. Put the date of the trip, your telephone number and BNL life number on the check. Tickets will be given to you on the train.

Cafeteria Menu

Week of July 21

Monday, July 21

French onion soup	(cup)	.65
	(bowl)	.85
Veal Parmesan w/one veg.		2.65
Pepper steak over confetti rice		2.45
Hot vegetable plate (lite weight)		2.25
Hot Deli: Corned beef	(bread)	2.35
	(roll)	$2.50

Tuesday, July 22

Turkey noodle soup	(cup)	.65
	(bowl)	.85
Sweet & sour fish w/one veg.		2.45
Baked ziti w/French bread		2.45
Avocado stuffed with turkey salad (lite weight)		2.35
Hot Deli: Monte Cristo sandwich		2.35

Wednesday, July 23

Cream of broccoli soup	(cup)	.65
	(bowl)	.85
Beef stew w/biscuits		2.45
Taco plate		2.45
Spinach souffle'/salad (lite weight)		2.25
Hot Deli: Grilled Reuben		2.45

Thursday, July 24

Tomato beef vegetable soup	(cup)	.65
	(bowl)	.85
Chicken stir fry w/snow peas		2.45
Texas BBQ beef w/one veg.		2.45
Turkey avocado in pita (lite weight)		2.25
Hot Deli: Roast beef	(bread)	2.35
	(roll)	2.50

Friday, July 25

New England clam chowder	(cup)	.65
	(bowl)	.85
Fried clam plate w/one veg.		2.55
Broiled fish w/one veg. (lite weight)		2.65
Meat loaf w/mushroom gravy and one veg.		2.45
Hot Deli: Pastrami	(bread)	2.35
	(roll)	2.50

In Line for a Line

If you try to dial one of the five boroughs of New York City, lower Westchester or western Nassau and all the trunks are busy, you won't have to try and try again to place your call. "Trunk queuing" will do it for you. On Monday, July 21, this new telephone feature will become effective for Treatment II, IV and IX phones.

Instead of getting a fast busy signal, you will hear three bursts of tone, followed by two beeps. To use the new queuing feature, depress the switch hook: you will hear a steady ringing sound. Next dial 5: you will hear an announcement. Then hang up. You can continue to make and receive other calls while in queue.

When a trunk becomes available for your call, you will be called back, just like when you camp on someone else's line. Your phone will ring for 15 seconds. Pick up the receiver, and the call you tried to make will be completed.

If you do not pick up your phone when it calls you back, your call will remain in line for another cycle through the queue. If you do not answer after being called back a second time, your call will be dropped from the queue. To cancel a queue call before it is completed, press # and 59.

Arrivals & Departures

Arrivals

Glenn A. Dicker	NSLS
John J. Borstock	Sfgrds & Sec.
Iris C. Caceres	Sfgrds & Sec.
Thomas J. Dolan	Sfgrds & Sec.
George R. Misson	Sfgrds & Sec.
Mark A. Opisso	Sfgrds & Sec.
Susan H. Shannon	Sfgrds & Sec.
Christopher Solimine	Sfgrds & Sec.
Tina M. Warner	Sfgrds & Sec.

Departures

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

Felix Berrios	Sfgrds & Sec.
Waverly T. Busby, Jr.	Sfgrds & Sec.
James P. Faughnan	NSLS
Anthony J. Montenigro	Plant Engr.
Thomas O. O'Shea	Sfgrds & Sec.

Social Club

For more information on the new BNL Social Club, contact Doris Terry, Ext. 2228, Bldg. 197C. Details on trips and activities and a membership form will be sent to you. Fees are $3 a person, or $5 per family for one year.

Theater Group

The BNL Theater Group will hold its annual election of officers on Thursday, July 24, in the Berkner Hall Auditorium. Socializing starts at 7:30 p.m.; the meeting begins at 8 p.m.

Following the election, the group will conduct a program on improvisation. Anyone interested in participating should contact Karl Swyler at Ext. 7171.

Softball

League I
Week of July 7
Ravens 19 - Moles 5
Phoubars 9 - Cool 'N Gang 3

League II
AMD 9 - Lights Out 6
AMD 9 - Lights Out 8
Scram 10 - Binary Bombers 2
Binary Bombers 11 - Scram 10
Phase II 7 - Medical 6
Medical 11 - Phase II 2

League III
Farm Team 17 - Who Cares 3

League IV
Foul-Ups 13 - Spacekadets 10
Underalls 14 - No Feedback 12
Who's on First 19 - Sand Boxers 14

Makeup Game:
Foul-Ups 11 - Simply Awesome 7

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.

LABORATORY RECRUITMENT - Opportunities for present Laboratory employees

2454. SECRETARIAL POSITION - Under close supervision will perform clerical tasks to include word processing (NBL), technical typing, records and forms processing, file maintenance, bulk mailing, mail sorting and phone answering. Department of Nuclear Energy.

2455. SECRETARIAL POSITION - Requires AAS degree in secretarial science or equivalent experience and excellent secretarial and communication skills. Duties include the preparation of manuscripts, reports, grant proposals and correspondence on a word processor (Micom), arranging travel and meetings, etc. Medical Department.

2456. MATERIAL HANDLER - Supply and Materiel Division.

OPEN RECRUITMENT - Opportunities of Laboratory employees and outside applicants.

2457. ENGINEERING POSITION - Requires BSEE or equivalent plus three years pertinent experience in electrical safety. Knowledge of National Electric Code and ability to review engineering drawings is required. Knowledge of occupational safety and health fields is desirable. Safety and Environmental Protection Division.

2458. TECHNICAL POSITION - Requires AAS in optics technology plus two to five years' experience in handling and use of mirrors, beam splitters, optical detectors, operation and use of commercial lasers, etc. Working knowledge of dye lasers and common laboratory equipment (e.g., oscilloscopes, power supplies, etc.) is desirable. Department of Nuclear Energy.

Autos & Auto Supplies

77 HONDA - hatch, rebuilt trans., eng., new brakes, clutch, tape deck, 4 spd., 34 mpg. $520. Ext. 3164.

81 FORD ESCORT "L" WAGON - 4 spd., p/b, sunrf., am/fm stereo cass., excel. mech. cond., immaculate. $2,600. Ext. 3293 or 751-7408 after 3 p.m.

75 DUSTER - runs very well, needs repair of K-frame. $400. Barbara, 281-5563.

79 TOYOTA COROLLA - good cond. in & out, am/fm a/c, cb. Asking $1,800. Mike, 821-9709.

80 BUICK LIMITED - 4 dr., white, p/s, p/b, tilt steering, high mi. $2,200. 286-0345, eves.

78 TOYOTA COROLLA - hatchback, good cond., 5 spd., excel gas mi., 66k. 935-5366, eves.

75 FORD PINTO - station wagon, good cond., Don, Ext. 5329 or 878-2215, eves.

MOTORCYCLE HELMET - full size S-M, new, $20 or trade for M-L ¾ type. Gil, Ext. 4043.

67 CORVETTE - convertible, 2 tops, 427, orig. eng., excel. cond., $17,300. Fran, Ext. 3536 or 567-8510.

TIRES - F78-14 on GM wheels, excel. cond. $30/pr. 473-3364 eves.

78 JEEP CJ7 - mint cond., soft and hard top., low mi., $4,000. 475-4199.

74 MUSTANG II - many good parts, $350. Dave, Ext. 3093 or 281-0062 eves. & wknds.

77 PONTIAC LeMANS - 100k mi., good tires, new rad., a/c, everything works, $295; 72 Hornet, 2 dr., 78k org. mi., rebuilt trans., new rad., new battery, good tires, a/c, p/s, $1,200. 472-1479.

72 PLYMOUTH DUSTER - 6 cyl., new brakes, shocks, exhaust, tires, alt., very good cond., $800. 331-4281 after 5.

CAR LIFT - Walker electric 4 post, $900 or best offer. 732-1355, eves.

79 FORD LTD WAGON - a/t, p/s, p/s, a/c, many new parts, 85k mi., excel. cond., $2,200. Ext. 2245.

75 FORD - V8, a/c, p/b, p/s, a/t, am/fm, new trans., tires, rel. transp., $650. Ext. 7901 or 821-9328, eves.

82 PLYMOUTH CHAMP - 87k mi., excel. cond. Asking $2,800. Ext. 2575 or 563-2889.

84 HONDA MAGNA - black, 700cc, mint cond. 666-8339 after 6 p.m.

VOLVO 122S - fiberglass front fenders, Koni shocks, misc. other parts, reasonably priced. Andrew, Ext. 7175.

76 MAVERICK - 6 cyl., p/s, new brakes, runs well, looks good. $575. 874-2782 after 6 p.m.

MOTORCYCLE TIRES - Bridgestone superspeed, 4 ply rating size 350S18, $10. Paul, Ext. 4309.

79 PEUGEOT - gas reb. eng., new exhaust, sunrf., p/s, p/b, p/w, $2,600. Ext. 4493 or 286-8869.

73 HONDA - 750cc, custom seat, sissybar, trunk, windshield, very good cond., $700. Frank, Ext. 2022 or 399-4480.

80 MERCURY ZEPHYR WAGON - 200 c.i., 6 cyl., auto., p/s, p/b, a/c, stereo, cruise, 74k mi., $2,000; 74 PINTO WAGON, 58k mi., best price over $300, leaving must sell. Paul, Ext. 4331 or 924-1421.

TIRES - (4) all season radials, P185/80R13, $25 ea., min. usage. Harris, Ext. 2760.

77 MERCURY COUGAR - good running cond., asking $1,100; 72 MERCEDES BENZ, good running cond., needs work, 4 dr., model 250, asking $2,200. John, Ext. 3292 or 286-1348.

CARRIER ROOF RACK - for Volk., $10. Ken, Ext. 2705.

85 RENAULT ENCORE - am/fm, 40+ mpg, 25k mi., excel., $4,800. Ed, Ext. 3293 or 477-2880.

82 CHEV. CAVALIER - 4 dr., 4 cyl., 4 spd. manual, 72k mi., excel. cond., $3,000. Ext. 5120 or 878-2687 eves.

83 HONDA - CB11OF, 1100 mi., new cond., must sell, $2,500. Kevin, 585-6017 after 6 p.m.

73 PLYMOUTH VALIANT - 4 dr., good cond., $500. Tim, Ext. 3496 eves. or 281-7873 days.

81 KAWASAKI 650 - 7200 mi., very good cond., $1,000. Phil, Ext. 7237 or 473-9357 after 6 p.m.

80 CHEVY CITATION - stick shift, 6 cyl., a/c, 79k, cream puff, $1,850; 79 K2400 MOTORCYCLE, less than 6k mi., excel. cond., $500. 472-4228.

72 PONTIAC LEMANS - 2 dr., 350 V8, a/c, auto. trans., excel. cond., orig. owner, $950. 744-2350.

73 T-BIRD - loaded, good shape, $700. Wick Case, Ext. 2550 or 286-0136.

73 VW BUS - a/t, 20k on new eng., reblt. trans., very good cond., $2,500; 73 VW SQUAREBACK, std., new muff., alt. & batt., reliable, $750. Will trade for a boat. Ext. 4463 or 751-2422.

83 FORD ESCORT - am/fm stereo cass., a/c, p/s, a/t, 4 dr., 2 tone blue, $3,600. Neil, Ext. 2023.

85 DODGE 600 - convertible red/red, every opt., $10,500; '78 PINTO , 4 spd., excel. cond., sunroof, brakes, exhaust, tires, am/fm cass., $975. 924-6918.

78 CHEVY MONZA - 2 dr. wagon, 4 spd., 4 cyl., am/fm cass., runs well, 90k. Kevin, Ext. 4409/4662 or 361-7821 eves.

77 PINTO - 4 spd., 77k mi., new tires, exhaust, runs well, asking $650. James, Ext. 3382 or 744-5422.

74 CHEVY NOVA - V8, auto., running cond., $300. 475-5395.

78 C10 CHEVY VAN - 70k mi., good cond., $2,500; 75 HONDA CB550F MOTORCYCLE, 4 cyl., 7k mi., good cond., $500. Walt, Ext. 4028.

73 CHEVY SUBURBAN - C-10, 350-4, p/s, p/b, cruise control, runs well, $650. Dick, Ext. 3910 or 732-7564.

84 PLYMOUTH VOYAGER - 28k mi., excel. cond., auto, a/c, 7 pass., $8,000 firm. Frank Rumph, Ext. 5105 or 281-1457.

75 VW BUG - 73k mi., many new parts, good cond., reliable, $800. Hsin, Ext. 2014.

81 PLYMOUTH RELIANT - 4 spd., am/fm, 35 mpg, excel. cond., $2,500. 928-4511 after 4 p.m.

SUZUKI - GS250t, 10k mi., extras, excel. cond., $499; custom fiberglass truck cap, Toyota short bed, excel. cond., asking $199, must sell. Jack, Ext. 4411 or 929-8287.

80 CITATION - 4 dr., 4 cyl., a/t, p/s, p/b, a/c, am/fm, 74k mi., very good cond., $1,500; 76 FORD PINTO WAGON, reblt. eng., new brakes, dependable, good for local transp., $400. Ext. 7540 or 751-4491.

81 CUTLASS SUPREME - 2 dr., V6, p/s, p/b, am/fm radio, w/w radial tires, $3,950 or best offer. Ellie, Ext. 3395 or 325-1537 after 6 p.m.

79 MBG - red convertible, super clean, excel. body & mech., $3,000. Julie, (212)466-7570 days or 420-9451 after 7 p.m.

69 FORD MUSTANG - good running cond. 878-6074 eves.

76 VW RABBIT - 4-spd., 2 dr., 93k mi., runs well, must sell, asking $950. 282-2516, Rm. #8 after 6 p.m.

84 CHRYSLER WAGON - fully loaded, mint cond., asking $6,900. Sheila, 477-2262.

86 KX80 - excel. cond., used one season, asking $800. 928-0641.

71 CHEVY NOVA - needs work or for parts, neg.; 71 VW, must see, reblt. trans., eng., $750. Eileen, Ext. 4194 or 924-4922.

74 PINTO WAGON - 57k mi., best offer above $300, avail. July 25. Raul, Ext. 4331 or 924-1421.

75 PLYMOUTH DUSTER - 6 cyl., p/s, a/c, am/fm radio w/cass., good running cond., $550. 924-3236.

77 LINCOLN CONTINENTAL - town car, 2 dr., $2,300 neg., Ext. 3125 or 3590.

77 DATSUN B210 - 4 spd., a/c, am/fm, excel. mech. & cosmetic cond., hatchback, Fla. car, $1,600. Ext. 3395 or 928-4683 eves.

76 CHEVY LUV - truck, 4 spd., new parts, tool boxes, am/fm cass. 563-2751 after 5 p.m.

Boats & Marine Supplies

16' VANTAGE - Bowrider, 60 h.p. Evinrude, bilge pump, extras, $2,500. Ext. 7644 or 929-4295.

79 MERCURY LOWER UNIT - w/ss prop.,new pump, savable powerhead, controls pkge, $325. 732-1243 after 6 p.m.

20' FRIENDSHIP SLOOP — in water, fiberglass over wood, $6,500. Ext. 7225 or 929-6748.

19' CRESTLINER - 165 h.p. Mercruiser, I/O, trailer, new canvas, low hrs., mint, $7,000. 929-3260 after 7 p.m.

22' SEARAY 77 - cuddy, 198 Merc. cruiser, I/O, VHF, CB, dual batt., trim tabs, alcohol stove, ice box, table, porta potti, depth finder, Merc. cathode, swim platform, halon extinguisher, excel. cond., $8,600. 286-1358.

CANOE SAILING RIG - by Old Town, used once. Ext. 4044.

19' BOAT - w/115 h.p. Johnson motor & trailer, good cond., $3,000. Shu, Ext. 3499.

DANFORD ANCHORS - galvanized, assorted sizes. Ken, Ext. 2705.

11½' SNARK WILDFLOWER - sailboat, 3 sails, unsinkable, $795. Joe, Ext. 2898 or 728-1859 eves.

Miscellaneous

MOVING SALE - must sell all furniture, beds, table, dinette, dressers, girl's 3 spd. bike, car tools, etc. Raul, Ext. 4331 or 924-1421.

MOVING SALE - infant back carrier, S12; women's bike, $10; carpets, $4 ea., pillows, $1 ea.; many household items, toys, books. Ext. 3403 or 3200.

CHAIRS - pair, l/r or den, 2 slipcover sets, excel. cond., $50 ea. 924-3821.

ROUND TRIP TICKETS - 2, Western Airlines, anywhere in continental USA before Sept. 18, 1986, $200 ea. 929-4663.

AIR CONDITIONERS - several, call for info. 689-8413 eves.

DISK DRIVES - 8", (2) in cabinet w/supply, aligned & checked manual, $175. Rich, Ext. 4172.

DINETTE SET - 4 black vinyl chairs, Rd. 42" wood grain table/leaf pedestal base, excel. $160. 286-3829.

COUCH - Castro convertible, good cond., tweed colors of gold, brown, orange, $250. Rich, Ext. 4172.

PIANO - Hardman, $1,000; maple crib, matt., $75; ping pong table, $50. 744-4594.

ALUM. STORM/SCREEN WINDOW -31"x55", new, $25. Ext. 4312.

IBM-PC CARDS - w/chips, disk controller; 64-25k w/serial, STB multifunction, EARAPY motherboard; documentation on STB multifunction card. Marty, Ext. 3941.

DIAMOND RING - pear shape, .31 pts., white color, best offer over $500; bow, arrows, Fred Bear compound, sights, quiver, gloves, $100. Ext. 2023 days or 585-8809 eves.

KEYBOARD - electronic casio, as new, $150; typewriter, elec. port. Smith Corona, $100; fan, 19", $10; iron, $5. Ext. 3078 or 3451.

AIR CONDITIONERS - Westinghouse, 10,200 btu, $75; Sears, 6,000 btu, $50. Ext. 3084.

BARBECUE GAS TANK - wood folding chairs, 25" color console, Jacuzzi spa, free encyclopedias. Jim, 751-4822.

HEDGETRIMMERS - Craftsman, (2) double-edge, like new, 16", Safety Switched. Frank, Ext. 3120.

WALL OVEN - & range top, G.E. elec., $65; gas stove, $150. 821-3762 after 5 p.m.

MICROWAVE - Sanyo EM3721, 1.5 cu. ft., programmable, temp. probe, 1 yr. old, $150. Ext. 3823 or 282-3127.

FURNITURE - loveseat, $90; sofa, $60; beautiful colonial walnut shelf, $140; 13" TV, $130; full size bed, $90; blankets, utensils, etc. Ext. 5161 or 924-1460.

TV CONSOLE - 25" color Sylvania, needs one minor tube, works well, good color, $50. 821-0318.

WELL PUMP - shallow, 3/4 h.p., excel. cond. 325-0447 after 6 p.m.

RANGE - Hotpoint, gas, avocado, excel. cond., $275. Ext. 3260 or 878-6074 eves.

SOFA BED - queen size w/spring matt., excel. cond., moving, must sell, $275. 286-3865.

POOL LINER - new, 11x18, never used, can be used as boat or car cover, $60. Ext. 3319.

TORO RIDING MOWER - 7 h.p., attached grass catcher, elec. starter, like new. $800. 929-3924.

TRANSFER SWITCH - for elec. gen., very last one, perfect for Lab unit, $200; pool filter, s/s, new 3/4 h.p. motor, D-E, $75. J. Medina, Ext. 7636 or 654-3472.

ELECTRIC TYPEWRITER - Adler portable, excel. cond., $75; Bed, full size, mattress, boxspring, frame, $75; pull-out couch w/queen size bed, $275. 286-3865.

CHAIR - living room, blue vel., excel. cond., $35. 758-5659 after 5 p.m.

POP-UP TENT - Sears, on wheels, old but OK, $300; Movie Camera, super 8 sound, 4 to 1 zoom, low light, Elmo perfect, was $250 now $150. Ron, Ext. 2141.

CAMERA - Yashica SLR, TL-Elect w/1.7 lens & 135 tel. lens & case, $50. 732-8837.

NOISE REDUCTION UNIT - DBX 228, Type II, dynamic range expander, new in box, $190. 475-6773, leave message.

COMPUTER - Radio Shack, 64KEB w/tapes, joysticks, etc. $125. Ext. 3078 or 3451.

WALL OVEN - G.E., excel. cond., clock, timer, u-pick-up, $125. John, Ext. 5296 or 799-8598 eves.

TV - 13", RCA, color, good cond., $100. 924-0582, eves.

PUPPY - Brittany spaniel, champion bred, one left litter of nine; cockatiel plus cage & extras. Steve, Ext. 2023 or 744-0047.

DISKETTES - 3M, 5¼" ds/dd, new, best quality, $10/10. Jim, Ext. 3372.

ALTO SAX - brand new in case, value $500, sell $345. Jim, 588-0677 after 6 p.m.

PATIO FOGGER - Bernzo-matic, for bug-free bbq, $7; Montgomery Ward cann;ister vacuum cleaner, $20; #2 Micromet feeder, $7; 2 outdoor spotlite sockets, $1.50 ea., Bill, Ext. 3992.

RIDER MOWER - 7 h.p., 26" cut, fair cond., runs, $125. 363-9527.

REFRIGERATOR - 18 cu., bottom freezer, s.d., copper, excel, $75. 878-6526.

REFRIGERATOR - freezer, 17.2 cu. ft., frost-free, Westinghouse, $160; dishwasher, Kitchenaid, $65, both excel. cond. 751-3666.

DINING ROOM SET - excel. cond., table, 6 chairs, server, china, 3 leaves, Basset, $875. 924-4193.

GREENHOUSE - poly-type, 22'x100' galv. pipe, boiler, fan and sprinkling system, $3,000. Jim, Ext. 4040 or 289-0876.

CUSTOM ROD - Penn Internat'l 30, #50 rod blank, $350. 286-1829.

Free

REFRIGERATOR - good working cond., you pick up. 689-8814 eves.

Yard Sales

SHIRLEY - 7/19 & 7/20, 150 Forrest Ave., off Wm. Floyd & Dawn Dr.

Car Pools

PATCHOGUE - Transvan, seat open, leave name & number. Ext. 4669.

GREENPORT - or vicinity. Ed, Ext. 3293 or 477-2880.

NASSAU - van pool need 2 riders, pick-up Meadowbrook, Southern State, Sagtikos, L.I.E. Ext. 5292.

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

SHOREHAM - 4 bdrms., colonial, inground pool, fp, 2 dr. gar., partially furn. 744-7642.

MIDDLE ISLAND - 1 bdrm. apt., spacious, from Oct. 1, 1986, short drive from Lab, close to shopping plaza, etc. $500, elec. extra. Ext. 5161.

SETAUKET - apt. near SUNY, walk to hosp., backyd., 3 rms., bath, washer, single, $525 plus. 689-9409 eves.

WADING RIVER - fully furn. house, 3 bdrms., waterview, SWR school dist., avail. 9/86-6/87. Ext. 3822/929-6527.

PORT JEFF STATION - new 2 bdrm. apt., w/w, full bath & kit., separate ent., prof. single or couple, $600 mo. + util. 928-3033.

CENTER MORICHES - 2 bdrm. main floor apt., use of gar. & yd., near RR station, 15 min. from Lab., pay 1/2 heat, own elect. $550/mo. w/1 mo. sec. Ext. 4904/4672 or 929-4753 after 5 p.m.

CATSKILLS - chalet, 3 bdrms., sleeping loft, fully furn., near Hunter Mt., music fest., golf, game farm, trout fishing & rafting, will rent weekly or wknds. July or Kay, Ext. 3595 or Bea, Ext. 3642.

N. SHIRLEY - 2 rm. apt., furn. bdrm. w/skylight, eik, newly decorated, pri. ent., util. inc., 5 min. from Lab & stores, 1 person only, non smoker, no pets, sec. $425. 281-8044.

AQUEBOGUE - 3 bdrm. ranch, fenced in backyd., town water, 20 min. to Lab, starting Oct. 1, furn., $750/mo. + util. 722-4644.

84 TRAVEL TRAILER - 24' Wilderness, self-contained, will tow to loc., wknd./$150, wk./$250. Chris, Ext. 4028 or 399-3732 eves.

SETAUKET - furn, 4 bdrm. house, Sept. 1 - Nov. 1. Ext. 2475 or 757-4539.

For Sale

OAKDALE - Idle Hour section near water, 2 story tudor, 4 bdrms, 2 baths, gar., attached full apt. w/priv. ent., loc. on 1/2 acre on dead end st., $179,900. 363-6940 eves.

SHOREHAM - spacious, 4 bdrms., 2½ bath, colonial, eik, l/r, d/r, fam./rm. w/fp., 2 car gar., bsmt., 3/4 acre, garden, $195,000. 744-4594.

RIDGE - No. of Rte. 25, 1.12 acre plot, 100+x400+, level, 80% cleared, 20% wooded, in estb. quiet locale, $47,900. 924-3236.

ROCKY POINT - lovely ranch, 3 bdrms., d/r, l/r w/fp, deck w/Anderson sliders, city water, near beach, principals only, $119,000. 369-8050.

SHIRLEY - lovely 2 bdrm. ranch, l/r, kitchen, rec. rm., skylight, fenced, gar., city water, many extras, 10 min. from Lab, shopping, beach, RR, schools, bargain at $85,000. Steve, 281-0055.

MEDFORD - 2 bdrm., l/r, d/r, kitchen, fp, w/w, appliances, attached 1 car gar., fenced yd., landscaped, residential, extras, $105,500. 698-0576 after 9 a.m. or 286-2005 after 12 a.m.

COOPERSTOWN VICINITY - 190 acres, adjoining state forest, $425 per., good terms. 363-7032.

BROOKHAVEN HAMLET - 12 acres, trees & shrubs, large barn, 14" top soil, (2) 4" wells, estate surroundings, terms. Jim, Ext. 4040 or 289-0876.

Wanted

OIL BURNER GUN - Beckett, any cond. 744-5867.

AIRPLANE - to rent at Brookhaven airport, for pleasure use, must be reasonable, CFI. Ext. 4524.

TIME SHARE - wk. July 19, SL/4 Pompano Bch. & Aug. 23, Port Charlotte SL/6. Ron, Ext. 4082 or 289-1003.

BOWLERS - for mixed bowling league, Thurs. night in Shirley, 1 male & 1 female partner. Annamarie, Ext. 2352.

HOUSEKEEPER - Mon.-Fri., 1-5 p.m., cooking, shopping, some child care, non-smoker, must have own car. 744-4611 after 7 p.m.

WOODEN CRIB - w/matt., must be in good cond. Sharon, 727-0661 after 5 p.m.

HOUSEMATE - someone to share house, w/d, l/r, eik, fp, $250/mo. incls. all. Vera, 924-9128.

UTILITY TRAILER - reasonable. Walt, Ext. 2907 or 698-0576 after 6 p.m.

VAN - 8 pass. for wk. of July 19. Eileen, Ext. 4194 or 924-4922.

TENTH REUNION - Bellport Senior High grads., class of "1976". Contact Ben, Ext. 2964 or Judy, Ext. 4538.

SHAKLEE REPRESENTATIVE - on-site. Karen, Ext. 4262.

19" BIKE - 10 spd., to replace a recently stolen one. Thomas, 283-4428.

APARTMENT - for 1-2 yrs. for BNL couple w/dog, starting Sept. 1, maximum $600. Ext. 3758.

INSULATION - odd rolls, etc., to insulate chicken house, any thickness. Whitey, Ext. 2913.

HOUSEMATE - female to share house, 5 mins. from Lab, $300/mo. 399-4552 after 6 p.m.

BOATING EQUIPMENT - cheap and/or repairable, 6-15 h.p. outboard motor, 6-7' oars, anchor, etc. Skip, Ext. 2665.

T.I. PROGRAMMABLE 59 - in good cond. 475-6773, leave message.

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.