

Warning: Low Voltage

Recently, there was an accident on site where a man was burned by a flash from a 600 volt power source. Why was he not killed?

Contrary to common belief, it is current, not voltage, that kills.

It takes a certain voltage to enable current flow and one would think that the higher the voltage, the more dangerous the source. This is not necessarily so, and for two reasons:

One is that resistance of the body varies. The other reason is that the heart has a peculiar response to currents of different strengths.

The internal resistance of the body is between 100-500 ohms, depending on how far the current travels. However, the main resistance is not in the body itself but in the points where electricity enters or leaves the skin. Here the resistance varies between 1000 and 500,000 ohms depending on whether the skin is wet or dry, damaged or intact. When the resistance is low, household appliances can easily deliver fatal currents, and DC sources over 30 volts are potentially lethal.

Heart Function and Electrical Currents

Electrocution takes place when currents between 100 and 200 milliamperes (0.1-0.2 amp.) cross the heart.

Smaller currents cause pain and distress, but do not kill.

Stronger currents create extensive damage and will stop respiration, but may spare the heart.

The reason for this lies in the heart's mode of operation. To function as a pump, the millions of individual muscle fibers must act in concert, and contract and relax in a structured sequence. This is achieved by an intricate wiring system that carries electric pulses from a pacemaker. To transmit the message, the pulse from the pacemaker must hit the fiber when it is relaxed. An electric current will interfere with this action and momentarily destroy the synchronization. If the current is in the 100-200 milliamperes bracket, the individual fibers will start twitching in their own rhythm and the pacemaker loses control. No pumping action results.

Once this happens the body cannot, on its own, restore normal function. Indeed, up until 10-15 years ago, no treatment was available.

Today we have a treatment which, paradoxically, is "more of the same." By applying a strong electric current through the heart we can "clamp" all fibers to a standstill in contraction. This procedure is performed by an instrument called a defibrillator. When we let go, all the fibers will relax in phase and the heart is ready to obey the signals from the pacemaker again.

A strong accidental current may have the same clamping effect. This is the main

reason for the paradox that people may survive high voltage discharges, but get killed by a faulty household appliance. It has been suggested, not entirely in jest, to put such a warning over the door of every house.

First Aid

If the current stays on, the resistance in the skin breaks down and fatal currents may result.

Therefore the first rule is: Get the victim loose - but don't get yourself killed in the process.

The second rule is: If the victim is unconscious perform CPR.

CPR - Cardio-pulmonary-resuscitation - is rapidly becoming a household word. It consists of mouth-to-mouth respiration and external cardiac massage. Both procedures are simple, but training is needed to do them well. Ideally, everyone working around electrical equipment should learn CPR.

Cardiac massage establishes blood flow by squeezing the heart against the back of the chest cavity and substituting this action for the synchronized contractions of the muscle. In this way, the victim may be kept alive until the medical people can zap him with the defibrillator.

Burns and other damage may need treatment, but saving the life comes first.

—Knud Knudsen, M.D.



A defibrillator is among the equipment available at the clinic. The machine is portable and can be used either at the hospital or in the field. Here it has been superimposed on a photograph of the recent emergency drill where it was called into use.
—photo by Humphrey



Thomas Prach, working in the Hot Lab, prepares radionuclides produced at BLIP for distribution to users.
—photo by Humphrey

BLIP Products Aid Medical Research

October 16, 1973 marked the first off-site shipment of a radioisotope made in the Brookhaven Linac Isotope Producer (BLIP). That first shipment - a sample of iron-52 - was sent to the National Institutes of Health, to be administered to monkeys as part of a study to evaluate its effectiveness in helping physicians find the locations in the body where bone marrow is producing red blood cells.

Now, less than five years later, physicians at Chicago's Rush-Presbyterian-St. Luke's Medical Center are using iron-52 produced at BLIP to follow the progress of patients who have polycythemia, a disorder in which the bone marrow produces too many red blood cells. If left untreated, the extra blood cells can clog the arteries and cause death from strokes.

But the disorder is very difficult to follow, and Rush physicians were not sure their therapy was effective until they used iron-52 from BLIP to study the distribution of blood-producing marrow in patients who had last received an iron-52 scan several years ago. After re-examining their patients with the radionuclide, they were "surprised, and even startled" to find that progression had been extremely slow. "... The evidence from ⁵²Fe imaging has rather effectively contradicted previously held clinical impressions of the natural history of the disease," noted the head of Rush's nuclear medicine department.

Iron-52 can be produced at a cyclotron, but usually only in very small quantities, making it difficult for physicians to routinely monitor the progress of patients who have disorders which alter the bone marrow activity. BLIP is the only facility in the country that can produce enough iron-52 to be of practical use to physicians at Rush.

BLIP is located between the Linac and the AGS, where it utilizes excess protons from the Linac to produce radionuclides which can be incorporated into radiopharmaceuticals. The Linac can deliver far

more protons than are needed for operation of the AGS, and these extra particles are diverted into a 13,000 gallon stainless steel tank filled with water. Suitable targets are lowered into the tank, where they are bombarded by the high energy protons to produce the desired radionuclides. Ten target tubes are arranged at different distances from the entrance point of the proton beam to take advantage of the changing energy levels of the protons as they travel through the target array. After bombardment (the irradiation time for various radionuclides ranges from an hour to several months) the targets are removed from the tank and taken to the Hot Lab for processing of the radionuclides and production of radiopharmaceuticals.

The high beam current and the Linac's normal 24-hours-a-day operation means that BLIP can economically make available large quantities of some radionuclides that could otherwise be produced only in very small quantities or at prohibitively high cost. Costs are also reduced by the fact that several radionuclides can be produced simultaneously. The result is a significant contribution to the widespread evaluation and use of radiopharmaceuticals, both in Brookhaven's medical research program and in user hospitals all over the world.

When BLIP began operating in 1972, it was a project of the Department of Applied Science. After the reorganization of DAS into DNE and DEE, the staff of BLIP and the Hot Lab became members of the Medical Department. Their work continues to play an important part in BNL's Nuclear Medicine Program, which involves close collaboration between scientists in Medical, Chemistry, Accelerator, and Instrumentation. Within the BLIP project itself, Louis Stang is in charge of target development, BLIP's operation, and the development of BLIP as a facility, while Powell Richards supervises the processing

(continued on page 2)

Art Show In Miniature



A visitor looks closely at an etching entitled "Girl!" at the art show now on view in Room B, Berkner Hall. It is necessary to look closely because none of the 172 prints is larger than four square inches. Impressions of the miniatures are also on sale through the Pratt Graphic Center at reasonable prices. If you have not yet seen this exhibit, drop in at lunchtime. The show leaves Brookhaven on Monday.
—photo by Humphrey

8-27-78 Retiring on August 31 8-26-78



Thomas H. Epps, a Technician in the Accelerator Department, has been employed at the Laboratory since July 10, 1972. He and his wife are taking a trip to Atlanta, Georgia, with an eye to relocating in that city. In any case, he plans to play a lot of golf and go fishing.

— photos by Rosen



Arnold M. Roesch, a Technical Associate in the Physics Department, has been with the Laboratory since July 1, 1947. Now, he says, "I shall endeavor to make my retirement one continuous unscheduled vacation on land, sea and in the air, doing whatever seems desirable and convenient at the time."

BLIP

(Cont'd)

and distribution of the radionuclides.

BLIP's major product right now is xenon-127, a radioactive gas which is used in the diagnosis of pulmonary problems. Although in the past it was difficult to produce the gas in clinically useful quantities, BLIP is able to make enough to supply it both to researchers in BNL's Medical Department and to user hospitals. As recently as five years ago, only a few millicuries of xenon-127 had ever been produced; in 1978, however, over 40,000 millicuries will be distributed to more than 30 institutions around the world.

In the Medical Department, it is being evaluated for use in the early diagnosis of chronic obstructive lung disease. The patient inhales the gas, and a scanner is used to visualize its initial distribution in the lungs. As the patient breathes plain air, the xenon-127 gradually "washes out" of the lungs and the scanner monitors the gradual disappearance of radioactivity. Physicians can identify poorly ventilated areas of the lungs by noting the locations where the gas takes longest to wash out.

In user hospitals, however, most of the xenon-127 supplied by BLIP is used for the diagnosis of pulmonary embolisms, in which a blood clot lodges in a vessel in the lung. In these cases a ventilation study using xenon-127 can confirm a preliminary diagnosis of a pulmonary embolism and can help physicians find its location. The gas has an excellent shelf life (its half-life is 36 days), so it can be kept on hand in hospitals for emergency diagnostic use.

Among the other radionuclides produced at BLIP for BNL's researchers and off-site users are iodine-123 (its uses include imaging of the thyroid gland) and krypton-81m, a generator-produced gamma emitter with a half-life of only 13 seconds, which is being evaluated for use in pulmonary diagnostics.

One of BLIP's major current research efforts is development of the production technology for a new radionuclide - ruthenium-97. "On the back burner" since BLIP's beginning, says Richards, this radionuclide may prove very important to nuclear medicine, with potential applications which could include localization of cancer cells, aiding the diagnosis of damaged heart muscle, and labeling platelets or white cells. The chemistry of ruthenium is very complex due to its many oxidation states, making it difficult to work with. But this complexity also increases the potential for chemical manipulation and the labeling of a wide range of molecules.

BLIP also plays an important part in research work which involves collaboration between Brookhaven and off-site hospitals and university medical centers, producing radionuclides which are used in a wide variety of research programs across the country. One of the radionuclides currently under consideration in a collaborative pro-

gram is tantalum-178. Still in the developmental stage, this generator-produced radionuclide may prove useful for heart studies in children, since its nine-minute half-life would provide enough time for imaging of the heart and yet allow quick disappearance of the radionuclide.

Although most of the radionuclides produced at BLIP are used in radiopharmaceuticals, some bombardments are done for non-medical purposes. In these cases, targets are bombarded at BLIP and distributed by Oak Ridge to industry. The Lab does minimal processing of the targets and recovers full production costs. Among the radioisotopes produced for industry is cadmium-109, used in X-ray fluorescence analysis.

Both Stang and Richards stress that nuclear medicine is truly an interdisciplinary field. The development and proper use of its two major tools - radiopharmaceuticals and equipment used for detection and imaging - requires the expertise of specialists in medicine, chemistry, physics, pharmacology, engineering and instrumentation. After a radionuclide is produced, it must be incorporated into a chemical compound which will carry it to the organ of interest. Since the radionuclide acts only as a tracer or "label" in the radiopharmaceutical, chemists can manipulate its movement within the body by changing the carrying compound. Pharmacy specialists must make sure that the compound is a safe substance to give to patients, while physicists must determine that the radiation dose will be safe for both patients and the workers who will be constantly involved in producing and administering it.

"Most people don't realize how big a field nuclear medicine is," says Richards. Nuclear medicine is now a recognized specialty for physicians, he notes, and to be accredited, hospitals must have access to nuclear medicine capabilities.

In fact, it is estimated that one out of every three to four people admitted to hospitals receive some kind of nuclear medicine procedure, resulting in an estimated 10 million such procedures a year in this country alone. (Eighty percent of them involve the use of technetium-99m - a very important radionuclide developed at BNL's Hot Lab in the late '50's and early '60's.)

Brookhaven has unusual potential for a fully integrated approach to nuclear medicine research, says Harold Atkins of the Nuclear Medicine Program, because of the unique combination of facilities and personnel. BNL's accelerators can produce a wide variety of new radionuclides, while specialists in chemistry and pharmaceutical design can incorporate them into useful radiopharmaceuticals. Animal studies in the Medical Department provide preliminary evaluations of an experimental radionuclide, and, later on, the department's medical research hospital provides a chance to evaluate its effectiveness in the diagnosis and study of disease in humans.

Tutoring Available In Practical Arithmetic

Beginning on Tuesday, Sept. 12, a new class will be added to the two mathematics indoctrination courses now offered in the Technician Tutorial sessions. This class will concentrate on Practical Arithmetic, and instruction will be given in the use of the metric system, small calculators and measuring tools. Fractions, decimals, scientific notation, percent, conversions and very basic algebra will be reviewed. Some of the material given in this class should be useful to employees who intend to take the high school equivalency examination. The class will meet weekly on Monday, from 2:30 to 4 p.m.

Plans have been made to continue the introductory physics course started last year, and possibly to start beginning courses in programming, chemistry or other courses of interest. If you wish to join the mathematics course or have any suggestions for other courses, please call Bob D'Angio in Personnel, or Roy Jefferson Bldg. 179, Ext. 2878 or 2527.

Stockrooms To Close On September 15

In order to complete the annual Physical Inventory of stores materials, all stockrooms will be closed on Friday, Sept. 15, 1978. Users are requested to withdraw sufficient supplies prior to the normal stockroom closings at 3:00 p.m. on Thursday, Sept. 14, 1978. Emergency requirements can be obtained by calling the Supply and Materiel Division office, Ext. 2972 for approval and withdrawal instructions.

The closing of stockrooms does not affect departmental stockrooms or the delivery of Liquid Nitrogen, Liquid Helium, Dry Ice, or Compressed Gases. Your cooperation in keeping emergency requests at a minimum is appreciated.

Stony Brook Alumni

The Stony Brook Alumni Association would like to meet other alumni members living in and around Brookhaven. An informal party is being arranged at the Lab. If you are an alumnus of Stony Brook, please call Debu Majumdar at Ext. 2633 or 286-1056.

A Helping Hand

I-nan Feng has been assisting the delegation of accelerator specialists from the Peoples Republic of China since their arrival on July 31. "I serve as a go-between," she says, "they look to me for pointers on everyday problems."

I-nan is actually a biochemistry researcher who is currently on leave from her job. When she heard through a friend that the Laboratory was looking for someone to assist the delegation, she applied for the position.

Although she does some light typing, her principal assignment has been to make contacts and keep the delegation's busy schedule which, she says, "is tight not only because of the scientific appointments, but because they are invited to all kinds of parties in their honor."

She and the members of the delegation converse in Mandarin Chinese, the principal language of China. However, she was delighted to discover that one of the scientists was from her native, very small town in China and she was able to talk with him in the dialect. "So few Chinese know it," she says.

I-nan and her family left mainland China in 1949 and she lived in Taiwan until she came to the United States 10 years ago. As she is well acquainted with this area and American society in general, she was well able to introduce the delegation to the local customs and points of interest. When they expressed a desire to see television news, she checked rental agencies and drove 40 miles to pick up television sets for them.

As the delegation leaves Brookhaven today to return to Peking, her job is over. After this brief, but "very interesting and enjoyable" interlude, Ms. Feng will return to biochemistry research at SUNY, Stony Brook, in September.

Weekend Tour

The 200-MeV LINAC, or linear accelerator, does double duty. It pre-accelerates protons to the 33-GeV AGS for high energy physics research and it pulses protons down three other lines, BLIP, CLIF, and the Medical facility. BLIP, Brookhaven Linear Isotope Production, produces radioisotopes for medical use, and CLIF, Chemical Linac Irradiation Facility, searches for undiscovered radioisotopes.

In addition to learning about the LINAC, weekend visitors can take a long look down the 480 foot tunnel that houses the accelerator.

EXHIBIT CENTER

New York Train Trip

The Hospitality Committee is planning a group railroad trip to the city on Wednesday, September 6. Departure will be at 8:32 a.m. from the Patchogue LIRR station. Round-trip fare for adults is \$2.45, children under six years ride free.

Reserve a ticket by sending your fare through the U.S. mail to P.O. Box 322, Upton, New York 11973, no later than Thursday, August 31. Make checks payable to "Brookhaven National Laboratory." Your tickets will be given to you at the train station. Refunds will be made only if cancellations are received by the Friday preceding the trip.

Arrivals & Departures

Arrivals

- Eva S. Bozoki.....Physics
- Walter de Boer.....Accelerator
- Frank M. Di Crescio.....Accelerator
- James M. Le Maire.....Director's Office

Departures

- William R. Gordon.....Physics
- Balazs L. Gyorffy.....Physics
- Peter S. Keiner.....Applied Math.
- Theodore W. King.....Accelerator
- Betty Rauso.....Medical
- Roy R. Risch.....Plant Engrg.
- Kazuo Yamashita.....Energy & Env.



I-nan Feng

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Pool Schedule

Normal 1 to 6 p.m. pool hours will be in effect during the September 2 and 3 week-end. Summer season tickets will be valid through September 3.

The pool will be closed on Lab holidays, Monday and Tuesday, September 4 and 5.

On Wednesday, September 6, the new 3-month season will begin and tickets will be sold at the pool during open hours starting on that date.

Also starting on that date, the following schedule will be in effect:

Weekdays

- 11:00 a.m. to 1:30 p.m. (employees only)
- 5:00 p.m. to 9:30 p.m. (employees, family members, guests)

Saturdays & Sundays

- 1:00 p.m. to 6:00 p.m. (employees, family members, guests)

Admissions

- Daily: \$1.00 - employee, family member
\$1.50 - guest
- Season: (3-month period)
\$10.00 - individual
\$15.00 - family

Guest Ruling: Only one guest per adult BERA member may be admitted to the pool. More than one but not more than five guests at any one time may be admitted by making advance arrangements with the Recreation Supervisor in the Personnel Office. Members will be responsible for the conduct of their guests or their children, or both.

Softball

LEAGUE I

Six Pax 14 - Phoubars 4

Ken Asselta went 5 for 5 with a home run and Ed Meier went 3 for 4.

Dirty Sox 10 - Ravens 6

MIXED LEAGUE

Games of August 10

Oh Kays 27 - Trouble II 6

Especially good hitting by Bob Brown, including a grand slam; good hits by Linda Woodson and Henrietta James.

Who's On First 2 - E-Z Riders 1

Diamonds 11 - Turkeys 10

Who Cares - TNT (forfeit)

Games of August 14/17

Turkeys - TNT (forfeit)

Thrds 17 - Who's On First 7

Despite the homers of Dennis Weygand, Tony Beck and good defensive plays by Don Litcher and Bonnie Bittner, Gail Waite wound up the winning pitcher with great support from all her Thrds. John Usher homered, Al Winter and Tom Radus batted in runs. Beverly Radus and Sol Pearlstein made a sparkling game ending double play.

Diamonds 19 - Oh Kays 18

Ted Erickson went 5 for 5. Ken Asselta and Jim Griffin had home runs. Sue Munsterman made two nice plays at home plate.

E-Z Riders 23 - Trouble II 2

Balls & Strikes 15 - Who Cares 6

Makeup games

Thrds 9 - Balls & Strikes 6

In a game called early because of darkness all the Thrds pulled together to edge out the Balls & Strikes. Larry Schiro, Cathy Chia made two great catches. Roland Hautsch stopped a home run ball with a tremendous running play. Pat Wyant had a homer and slugger Jean Burt had a triple.

E-Z Riders 7 - Who's On First 6 Oh Kays - TNT (forfeit)

Dinner-Theatre Tickets Do Go On Sale Today



Last week's *Bulletin* erroneously stated that tickets for the fall Dinner-Theatre production of "Come Blow Your Horn" went on sale Friday, August 18. However, tickets go on sale for the first time today, August 25, in the cafeteria, from 11:30 a.m. to 1 p.m. each day until a capacity crowd has been attained. The \$15 admission includes dinner, the performance and dancing. One carafe of wine is also included in the price of dinner. Above, Cafeteria Manager Roy Johannesen (right) and Asst. Manager Bob Coveney check the wine cellar. Liquor will be available from a cash bar from 6 p.m. on Friday and Saturday, September 15 and 16, and from 5 p.m. on Sunday, September 17. There will be no open bar. The *Bulletin* regrets any confusion caused by the error.

Lost

One oscilloscope/multimeter "Tektronix, model 466, S/N B081934," displaying 7 ft. B.C. logo, has been misplaced. Anyone with information as to its whereabouts, please call Chris on extension 4278.

Phys Rev Job Openings

A year-long photocomposition production test is to be conducted in the Editorial Offices of The Physical Review and Physical Review Letters. The work will be carried out during an evening shift starting at 5:00 p.m., and will begin in late September or early October.

Full time, part time and some free lance work will be available in the following categories:

Technical Typists - Some experience in typing technical manuscripts required. Experience with computer terminals an advantage.

Paste-up Artists - Layout of technical material. Some Leroy lettering necessary.

Copy-editor/proofreaders - B.A. or B.S. or equivalent experience. Knowledge of physics desirable.

Resumes and other pertinent information should be mailed to M. Judd, The Physical Review, Building 510E, Brookhaven National Laboratory, Upton, N.Y. 11973.

Hospitality Committee

A morning coffee will be held in the Brookhaven Center on Monday, September 11 from 9:30 to 11:30 a.m.

All wives of Laboratory employees are welcome. Please come and bring the children. It is suggested that you bring along a toy for your child to play with.

Cafeteria Menu

Week ending September 1, 1978

Monday, August 28	
Corn chowder	(cup) .30
	(bowl) .40
Beef chop suey on rice	1.30
Scrambled eggs, sausage & fr. fr.	1.15
Hot Deli - Pastrami	(on bread) 1.15
	(on roll) 1.25
Tuesday, August 29	
Beef noodle soup	(cup) .30
	(bowl) .40
Knockwurst & sauerkraut	1.15
Roast chicken w/stuffing and 1 veg.	1.20
Hot Deli - Veal pattie & peppers hero	1.25
Wednesday, August 30	
Cream of potato soup	(cup) .30
	(bowl) .40
Braised meatballs à la mode w/buttered noodles	1.25
Fried filet w/fr. fr.	1.25
Hot Deli - Roast beef	(on bread) 1.25
	(on roll) 1.35
Thursday, August 31	
Chicken vegetable soup	(cup) .30
	(bowl) .40
Cheese ravioli w/1 veg.	1.10
Sauerbraten & potato pancake	1.45
Hot Deli - Italian sausage & peppers hero	1.25
Friday, September 1	
Fish chowder	(cup) .40
	(bowl) .50
Spaghetti w/clam sauce	1.10
Breaded pork chop & 1 veg.	1.50
Hot Deli - Smoked tongue	(on bread) 1.15
	(on roll) 1.25

Adult Swimming Lessons

Adult swimming lessons will be offered to employees and/or spouses. Since enrollment is limited, all interested people are requested to register no later than September 1, by calling the Recreation Office, extension 2873.

A \$12 fee for ten, one-hour lessons will be collected at the first session, which is scheduled for September 13. Classes will be held each Wednesday at 5:15 p.m.

Summer Rec Program

On-Site Program

International Picnic: Again this year, the staff of the Children's Recreation Program hosted an International Picnic for families residing on site. The event was a high success featuring alfresco dining on foreign delicacies combined with old favorites from the U.S. Following the picnic, a spectacular movie was shown and scrumptious desserts were served.

Carnival Day: There's no end to the energy of kids! After the picnic on Thursday night, they were back at the Recreation Building bright and early Friday morning to take part in the special Carnival Day. Contests and games were the order of the day providing fun for all.

Monster Day: Today's special event will climax the On-Site Program. Featured will be a parade and a scary Abbott and Costello movie.

Swimming Pool

Race Day last Friday afternoon ended with the following winners:

- Four to Six Year Olds -
1st Keith Holden
2nd Garen Thomas
3rd Kina Thomas
- Seven to Nine Year Olds -
1st Megan Holden
2nd Carolyn Gabusi
3rd Alyse Holden
- Over Ten Year Olds -
1st Kristen Holden
2nd Jerry Bruno
3rd Sandra Fontenla

A Note From The Program Directors:

The 1978 Children's Summer Program came to an end today after a season filled with fun and learning. The Program, under the direction of Guy Mastriion and Richard Parsons, was enjoyed by the many children of Laboratory employees and on-site residents. The counselors for the Morning Session, Ann Brassard, Mary Grace Lazzaro, Gary Milleisen, Cathy McCafferty and Mike Buchman, and the counselors of the Afternoon Session, Mary Marczyk, John Knapp, Ann Haney and Gil Turpin, worked diligently to provide an excellent and varied program.

Swimming lessons were ably given by instructors Mary Grace Lazzaro, Gary Milleisen, Cathy McCafferty, Pat Scott and Mark Myavec.

Not to be forgotten was the work done in assisting and running many of the program's tournaments by our Youth-On-Campus Trainees, Buster Rivers and Guy Albergo.

We hope the children and their families had an interesting and rewarding summer. See you next year!

A Giant Bubble Bath



Thanks to the Fire Department, the children in the Summer Recreation Program slithered and played one day in oceans of suds. The firemen sprayed the children and the area with quantities of foam, creating a giant bubble bath. It was a day to remember in the small fry recreation program which concludes today.

—photo by Reben

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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, with preference to those within the immediate work group; (2) present employees within the Laboratory as a whole; and (3) outside applicants.

Each week, the Personnel Office lists new personnel placement requisitions. The purpose of these listings is, first, to provide open placement information on all nonscientific 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, as indicated below. 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 Personnel Placement Supervisor, Ext. 2882.

LABORATORY RECRUITMENT: Opportunity for present Laboratory employees.

759. STAFF ASSISTANT - Requires Bachelor's degree in management or industrial engineering plus several years experience in administrative functions in a technical environment. Exposure to management information applications of ADP is desirable. National Synchrotron Light Source Project.

760. SECRETARY - Requires AAS degree or equivalent with excellent secretarial and communications skills, including shorthand. To work in administrative office of scientific department. Physics Department.

761. PAINTER (Group Leader - Temporary for two months) - Plant Engineering Division.

762. LABORATORY CUSTODIAN - Two positions. Plant Engineering Division.

Autos & Auto Supplies

67 VOLVO - Classic P-1800S, 72 engine, maroon, good cond. \$1000. John, 472-1735 after 6.

73 CAPRI - V6, 4 spd, anthracite/blk, good cond, 60K mi, many new parts. \$1,500. Jim, Ext. 4157.

76 ST90 - 102 mpg, excel cond, used one year, 3,000 mi. \$400. 744-5777.

68 CHEVY - Belair station wagon, standard shift, clean, good trans. 289-4403.

TIRES - (4) mag's, 6 ply all terrain, 8 lug, size 11-15, excel cond. \$250. Bill, 744-5714.

77 PLYMOUTH - Fury sport, a/c, am/fm 8 trk, buckets, low mileage, A-1 cond. \$5,100. Firm, must sell. 588-4703.

RADIO - am for 70 Chevy. \$10. Ext. 2102.

76 TR6 TRIUMPH - wht w/blk int, am/fm 8 trk stereo, excel cond. \$5,200. John, 281-3238 eves.

CARBURETOR - 427 engine Chevy 4-bbl, part no. 7016649, used once, still have original box. \$25. Ext. 2102.

69 CHEVY - Impala, 327 engine, runs good, good gas mileage. \$350. Ext. 2500 or 941-4328.

UTILITY TRAILER - 5'x8' bed, good cond. \$50. Pete, Ext. 3868 or 878-1225.

66 GTO - need brakes and muffler, fair cond. \$350 or best offer. Bill, S., Ext. 4434.

RIMS - (2) 71 Ford Torino, \$10; (1) E70-14, \$3; (2) E78-14 Getty snows, \$8; (1) E70-14 Goodyear, \$5. Sue, Ext. 4207.

71 PLYMOUTH - Satellite, station wagon, new tires, batt. \$650. Ext. 4375 or 3105.

68 CHEVY WAGON - excel running cond, very good int. \$500. Firm. 924-6877.

68 DODGE - station wagon, good running cond. \$300. Frank, Ext. 2333 or 475-5395 after 5.

72 VW SQUAREBACK - 54,000 mi, radials, new brakes, 32 mpg, excel cond. \$1850. 734-7584 after 6.

68 OLDS CUTLASS - auto, air, radio, 54,000 mi. \$375. Kee Koo, Ext. 3047 or 427-9362 after 5.

71 PINTO - 2 dr, 4 spd, 2 new tires, 2 new snows, good gas mileage. \$550. Fernando, Ext. 2259 or 924-8651 after 5.

64 CHEV - Impala wagon, 283 V8, auto, good cond, radio, good tires, very dependable. \$400. 585-4059.

69 CHEVY VAN - auto, 6 cyl, good running cond. \$650. Joe, Ext. 2832 or 427-9362 eves.

76 HARLEY DAVIDSON - 175 cc road and trail, 2,600 mi, excel cond, must be seen. \$400. 727-7304 after 5:30.

74 JEEP - CJ-5 heavy duty equipped, 304 V8, new 11-15 tires, mag rims, shocks, brakes, clutch, battery, hooker headers. Mary, Ext. 4132 or 924-4328.

75 PLYMOUTH - Sport Fury, p/s, p/b, a/c, excel cond. \$2,500. Ext. 3325 or 744-7493.

70 FORD FALCON - V8, p/s, p/b, auto, 55,000 mi. \$475. Ext. 2026 or 286-1396.

DODGE ENGINE - 318 CID completely rebuilt w/ 10,000 mi, \$200; Dodge auto trans, TF6 3 spd, \$100. Harry, Ext. 4722.

69 SUZUKI - T500, excel cond, saddle bags, fog light, sissy bar and rack. \$500. Edwards, Ext. 4027 or 286-1121.

76 DODGE CHARGER - Daytona, loaded a/c, am/fm radio tape radials, 29,000 mi, mint cond. 724-2687.

71 GREMLIN - new exhaust, tires, brakes, rebuilt engine, 54,000 mi, 20 mpg, needs some work including flywheel. Peggy, Ext. 2907 or 744-7526. \$400.

FM CONVERTER - mono, good as new. \$15. Ben, Ext. 2029 before 8/29.

69 CHEVROLET - suburban wagon, 307 engine, auto, p/s, p/b, runs well, good body, needs minor int work. \$400. Mary Lou, Ext. 2298.

71 MERCURY COUGAR - XR7, all power, a/c, radial tires w/snows, V8, excel cond. \$1,700. 698-7661.

68 CHEVELLE WAGON - V8, auto trans, p/s. \$250. Ext. 4045 or 289-5770 after 6.

68 OLDS - Delta 88 w/air, fair cond, but starter problem. Best offer. Don, Ext. 4346 or 821-9125.

MOTORCYCLE - Chaparral ST80, 1150 mi, excel running cond, street legal. \$275. John, 281-3291.

73 DATSUN - 1200 cpe, am/fm stereo, snows, make offer. Sam, Ext. 2675.

TIRES - (2) Uniroyals, RH78-15, w/w, make excel spares. \$10 ea. GR5-8658 after 6:30.

69 JEEP - post office type, 4 cyl, new tires, A/T, excel running cond. \$400. 929-6421.

76 PLYMOUTH - Volare station wagon, Premier V8, auto, p/s, p/b, radio, 60/40 seats, 27,000 mi. \$3,500. Ext. 3767 or 744-3744.

Boats & Marine Supplies

14' BLUE JAY SAILBOAT - #1073, trailer, 2 sets sails, spinnaker and pole, extras. \$500. Ext. 2017 or 744-7708.

25' OWENS - (in water) 350/350 Chevy engine, sleeps 4, new boat cushions. \$1300. 286-8476.

25' YELLOW SAILBOAT - 1974 C&C, 6 ulmer sails, 9.9 hp, 74 Evinrude, 6 Merriman winches. 589-9206 eves.

19' SEA RAY - 100 hp Mercury, trailer, extras. \$1,500. 585-8395.

44' CRUISER - double cabin, twin screw documented cruiser, in water and operable, needs painting and minor repair. AT6-3772.

26' PACEMAKER - 1965, F.B. sedan, needs completion of ext some wood work, sound boat, must sell, no reasonable offer refused. Laird, Ext. 4068 or 734-7307.

16' FIBERGLASS - 35 hp Johnson elec start, tilt trailer, in water. \$600. 286-0795.

15' WOOD RUNABOUT - w/trailer, steering wheel and linkage. Best offer over \$100. 928-3951 after 6.

1977 EVINRUDE - 35 hp, new cond, used 4 hrs, elec start, long shaft, engine cover slightly damaged in fire. \$675. Ext. 4069.

16' OLD TOWN LAPSTRAKE - boat w/40 hp elec start, good cond, reasonable. Ed Harmer, Ext. 3354 or 585-4176 after 6.

Miscellaneous

GIANT YARD SALE - Aug. 26, 9-4 p.m., 937 S. Country Rd, Bellport, household goods, furniture, children's things, lots more. Ext. 3623 or 286-0801.

YARD SALE - Sept. 2 & 3, 7 Pinetree Dr, S. Shirley. Ext. 2926 or 281-0268.

GARAGE SALE - Aug. 26 & 27. We are moving, 11 Rock Hall Lane, Rocky Point, "The Tides." Misc items, plants, books, furniture, lamps, household items, etc.

FOR ADOPTION - Old English sheep dog, male, approx 2 yrs old, good markings. Linda, Ext. 3199 or 727-7304 after 5.

TICKETS - (2) Shaun Cassidy tickets, Saturday, Aug. 26, Section 231B at 7:30. \$9.50 ea. 286-8751.

LAWN MOWER - B&D, 18" elec, w/grass catcher, \$75; Sony 10 spd men's bike, \$70; bike seat, child's new, \$12. 475-0144 after 6.

KITTEN - to be given away, 2 mo old female, gentle, excel w/children, fully trained. Ext. 2620 or 751-6765.

REGULATION POOL TABLE - w/ping pong top. \$10. H. Rhodus, Ext. 3284 or 924-3522.

SHORTWAVE RECEIVERS - radio shack DX-160, Lafayette HA-350, both in good cond, best offer. John, 931-0840.

RUGS - (2) red 9'x12' w/pad, \$50; rust 12'x15' w/pad, \$65. 475-5150.

REALISTIC - 23 channels w/side band and astatic power mike. \$100. Al Duboski, Ext. 4243 or 924-0697 after 5:30.

SWEATSHIRT - ladies full length red lounge w/ hood, pouch pocket, zip front, like new, size small. \$8. Barbara, 289-1883.

DINING ROOM SET - Danish modern, table w/2 leaves, 4 chairs, buffet, china closet w/beveled glass doors. \$395. Ext. 4532 or 581-9199.

SHUTTERS - wood, 16" wide, 3 pr 55", 4 pr 47". Ext. 2113.

LAWN MOWER - 30" reel type 5 hp w/riding seat. GR5-4199.

SUMP PUMP - new, for preventing basement flooding. \$85. Ext. 2492 or 475-8658 after 6:30.

FREE - rabbit hutch, you pick it up in Shoreham. Bob Monaghan, Ext. 4824, Ext. 4688 or 744-5098.

BEDROOM SET - contemporary, complete (twin beds) incl mattresses, 2 yrs old, in excel cond. \$200. 286-9510.

GOLF BALLS - top flights, titlests, blue max also practice balls; pool, 24'x4' round, 100 lb Ampro sand filter, mesh cover, ladder & deck, reasonable price. Fred, 289-1085.

FREE - 19" Sylvania black and white TV, needs work. You pick up. Anne, Ext. 2345.

ALUMINUM - (4) dbl hung sash and frames for masonry walls, 37 1/2" w x 41" h, can be adapted to wood frame structure. \$15 or 4/\$55. Pat, Ext. 4519.

TRIVS TRAP MACHINE - very good cond. \$10. Paul, 878-2847.

POOL LADDER - stainless steel, 3 step; golf clubs, lefty 1, 3, 4 woods, Macgregor, 1 mo old. Mike, Ext. 4601.

Ads left out of this issue because of lack of space need not be re-submitted in order to run in next week's issue.

TEDDY BEAR HAMSTERS - 4 wks old, 75¢ ea. Jay, 286-3679.

POOL TABLE - professional size, Brunswick, 1 1/4" slate top, sticks & balls incl. \$850. Ext. 2021.

ROCKER RECLINER - \$45; Morris chair, \$75; fish tank w/wrought iron stand, access, \$25; Garrard record changer, \$30. Rich, Ext. 4172.

WINDOW - double hung woodco, 2 over 2, 2'8" x 3'10", excel cond. \$25. Ext. 3532.

BICYCLE - 20" girl's, Schwinn, very good cond. \$30. 744-5375.

DINING ROOM SET - Colonial hard rock maple, 36" hutch, table extends to 85", 5 chairs. \$250. Peggy, 727-4859.

WEDDING GOWN - size 12, used once for modeling, antique satin, fall/winter wedding, reasonable. AT9-0567 after 6.

CEILING PANEL - Armstrong #286, 24x48"x1/2", lay-in unit, embossed tlock, 8/pk, 3 packs/32 pcs, flame resistant, Class D, enough for room, reasonable. 289-0567 after 6.

HOOVER - upright vacuum, 1 mo old, all attachments. \$75. Ext. 3336, 475-8456.

BOTTLE CAPPER - and caps, \$6; old victrola, (patented 1904) good cond. \$100. 727-1617.

18' REVELLA - sleeps 6, refrig, heater, fully contained, excel cond. \$1895. Flo Caliquiri, 689-8793.

PATIO DOORS - 6'x6'8" single pane, \$50; can opener/knife sharpener. \$5. Steve, Ext. 2006.

BICYCLES - (2) 20" wheel, banana seat, high riser, \$15 ea. Roger, Ext. 3785 or Ext. 3178 eves.

STOVES - GE coppertone, elec, very good cond, one burner needs work, \$75; GE, white elec, old needs work, \$25. 331-1203 after 5:30 p.m.

LARGE VANITIES - formica, one blue, one red, excel. \$50 ea; GE deluxe el self-clean wall oven-chrome, \$150 neg; Jenn-air el counter range, pop lid, vented, \$75 neg. Ext. 3630.

RADIATOR - for 1975 Mustang, guaranteed perfect cond. \$25. Ext. 4701 or 271-2877.

PIANO - Kohler and Campbell console, 2 yrs old, mint cond, orig \$950. Sale, \$500. Ext. 4701 or 271-2877.

RECLINER - vinyl w/cover, \$35; off chair, wood w/wheels, \$25; Garrard turntable, \$30. Ext. 4172.

FISH TANK - 30 gal w/stand, light, above water filter, under gravel filter, plus silent giant air pump & heater, \$45; Polaroid square shooter camera w/case, excel cond. \$10. Chuck, 821-1525.

SHUTTERS - 4 blk wood, 47x16, good cond. \$2 ea. Dick, Ext. 3860.

TV - 19" b/w Zenith, good cond. 924-7756.

GIRL'S BICYCLE - \$10. Ext. 3228.

TYPEWRITER - Royal elec portable, excel cond, no case. \$110. 727-4884 after 6.

SPRAY GUN - Speedaire Model 12581, instructions incl, \$8; tape recorder for children, need a little oil, cheap. Ext. 2102.

DRAPES - 144"x84", \$50; fireplace, screens (2) \$10 ea, 3 pc tool set, \$15. Jim, Ext. 4157 or 929-8462.

LAWN MOWER - B&D elec 18", 1 yr old. \$50. Jim, Ext. 4157 or 929-8462.

PATCHWORK PILLOWS - lovely personalized (hand embroidered) made to order, eyelet lace ruffle, reasonable. 331-3329.

KITCHEN SET - formica table 24"x36" w/2 matching chairs. \$35. Pete, Ext. 3868 or 878-1225.

20 GA MEC 600 - Jr. reloader, 50 lb #8 shot, 2 bx primers 2,682, trap wads, powder, 4 bx #9 reloads, 1 box #4 fidd load 200 empty shells. \$75. J. Zahra, Ext. 2951 or 727-4515.

BEDROOM SET - \$95; porta crib, \$20; boy's 20" bicycle, \$30; traveling sprinkler, \$10; umbrella tent 9'3"x9'3" corner poles, \$25; baby dressing table, \$10; other equip. W. Palais, Ext. 2907 or 698-0576.

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 Sale

CENTER MORICHES - 3 bdrm, 2 1/2 baths, on Forge River, d/r, l/r, eik, paneled family room w/fp. \$80,000. 878-4880.

HOLTSVILLE - Townhouse Condo, new appl, and carpet, low taxes, assumable 7% mort. \$25,900. 289-9677.

BELLPORT VILLAGE - 1/2 acre, 3 adrms, 2 baths, 2 car garage, screened porch, attached greenhouse, many extras. \$47,500. 286-8570.

ROCKY POINT - moving out of state, many extras, 4 bdrm Colonial, eik, 2 1/2 baths, fp, w/w carpeting, wood deck, 1/2 acre, priv beach. 744-1156.

MASTIC BEACH - 4 yr old house, 6 rms, full bsmt, fenced, 80x125. 281-5498.

SELDEN - will give away to a lucky family, 4 bdrm Colonial, well stocked, 9 mi W. of Lab. \$33,900 valued much higher. 732-2720.

BROOKHAVEN - 3 bdrm, custom ranch, new 20x20 barn on 1 1/2 acres, very desirable area, lux landscaping, extras too numerous to list. 286-0246.

E. MORICHES - 8 rm house w/detached 2 car garage, 1 1/2 baths, w/w carpeting, attic and bsmt, black top driveway, 1 mi from Bay, an older house in a quiet neighborhood, low taxes. 878-2857.

SHOREHAM - 3 yr old, 3 bdrm contemporary ranch, 2 baths, 2 fp, bsmt, secluded, priv beach. 744-9746.

SETAUKET - (Strong's Neck) 3 bdrm ranch, fin lower level, central a/c, appl, w/w carpeting, draperies, storms, low taxes, beautifully landscaped, 3/4 acres, winter water view, priv beach, moorings. \$75,000, 25% cash. Ext. 3918.

SHOREHAM VILLAGE - lg Clarendon, custom colonial, 4 bdms, 2 1/2 baths, den w/fp, eik, formal d/r, 1 1/4 wooded acre, deck, walk to tennis, beach, country club. (Reduced) \$80,000. 744-1935.

SHIRLEY - spacious 8 rm ranch, 3 bdms, 2 baths, l/r, d/r, den, w/w carpeting, bsmt, many extras, near Lab and ocean. Asking \$15,000 over mortgage. 281-2780 after 5.

BELLPORT VILLAGE S. - new Colonial, l/r, d/r, fam rm w/fp, eik, 4 bdms, 2 1/2 baths, dbl garage, full bsmt, 0.4 acres. \$75,000. 286-8097.

RIVERHEAD - 12'x60' mobile home, 1 1/2 baths, 2 bdms, eik, tool shed, awning and patio, excel location, must see. \$8,000. Firm. Harry, Ext. 4722 or 727-1827 after 6.

SOUND BEACH - 2 bdrm cottage, l/r w/large field-stone fp, heat, priv beach, rights. \$19,900. Ext. 3570.

For Rent

N. SHIRLEY - 3 bdrm apt, all util incl, 5 min from Lab, references needed, available Sept. 1. 924-8264 or 475-4930 eves.

STRATHMORE RIDGE - 2 bdrm, 1 1/2 bath Townhouse, w/w carpet, central a/c, all appl, prime location, avail Sept. \$315/mo + util. 924-6761.

WADING RIVER - attractive location, 3 bdms in wooded yard. \$250/mo (util not incl), avail immediately. (212)254-7206.

PORT JEFFERSON - 2 bdrm apt in priv home on Main Street, rent \$280/mo incl heat. Can provide some furniture cheap. 473-5726 if no answer 331-1396.

MT. SINAI - 3 bdrm house, fully furn, full fin bsmt, pool table, built in bar, fp, 2 baths, Oct. 1st to Jan. 31st. Ext. 4260 on 928-5737.

MT. SINAI - harbor view, 3 bdms, 2 1/2 baths, furn, lg 22x22 l/r, full d/r, eik, all appl, woodburning fp, low util, 1 fam only, Sept. 7 to June 7. \$385/mo. Owner 473-0674.

SHOREHAM - 4 bdrm "Contemporary" Colonial on 3/4 wooded acre, priv beach, 10 min to BNL, avail Sept. \$400/mo plus util, on one yr lease. 744-1679.

BELLPORT - 1 bdrm plus 1 adjacent room & bathroom, female only, avail Sept. 15, \$175/mo. Ext. 3583 or 286-9725.

MT. SINAI - 4 bdrm Colonial, close to beach, 1 1/2 baths, patio, modern appl, 1 car garage, 15 min to BNL and/or Stony Brook. \$400/mo + util. 473-8403 eves.

ROCKY POINT - 3 bdrm ranch, full bsmt. \$350/mo + util, opt to buy. 798-4063 after 6.

Wanted

MATURE BABYSITTER - for 11 mo old baby boy in my home 3 days/wk. References. Marie, Ext. 2345 or 744-4047.

HOME - for very affectionate 2 yr old male dog, Ches Bay/Lab mixture. Sharon, Ext. 3312 or 878-2591.

HOME - for kittens, 7 wks old, 1 female calico, 1 grey/white male. Alina, 281-7547.

HONEST HORSE LOVER - to share some expenses in return for riding. Wkly and/or mo basis. 732-3681 days and 744-4779 eves.

SINGLE GIRL - to share house, own bdrm, l/r and bathroom on separate floor, share kitchen. \$175 pays all. 581-8373 after 6:30.

MATURE BABYSITTER - for 1 yr old in our home in Stony Brook, 1 or 2 days a week. Roger, Ext. 3449 or 751-6670.

FIFTH TENNIS PLAYER - for winter season at Smithtown Racquet Club. Joe, Ext. 2983 or Larry, Ext. 3064 or Carmen, Ext. 4135.

GAS GREENHOUSE HEATER -