BROOKHAVEN BULLETIN
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BROOKHAVEN NATIONAL LABORATORY

How BNL Complies With Environmental Law

This is the third part of a four-part series about the Tiger Team and other environmental, safety and health initiatives of the U.S. Department of Energy, and the relationship of these initiatives to BNL.

Clean air, clean water, conservation and recovery of resources — these are American environmental health ideals that are spelled out in three acts passed by the U.S. Congress. They are: the Resource Conservation and Recovery Act (RCRA) of 1976, the Clean Water Act of 1972, and the Clean Air Act of 1970.

Itself a national resource and a good Long Island neighbor, BNL complies with the requirements of these acts, by obtaining the necessary permits and following the letter of the law regarding the handling of hazardous waste, and the limiting of air and water emissions.

Congress authorized EPA to develop RCRA and Clean Air and Water regulations. In turn, EPA has delegated the authority to carry out these regulations to states with hazardous-waste and emissions programs equivalent to or more stringent than the federal plan. New York is one such state.

Under a Presidential Order signed by Jimmy Carter in 1978, all federal agencies are required to comply with state regulations that are founded on federal law. Hence, BNL reports to New York State, through its regional office of the Department of Environmental Conservation (DEC) at Stony Brook, regarding hazardous waste, and air and water emissions.

"These are important acts — among the most visible pieces of environmental legislation," comments Robert Casey, head of BNL's Safety & Environmental Protection Division (S&EP). "Strict compliance with these acts is expected by all regulatory agencies."

It is S&EP's duty to assist the Lab in obeying these three environmental laws. On March 26, a Tiger Team from the U.S. Department of Energy (DOE) will arrive at BNL to assess how well the Lab is complying with all legal requirements regarding environment, safety and health. The purpose of the DOE assessment team is to strengthen environmental protection, safety and waste-management programs at DOE facilities nationwide.

RCRA

"The Secretary of Energy [James Watkins] has emphasized the importance of environment, safety and health in pursuing DOE objectives — and an important aspect of this is waste management," says Len Emma, head of S&EP's Hazardous Waste Management and Environmental Restoration Section.

Among other duties, Emma's section is responsible for BNL's compliance with RCRA. As only a handful of New York State hazardous-waste generators have a RCRA permit, BNL is among those waiting final DEC approval while operating with an interim permit.

RCRA defines hazardous waste as gaseous, liquid or solid by-products that are a hazard to human health or the environment and are ignitable, corrosive, reactive and/or toxic.

"RCRA has stringent requirements for the storage of hazardous waste — whether it is at the Hazardous Waste Management Facility or at one of the numerous waste-accumulation areas around site," explains Emma.

With "cradle-to-grave" provisions in the RCRA law, the generator never loses liability for the waste. So, if an incident occurs during waste transport or disposal that is not resolved, RCRA holds the generator responsible for remediation.

"Therefore, not only is proper waste management including minimization important, it is also necessary under the law," comments Emma. Under RCRA, BNL must document its waste-minimization effort.

The newest building at the Hazardous Waste Management Facility is the drum-storage area, where hazardous chemicals are kept until they can be treated on site or transferred to an outside, licensed disposal firm. Here, as John Strahmann brings in another drum, Edward Richards keeps track of the materials that Warren Voegelin, who is wearing protective clothing, is adding to a drum.

— All photos in this issue by Roger Stoutenburgh.

To reduce the amount of hazardous waste at the Lab, S&EP relies upon early review and interaction with BNL staff concerning projects that have hazardous-waste generating potential.

"We rely on BNL employees to minimize hazardous wastes by planning their work, recycling useful chemicals, segregating different wastes, and substituting safer products for hazardous ones," states Emma.

Clean Air

Although BNL needs to obtain only one permit to operate under RCRA, the Clean Air Act requires that the Lab have an air-quality permit for each source of regulated air emissions on site. While BNL holds some 20 permits, the Lab has applied for roughly another 25.

"The clean-air laws are very clear regarding the emissions from specific processes — such as vapor degreasers, incinerators, boilers and blueprint machines," explains Barbara Royce, leader of the Environmental Compliance Group within S&EP's Environmental Protection Section.

She adds, "Therefore, what BNL researchers must understand is that, since many of their experiments are unique and the laws do not spell out every process, S&EP must make a preliminary evaluation. However, the New York State DEC makes the final determination about whether or not an air-quality permit is necessary."

The Clean Air Act attempts to limit air pollution that endangers public health or welfare by establishing national emission standards, regulating emission sources, and demanding emission reduction of a list of known hazardous air pollutants. These regulations apply to new, existing and modified sources of emissions.

Potential air-emission sources should be identified by BNL employees who will use them and reported to S&EP for review. In addition, S&EP reviews engineering designs for new and modified projects, and conducts annual S&EP appraisals of BNL's departments and divisions to determine compliance with air-quality requirements. Outside groups, such as the Tiger Team, and inspectors from the State and Suffolk County, also audit the Lab for air-quality law compliance.

Clean Water

Like the clean-air laws, the Clean Water Act regulates the liquid discharges from all Laboratory facilities. BNL's releases in accordance

(continued on page 2)

28th Brookhaven Council Meets

First convened in 1962, the Brookhaven Council is an 16-member advisory group that reports to the Director and makes recommendations on scientific policy and procedural matters, such as staff appointments and tenure recommendations. Members are elected from the tenured scientific staff for three-year terms.

At the first meeting of the 1990-91 term, held on March 12, are Brookhaven Council members: (back, from left) Charles Goldstein, representing the Department of Applied Science (DAS) and the Computing & Communications Division (CCD); Darrel Joel, Medical Department; Hugh Isaacs, DAS and CCD; Walter Mangel and John Sutherland, both of the Biology Department; Paul Michael, DAS and CCD; Howard Gordon, Physics Department and the Instrumentation Division; (front, from left) William Weng, Alternating Gradient Synchrotron (AGS) Department, the Accelerator Development Department (ADD), and the Safety & Environmental Protection (S&EP) Division; Hiroshi Takahashi, Department of Nuclear Energy (DNE) and the High Flux Beam Reactor (HFBR) Division; Krsto Prelec, AGS, ADD and S&EP; Council Chairman John Millener, Physics and Instrumentation; Thomas Koetzle, Chemistry Department; and Council Secretary Richard Holroyd, Chemistry. Not present are: Kelvin Lynn, Physics and Instrumentation; Peter Siddons, National Synchrotron Light Source Department; and Wolfgang Wulff, DNE and HFBR.

Lecture Postponed

The Brookhaven Lecture scheduled for Wednesday, March 21, "From Anthracite to Zeolite — Elemental Analysis Using Photon and Ion Beams," to be presented by Keith Jones, Senior Physicist in the Department of Applied Science, has been postponed.

The new date will be published in a later Bulletin.

Environment (cont'd)

with the Clean Water Act are covered under one 5-year permit, which BNL is in the process of renewing.

"The clean-water permit is needed for BNL's direct discharges to surface water and the existing recharge basins on site," explains Royce. The discharge to surface water is the effluent from BNL's Sewage Treatment Plant; secondary cooling water from BNL's air-conditioning and heat-exchanger units is the discharge to the recharge basins.

"All effluents with the potential for industrial or laboratory-type waste must be reviewed to determine whether or not the conditions of our clean-water permit are being met," continues Royce. "If a condition of the permit cannot be met, we have to apply for a permit modification."

She adds, "By the time an existing water-quality permit comes up for renewal , the state has usually tightened clean-water standards. Under law, we are expected to apply the best technology available to limit effluent discharges to achieve the necessary reductions — so we do."

More Frequent Monitoring

The Lab monitors its water quality more frequently than is required by the Clean Water Act. In addition, Brookhaven conducts a comprehensive environmental monitoring program to determine whether operation of BNL facilities has met the applicable environmental standards and effluent-control requirements. These findings are reported to regulatory agencies and the general public in the Lab's annual Environmental Monitoring Report.

"By the nature of the operation of the Laboratory, we do generate emissions and wastes — so it is part of our research mission first to ensure that any emissions are within legal limits and hazardous wastes are properly handled, and, second but just as important, to devise new ways of going about our research so that emissions and wastes are minimized," says Casey.

"So, the best way for us to be a good neighbor within our local community is to ensure compliance with the environmental laws set up by the federal, state and local governments. This requires a high level of ES&H consciousness extending throughout the Laboratory community," he concludes. — Marsha Belford

In Memoriam

It has been learned that **Paul Simack**, who retired as a nuclear emulsion specialist in the Photography & Graphic Arts Division, died on March 3, at the age of 73.

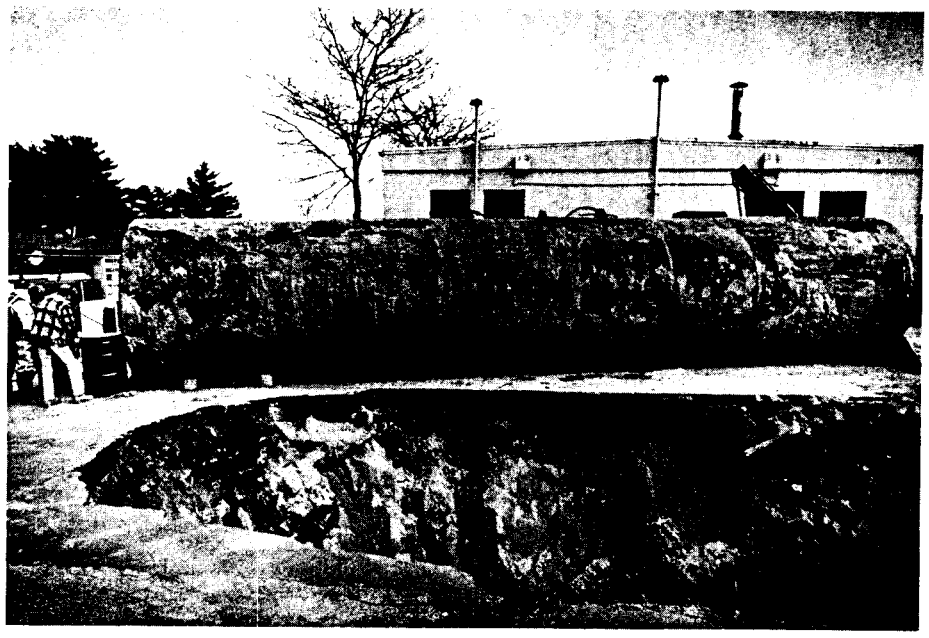
Simack had been at BNL for 33 years, from 1947 to 1980. He was a resident of Manorville and is survived by his wife Mary, sons Alex, Paul, George and Peter, and six grandchildren.

Last Month to Get New ID Cards

Since last October, a program to replace all Laboratory identification cards has been ongoing in Berkner Hall. As old BNL identification cards will no longer be accepted as of April 1, the ID operation will relocate from Berkner Hall to Bldg. 50 at the end of March. If you still haven't gotten your new ID card, be sure to stop by Room D, Berkner Hall, before the month's end.

Addled Addresses

- Brook Haven Lane
- Boork Havern Mat. Lab
  76 Cornelia Ave.
  Lipton, NY



A Change of Tank — The Whole Story

Changing an oil filter takes no time with know-how — but changing a 15,000-gallon gasoline tank is more of a challenge.

In accordance with Article 12 of the Suffolk County Sanitary Code, "Toxic and Hazardous Materials Storage and Handling Controls," the old gas tank at the BNL filling station is being replaced by two 8,000-gallon tanks that meet all applicable federal, New York State and Suffolk County design standards and safety codes.

Each tank is made of double walls of steel and encased in fiberglass to protect them from rust. The new tanks are also protected by overfill and leak detection systems.

Project Engineer Garry Barnett from Plant Engineering Division, with Barbara Royce and Wailin Litzke of the Safety & Environmental Protection Division, were responsible for the project design, safety and fieldwork. This was familiar work for them, since the same team had recently overseen a similar exchange of gas tanks at Friendly Gulf Station on Rochester Street.

Said Barnett, "It costs a lot — but it's worth it, because we've got to drink the water for a long time to come."

Reports Available

The following reports are available to Laboratory staff and affiliates of DOE, AUI and NRC. Others may purchase the report from the National Technical Information Service, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, VA 22161. Staff members should call the designated contact.

BNL-52187
Contact: S. Monteleone, Ext. 7235
Review of Pipe-Break Probability Assessment Methods and Data for Applicability to the Advanced Neutron Source Project for Oak Ridge National Laboratory. R.R. Fullwood.

NUREG/CR-5206
BNL-NUREG-52161
Contact: D. Miesell, Ext. 4962
A Probabilistic Evaluation of the Safety of Babcock & Wilcox Nuclear Reactor Power Plants With Emphasis on Historically Observed Operational Events. Final Report. C.J. Hsu et al.

NUREG/CR-5261
BNL-NUREG-52174
Contact: L. Hanlon, Ext. 7517
Safety Evaluation of MHTGR Licensing Basis Accident Scenarios. P.G. Kroeger.

NUREG/CR-5279
BNL-NUREG-52179
Contact: A. Lopez, Ext. 5768
Sulfate-Attack Resistance and Gamma-Irradiation Resistance of Some Portland Cement Based Mortars. P. Soo and L.W. Milian.

NUREG/CR-5281
BNL-NUREG-52180
Contact: M. Raia, Ext. 2272
Value/Impact Analyses of Accident Preventive and Mitigative Options for Spent Fuel Pools. J.H. Jo et al.

NUREG/CR-5355
BNL-NUREG-52193
Contact: L. Hanlon, Ext. 7517
HTGR Ingress Analysis Using MINET. G.J. van Tuyle et al.

BNL-52194
Contact: M. McKenna, Ext. 2956
Field Performance Testing of a Free-Air Controlled Enrichment (FACE) System for the Regulation of Carbon Dioxide Concentrations in a Cotton Field at Yazoo City, Mississippi. G.R. Hendrey et al.

NUREG/CR-5347
BNL-NUREG-52191
Contact: M. Drapkin, Ext. 4909
Recommendations for Resolution of Public Comments on USI A-40, "Seismic Design Criteria." A.J. Philippacopoulos.

NUREG/CR-3469
BNL-NUREG-51708
Vol.4
Contact: E. Mitchell, Ext. 7328
Occupational Dose Reduction at Nuclear Power Plants: Annotated Bibliography of Selected Readings in Radiation Protection and ALARA. T.A. Khan & J.W. Baum

NUREG/CR-4409
BNL-NUREG-51934
Vol.3
Contact: E. Mitchell, Ext. 7328
Data Base on Dose Reduction Research Projects for Nuclear Power Plants. T.A. Khan & J.W. Baum

BNL-52169
Contact: P. Campbell, Ext. 4072
Beam Positron Monitor Analysis. G.Di Massa & A.G. Ruggiero

BNL-52167
Contact: P. Powers, Ext. 4828
National Synchrotron Light Source Annual Report 1988 (for the Period of October 1, 1987, through September 30, 1988). S. Hulbert, N. Lazarz & W. Williams.

BNL-52192
Contact: B. Armstrong, Ext. 3361
Medical Status of Marshallese Accidentally Exposed to 1954 Bravo Fallout Radiation: January 1985 through December 1987. W.H. Adams, P.M. Heotis & W.A. Scott.

BNL-52195
Contact: B. Sherwood, Ext. 4901
Conceptual Design of the Relativistic Heavy Ion Collider. H.Hahn.

NUREG/CR-5425
BNL-NUREG-52213
Contact: J. Danko, Ext. 7125
Evaluation of Allowed Outage Times (AOTs) From a Risk and Reliability Standpoint. W.E. Vesely.

BNL-52214
Contact: E. Zukowski, Ext. 3866
This Was the Particle Physics That Was: The Years From P and C Violation to CP Violation. G.Feinberg.

NUREG/CR-2907
BNL-NUREG-51581
Vol 8.
Contact: F. O'Brien, Ext. 2265
Radioactive Materials Released From Nuclear Power Plants. Annual Report 1987. J. Tichler, K. Norden, J. Congemi

NUREG/CR-5323
BNL-NUREG-52186
Contact: J. Danko, Ext. 7125
Validation of Risk-Based Performance Indicators: Safety System Function Trends. J.L. Boccio, W.E. Vesely, M.A. Azarm, J.F. Carbonaro, J.L. Usher, N.Oden

Inside Info

Bruce Stewart, a mathematician in the Department of Applied Science, is co-curator of "The Beauty of Order and Chaos," an art exhibition at the Fine Art Museum of Long Island in Hempstead, together with Charles Cutietta-Olson, registrar of the museum.

The exhibition includes some of Stewart's own work, as well as that of Japanese scientist Yoshisuke Ueda, who had exhibited his original drawings and computer plots in September 1988 at the Lab in an exhibit called "Portraits of Chaos."

At the opening reception on Sunday, April 1 from 1-5 p.m., Stewart will also show his computer-generated tutorial film on chaos. The exhibition will continue until June 24. Museum hours are: Wednesday to Saturday, 10 a.m. - 4:30 p.m.; Sunday, 12 noon - 4:30 p.m.

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If you haven't yet read your Family Safety & Health magazine for spring 1990, take a look at page 12, where readers recount their true experiences. There you'll find the true experience of **Sanford Lacks,** Biology Department. Entitled "Hot Pants," Lacks's story recounts how he idly put an old smoke-detector battery in his pocket and, a few minutes later, pulled out a burning-hot battery, the leads of which had been short-circuited by the coins in his pocket, producing a dangerous amount of heat! Fortunately, Lacks suffered no burn from this incident.

P-CAD Users Meeting

The next P-CAD User Group Meeting is scheduled for Thursday, March 22, from 10 a.m. to 4 p.m., in the seminar room of Bldg. 515, Computing & Communications Division.

Doug Marks of Doug Marks Associates will answer questions about the 4.5 release. Topics to be discussed will include PDIF, PC-PLACE and PC-ROUTE.

All are invited to attend. For more information, call Pam Mansfield, Ext. 7286.

Equipment Demo

On Thursday, March 22, representatives of B&B Motor and Control Corporation will present multi-axis stepper-motor and servo-motor controls, from 11 a.m. to 1:30 p.m., in Berkner Hall. Compumotor digital motors and drives will also be featured.

NUREG/CR-5364
BNL-NUREG-52197
Contact: L. Hanlon, Ext. 7517
Summary of Advanced LMR Evaluations — PRISM and SAFR. G.J. Van Tuyle, G.C. Slovik, B.C. Chan, R.J. Kennett, H.S. Cheng, P.G. Kroeger

BNL-52211
Contact: K.Tuohy, Ext. 3845
Proceedings of the Switched Power Workshop, Held at Shelter Island, NY, Oct.16-21, 1988. R.C. Fernow, Editor

NUREG/CR-3444
BNL-NUREG-51699
Vol. 6
Contact: A. Lopez, Ext. 5768
The Impact of LWR Decontaminations on Solidification, Waste Disposal and Associated Occupational Exposure. P.Soo, C.R. Kempf, K. Brumfield, L.W. Milian, J.W. Adams

BNL-52207
Contact: C.Sauter, Ext. 4207
Brookhaven National Laboratory Site Report for Calendar Year 1988. R.P. Miltenberger, B.A. Royce, J.R. Naidu

BNL-52204
Contact: Grace Nubla, Ext. 3227
Optimization of the Factors That Accelerate Leaching. M. Furhmann et al.

BNL-52215
Contact: Dorry Tooker, Ext. 2103
Biotechnology at Brookhaven National Laboratory. Office of Research and Technology Applications.

BERA Board: Meet the Candidates

During the week of March 26-30, employees may cast their votes in the 1990 BERA Board election. Two candidates from a slate of four will be selected to serve on the BERA Executive Board for four years, starting May 1.

Eligible voters include employees of BNL, AUI and DOE, as well as all other permanent, on-site employers. Absentee votes for those who will not be on site during voting week will be accepted in person at the Recreation Office. Bldg. 185, prior to Monday, March 26, when elections begin.

Ballots may be cast as follows:

Date	Time	Place
Mon., 3/26	11:30 - 1:30	Cafeteria
Tue., 3/27	11:30 - 1:30	Cafeteria
Wed., 3/28	11:30 - 1:30	Cafeteria
Thu., 3/29	11:30 - 1:30	Bank
Fri., 3/30	11:30 - 2:00	Bank

Maryann Reynolds . . . Senior Administrative Services Assistant, Safeguards & Security Division . . . employed at BNL 16 years . . . eighth year of bowling with Pink League; Pink League secretary; treasurer for Pink League and Red & Green League; vice-president of BERA Bowling Executive Committee.

Denise Miesell . . . Secretary Specialist, Department of Nuclear Energy . . . BNL employee for ten years . . . Mixed Softball League member and team captain, League secretary . . . Mixed Volleyball League member and team captain . . . member BNL Social Club . . . member of the 1989 BERA Nominating Committee.

Otto Jacobi . . . Reactor Maintenance Group Leader, Reactor Division . . . employed at BNL 22 years . . . member of the Rifle & Pistol Club since 1971 and club president since 1980 . . . active in winter and summer pistol leagues and year-round trap & skeet shooting . . . member of the 1986 Nominating Committee.

Betty Pergan . . . Senior Staff Specialist, Department of Applied Science . . . at Brookhaven 25 years . . . member of BERA Special Events Committee since 1975 . . . Mixed Bowling League member . . . financial coordinator of the BNL's United Way campaign since 1981.

Daffodil Days

Again this year, BERA will take part in "Daffodil Days," an annual event sponsored by the Long Island Division of the American Cancer Society.

Bunches of daffodils will be sold at the BERA Sales Office in Berkner Hall next Thursday and Friday, March 22 and 23, from 9 a.m. to 2 p.m. Each bunch of sunshine containing ten beautiful flowers will sell for $5.

BERA Art Society Spring Bus Trip

On Saturday, April 21, go back in time. Take the BERA Art Society trip to see spring coming up in an herb garden at New York City's medieval museum — The Cloisters.

There, on high land overlooking the Hudson, authentic parts of ruined monastery buildings, sculpture, frescos and tapestries have been brought from Europe for display. Then, bus downtown to lunch in very modern Soho, where over 40 art galleries are clustered. Chinatown and Greenwich Village are also a stroll away.

The bus will leave BNL from the parking lot opposite the Cafeteria at 7:40 a.m. sharp, arriving at The Cloisters at 9:30. At 11:30 the bus will drive to Soho, then leave the city to be back at the Lab by 5 p.m.

Bus tickets will cost $15 each; museum fees are: adults, $4.50; senior citizens, $2.75; children, $1.75. Lunch and city mad money — to taste! To make reservations, call Liz Seubert, Ext. 2346.

Volleyball

Standings as of March 9

Open League		League I	
GTEAM	56-7	Upfagrabs	50-7
Magnum	50-13	Dinkers	45-15
Phoenix	33-30	Cannonballs	36-21
Me and the Boys	25-36	Xrayted	27-20
Jet Setters	22-38	Rude Dogs	17-43
Dig It	20-43	Up-Setters	14-43
Penetrating Vollies	11-49	Network News	13-41

League II		League III	
Fossils	45-6	MISfits	36-9
Nuts & Bolts	42-9	Lethal Women	34-8
Pteropods	26-25	High Volley'em	24-18
Sourcerers	21-30	Nutcrackers	28-14
Net Wits	21-30	Renegades	20-22
Upton Ups	17-34	Good Timers	18-24
Chunga's Revenge	18-33	Bad Gnus	14-28
Slammers	14-37	Turkeys	8-34
		Spikes	7-38

Astronomical Society

View Saturn and Mars through a 16-inch telescope at 7 p.m. next Friday, March 23, the Astronomical Society's open observatory night.

Admission is $1 for nonmembers. Call Keith Powers, Ext. 5355, or Rick Jackimowicz, Ext. 3803, for directions and last-minute weather suitablity decisions.

On the Menu

At the Cafeteria

Luncheon served 11:15 a.m. to 1:30 p.m., grill open to 4 p.m.

Monday, March 19	
Soup: Chicken rice	.75/.95
Entree: Beef & pepper hero w/1 veg.	3.10
Entree: Fettucini Alfredo w/1 veg.	3.10
Fitness: Boneless chicken breast w/herbs over rice	3.10
Carvery: Pastrami sandwich	2.85
Grill: Double bacon cheeseburger w/fries	2.75
Tuesday, March 20	
Soup: Split pea	.75/.95
Entree: Fried liver & onions w/1 veg.	3.10
Entree: Chicken Parmesan w/1 veg.	3.10
Fitness: Cheese & vegetable casserole	2.85
Carvery: Hot roast beef sandwich	2.85
Grill: Swiss & mushroom burger w/fries	2.50
Wednesday, March 21	
Soup: Chicken gumbo	.75/.95
Entree: Barbecue spare ribs w/1 veg.	3.10
Entree: Meatball hero w/1 veg.	3.10
Fitness: Vegetarian green peppers w/1 veg.	3.10
Carvery: Hot corned beef sandwich	2.85
Grill: Tuna melt w/French fries	2.15
Thursday, March 22	
Soup: Tomato rice	.75/.95
Entree: Honey-dipped chicken w/1 veg.	3.10
Entree: Franks & beans w/1 veg.	2.85
Fitness: Seafood linguini w/1 veg.	3.10
Carvery: Baked Virginia ham sandwich	2.85
Grill: Grilled Reuben w/cole slaw	2.85
Friday, March 23	
Soup: New England clam chowder	.75/.95
Entree: Catch of the day w/1 veg.	3.10
Entree: Beef Stroganoff over buttered noodles	3.10
Fitness: Chef's special w/1 veg.	3.10
Carvery: Hot roast turkey w/cranberry sauce	2.85
Grill: Seafood nuggets w/French fries	2.95

R/C Model Club

The Radio-Controlled Model Club will meet on Wednesday, March 21, at noon, in the lounge area of the Cafeteria. All members are urged to attend. For further information call Warner Hayes, Ext. 4421, or Daniel Wilson, Ext. 7518.

Arrivals & Departures

Arrivals

Kyra M. Alford . . . . . Biology
Wen Tao . . . . . DAS

Departures

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

None

Softball Captains

There will be a softball captains' meeting on Tuesday, March 20, in Room B, Berkner Hall, at noon. Election of league offices, league fees and submittal of preliminary rosters will take place at this first meeting.

Travel Voucher Idea Nets $3,200 Award

It has been proposed that, if humans were meant to fly, it would be easier to get to airports. And many BNL secretaries have proposed that, if Lab personnel were meant to travel, travel vouchers would be easier to process.

Barry Karlin

Now, a bright suggestion from Barry Karlin makes light of Lab domestic travel paperwork. it also saves BNL an estimated $32,000 annually — thus earning Karlin $3,200 from the Employee Suggestion Program. Karlin, a technical research associate in the National Synchrotron Light Source Department, developed a way to complete domestic travel vouchers by computer.

According to Karlin, the idea sprang out of a conversation he had with Denise Miesell, a secretary in the Department of Nuclear Energy. Said Karlin, "I was kidding about how well I know Lotus 1-2-3, when Denise said, 'If you know it that well, let's see you write a program that does travel vouchers.' "

Karlin accepted the challenge and had Miesell show him exactly how to fill out a BNL domestic travel voucher. He then wrote a computer program that duplicates the voucher format and, once relevant information is entered, the program does all the calculations.

"Winning the award was an unexpected bonus," said Karlin. "My main aim was to prove I could do what I'd said! Of course, I shared some of the prize with Denise, who also helped me debug the program."

The consistency and accuracy of the computer-produced vouchers is saving time and processing costs, not only in the departments and divisions were it is in use, but also in BNL's Fiscal Division. Since Lotus 1-2-3 may be inaccessible for some, Karlin has written another program, which is not quite as simple to use, but still very helpful. For information about using these programs, contact Michael O'Reilly, Management Information Systems Division, Ext. 7203.

BROOKHAVEN BULLETIN

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Emergency Siren Test

Periodic maintenance of the site emergency sirens will be performed on Saturday, March 17. The test will consist of the individual sounding of each of the six sirens from 9 a.m. to 2 p.m.

Basketball

All Star Game

In this game on March 9, a team of BNL All-Stars beat the Western All Stars, a Nassau County team by nine points.

BNL	96	Western	87
Mayo	26	Holland	20
Hoggard	22	McCarthy	18
Walcott	12	Winter	16
Johnson	11	Canelli	11
Cummings	11	Mullin	9
Desmond	6	Ruab	6
Gregory	6	Ruab	5
O'Brien	2	Gallo	2

Three-point shots: Joggard (2), Johnson, Mayo (2), Mullin.

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 Laboratory employees only.

4181. ADMINISTRATIVE/SECRETARIAL POSITION - Requires AAS in secretarial science or equivalent, a thorough knowledge of Laboratory policies and procedures, and extensive PC experience. Proven organizational abilities, excellent communication and interpersonal skills essential. Proficiency in the use of TeX for preparing technical manuscripts involving mathematical equations and Greek symbols is desired, as is the ability to take shorthand. Coordinate and perform diverse secretarial and administrative duties for RHIC Project Head. Accelerator Development Department.

4182. SECRETARIAL/ADMINISTRATIVE POSITION - Requires AAS in secretarial science or equivalent, and extensive knowledge of Laboratory policies and procedures. Must have excellent secretarial and communication skills, and demonstrated interpersonal skills. IBM PC and word-processing experience essential, preferably WordPerfect. Familiarity with IPAP/JCARS data entry and MIS inquiry systems helpful. Coordinate and perform diverse administrative and secretarial duties for the manager of administration and project systems. RHIC Project, Accelerator Development Department.

OPEN RECRUITMENT - Opportunities for Laboratory employees and outside applicants.

4183. TECHNICAL POSITION - Requires AAS in mechanical technology or equivalent, and experience in the fabrication and assembly of mechanical components and structures. Ability to work from mechanical prints, verbal instructions and rough sketches also required, as is familiarity with precise measuring devices and the operation of machine tools. Electronic wiring skills desired. Accelerator Development Department.

4184. TECHNICAL POSITION - Requires AAS in electronic technology or equivalent, and experience in the fabrication and testing of integrated and discrete semiconductor circuits. Ability to work from electronic schematics, verbal instructions and rough sketches also required. Mechanical abilities and design skills (CAD) desired. Accelerator Development Department.

4185. TECHNICAL POSITION - Requires BS in chemistry, engineering or related field, or equivalent experience. Responsibilities include a wide range of duties with regard to operations conducted at the hazardous waste-management site. Duties include the on-site transport, handling and packaging of chemicals and radioactive materials, the operation of light and intermediate-range machinery, the maintenance of protective equipment, and recordkeeping. Safety & Environmental Protection Division.

4186. ENGINEERING POSITION - Requires BS/MSME with a minimum of 12 years' experience and a design-engineering background. Familiarity with machine, mechanical product and tool design; manufacturing and assembly; and stress analysis and material section required. Responsible for the design, development and manufacture of superconducting magnet components and assembly tooling. Supervisory experience desirable. Accelerator Development Department.

4187. ENGINEERING POSITION - Requires BS/MSME with a minimum of 12 years' experience and design-engineering background. Familiarity with machine, mechanical product and tool design; and stress analysis and material selection. Responsible for the operation of a cryogenic magnet-test facility, which includes the design, fabrication and assembly of magnet-test equipment. Supervisory experience desirable. Accelerator Development Department.

4188. PROGRAMMER/ANALYST POSITION - Requires BS in technical field and minimum of five years' programming background; experience in FORTRAN or BASIC, and knowledge of spreadsheets and database systems. Familiarity with RBase and SuperCalc necessary. Design and support tasks for the collection, organization and presentation of magnet technical and cost-estimate data on a Novell local area network of IBM PCs. Assist with programming and runs for processing of magnet-test data on a VAX. Accelerator Development Department.

Motor Vehicles & Supplies

88 CHEVY CAVALIER - a/t, p/s, p/b, ac , 29k mi., black, $5,200. Chris, Ext. 7636.

87 BUICK REGAL LIMITED - 2-dr., black, leather seating, 3.8 litre turbo, a/t, T-top, alarm. 744-8070 after 6 p.m.

87 MAZDA B-2600 - 4x4, p/s, p/b, lift bedliner, light-bar, sunroof, bug shield, alarm, cap, 37k mi., $8,100 neg. 281-7935 eves.

87 GRAND NATIONAL - fully loaded, showroom cond., 41k mi., new GT+4's, $16,500. Steve, Ext. 4678.

86 FORD ESCORT - a/t, p/s, p/b, ac, 42k mi. 563-2889 after 6 p.m.

86 DODGE CHARGER - p/s, p/b, ac, a/t, am/fm radio, excel. cond., ask. $3,000. Ext. 3160 or 289-5704 after 5 p.m.

86 CHEVY SPECTRUM - 4-cyl., a/t, 65k mi., excel. cond. in/out, asking $3,000. 475-9452 after 6 p.m.

85 NISSAN SENTRA - 38k mi., 5-spd., am/fm, orig. owner, excel. cond., $2,900. Young, Ext. 7933.

85 FIREBIRD - T-top, power, ac, 8/5.0, am/fm stereo cass., tint, white w/gray int., 43k mi., mint cond. Diane, 244-2752.

85 MERCURY MARQUIS WAGON - wood grain, ac, V-6, 3.8 litre, 4-dr., power, am/fm, cruise, 58k mi., $4,500. Bill G. Ext. 7961.

84 LINCOLN TOWN CAR - p/b, p/s, am/fm cass., alarm, excel. cond., asking $7,000. 727-4041.

83 HORIZON - high mileage, sunroof, dependable, v.g. cond. in/out, asking $2,900. 727-0499.

82 MAXIMA WAGON - 57k mi., silver/gray, $3,150; '82 Toyota SR-5, long-bed, 4wd, tires, new brakes, exhaust, $3,300. Ron, beeper 0942 or 286-3386.

81 MAZDA 626LX - 4-dr., a/t, p/w, p/l, am/fm stereo, new exhaust, tires, 85k mi., runs well, $1,100. Ray, Ext. 7205.

81 HONDA ACCORD - 5-spd., am/fm cass., sunroof, new clutch, gearbox, radiator, tires, more, 107k mi., $1,800 neg. Flo, Ext. 2265.

81 FORD ESCORT - high mileage, 4-spd., am/fm, runs well, $450. 929-5911.

81 MERCURY LYNX - a/t, needs carbureter, good transportation, $300. Barry, Ext. 5624.

80 MERCURY - 4-dr., gray, am/fm stereo cass., best offer. O. Booker, Ext. 3082 or 727-5912.

80 CHEVROLET C-30 DUMP TRUCK - 10' flatbed, 350, 4-spd., ac, p/s, p/b, new tires, asking $4,200. 475-8632 or 475-6354.

78 HONDA CB 400A MOTORCYCLE - candy red, 5k mi., mint cond., $600 firm. Ext. 3541.

78 OLDS REGENCY - 4-dr. sedan, p/s, p/b, ac, excel. cond., $1,500 neg. Lou, 277-2671 after 6 p.m.

77 BUICK CENTURY WAGON - 62k mi., ac, air shocks, trailer hitch, new brakes, tires, $1,500. Don, Ext. 3625 or 286-0428.

76 CHRYSLER NEW YORKER - 4-dr., 440, a/t, ac, p/w, p/s, p/l, am/fm, runs well, looks good, $850. Gary, Ext. 5046 or 345-2206.

76 FORD F-250 PICKUP - 4wd, 4-spd., 90k mi., new brakes, cap, runs well, some rust, must sell. Ernie, 475-9348.

75 TRIUMPH SPITFIRE - 40k mi., rebuilt engine, new paint, clutch, maroon body, black top, $1,500. Jay, 286-3679.

73 CHEVY PICKUP - 1-ton, for parts, best offer. Braband, Ext. 3082.

72 GMC JIMMY - 4wd, new 350 motor, Jan. '89, new clutch, brakes, runs well, $1,200 or best offer. Bret, Ext. 4688.

68 CHEVELLE SS - 396, 4-spd., ground-up restoration, mint cond., $8,500. Ken, 473-7460.

TIRE - Firestone 721, new, 235/75R15, Eldo rim, make offer. Ernie, 588-4987.

VW BUG PARTS - misc., blocks, heads, fender, door, steering, column wheels, etc. Fred Kuehl, Ext. 7947 or 588-2268.

Boats & Marine Supplies

37' EGG HARBOR - 1969, dbl. cabin, T/265 h.p. Palmers, sleeps 7, heat, ac, wet bar, swim platform, $22,000. Ron, Beeper 0942 or 286-3386.

25' O'DAY - furling, 150%, jib, radio, canvas, mint cond., $6,000. 754-0465.

25' SEIDELMAN SLOOP - racer/cruiser, ib. diesel, 3 sails, VHF, depth/sk.log, fully outfitted, many extras, excel. cond., $14,250. Jim, 474-3766.

23' O'DAY - cruising, racing, 6 sails, VHF, Loran depth/speed, Dodger, solo handling, extras, excel. cond., $13,500. 286-1024.

21' MAINE LOBSTER BOAT - 1975, fiberglass hull, 2 berths, 90 h.p. Chrysler ob., fast & able, no frills, $3,500. Thorndike, 286-8369.

21' CRUISER BONANZA - 1978, cuddy cabin, head, VHF, DF, 225 h.p. Evinrude, PT&T, ss prop., low hrs., excel. cond., $5,800. Al, Ext. 2173.

16' HOBIE CAT - 1976 Bicentennial model, blue hull, good cond., trailer needs work, make offer. Joe, 654-2617.

MOORING - 200 lbs. w/chain & float, $100; cradle, steel, rebuilt for keep-type sailboat, 20'-25', $800 neg. Bernie, 331-2298.

YAMAHA WAVE RUNNER - 1989, very low hrs., w/trailer & 2 vests, excel. cond., $3,800 or best offer. 744-5133 or 744-1610.

Furnishings & Appliances

HEADBOARD - king-size, spindle, early American, hard wood, maple; 2 twin mattresses & box springs, used for guest room, $150. Al, 751-8462.

DINING ROOM SET - pine, oval table, 4 chairs; pine trestle desk, both need work, best offer. 286-4801.

MICROWAVE CART - wood, good cond., $25. Eva, Ext. 4757.

REFRIGERATOR - Admiral, full size, good cond., $100. JoAnn, Ext. 4120 or 689-7963.

DOWN COMFORTER - allergic, king-size, light beige, $60; queen-size water bed w/heater & mattress cover, $95. Nancy, 744-5133 or 369-1190.

WASHER - GE heavy duty, large capacity, almost new, $195 firm. Bill, Ext. 2378 or 758-3284.

WICKER CHAIR - $15. Bill, Ext. 4986 or 563-1940.

WASHER - Kenmore, portable, for apt., good cond., $100. O. Booker, Ext. 3082 or 727-5912.

RANGE/OVEN - Princess, 3-burner, used for boat/camper, marine UL approved, $200. 698-6436.

SOFA & LOVE SEAT - Colonial, $300; kitchen set, seats 4; bedroom set w/triple dresser, chest, mirror, night table, $450. 654-5257 after 6 p.m.

SHAG RUG - 9'x10½', rust/gold/brown, w/foam pad, $25; Castro ottoman/bed, cot-size, $25. Ext. 5125.

BEDROOM SET - dresser, chest, end table, vanity & mirror, 2 chairs, $300. 331-4728 leave message.

Tools, House & Garden

TABLE SAW - Delta Homecraft, ¾ h.p., 4" joiner, drill press, accessories, steel, $200. 669-5181.

GENERATOR - Niagara 4, 4kW, 120/240 volt, w/over 50' of #12/4 cable, $500. Bob, Ext. 4044.

SNOW BLOWER - 4 h.p., gas power, $55; white cast iron double sink, $20. Bill, Ext. 4986 or 563-1940.

COAL STOVE - Haas Sohn, v.g. cond., best offer. Braband, Ext. 3082.

Sports, Hobbies & Pets

BICYCLE - BMX, boy's, red, 16", $35; sidewalk bike, $10, both good cond., Ext. 2667 or 924-8160.

CAT - female, calico, spayed, indoor/outdoor, 7 yrs. old. 736-1525, leave message.

UNIT SLIDE TRAYS - Argus 60, for series 500 projectors, 50¢/each. Georgia, Ext. 2384.

CLARINET - student model, excel. cond., $125; advanced Signet, $250. Jim, Ext. 3372.

RIDING GEAR - Motorcross, boots, helmet, belt, gloves, etc., almost new. Ext. 3309.

EXERCISE BIKE - RO Ped, like new, $30. Eva, Ext. 4757.

SKIS - 170cm, Rossignol, new, $75. Jim, Ext. 3372.

SPINET ORGAN - Lowrey Heritage deluxe, some tube replacement needed, repair manual, excel. cond., $400. 669-5181.

BICYCLE - Panasonic DX2000, 18" frame, Dia-Compe, Shimano equipment, great touring bike, orig. $400+, asking $175. Sam, Ext. 2051.

BOWLING BALL - men's, $20; collector porcelain mugs, $20. Kathy, 744-2203.

FISH TANK - 55-gallon, w/stand, accessories, like new, reasonable price. 878-0516 after 4:30 p.m.

SEWING MACHINE - Singer, $70; 2 b&w TV's, $30/each; three 10-speed bicycles, $30/each. 698-6436.

BUNNIES - Dwarf, outdoor-raised, $6. John, 924-3528.

Audio, Video & Computers

CD DISKS - player needs repair, 20 various titles, $175/all; Commodore 64 computer & printer, drive needs repair, $250. Walter, Ext. 4958 or 821-9451.

CASSETTE STEREO - Loydy, am/fm, $50; Tony the Tiger radio, $18. Kathy, 744-2203.

COMPUTER - Tandy 1000TX, color monitor, dot matrix printer, software, $1,600. Doug, 281-7419 after 6 p.m.

Miscellaneous

TICKETS - 2, Academy of St. Martin in the Fields, Islip Arts Council, April 7, $25/pr. Ext. 2041.

COLLECTABLE CAROUSEL HORSE - $35; outdoor light fixture, $10; rock albums, $5; wicker hanging lamp, $10. Kathy, 744-2203.

FUR COAT - white mink w/black tips, cross-mink, mink hat, satin lined, never worn, $800 neg. John, Ext. 4203.

CHILDREN'S & INFANTS' CLOTHES - & footwear, hand designed, 50% off retail. Donna, 563-1940.

Free

DESK - small, narrow, antique, paint finish, 3 drawers. Fred Kuehl, Ext. 7947 or 588-2268.

CHAIN SAW GUIDE BAR - and 2 saw chains for McCulloch Model EM12A. Bob, Ext. 4044.

Lost & Found

FOUND - L.L. Bean watch at NSLS Bldg., see NSLS receptionist or call. Lyn, Ext. 2150.

FOUND - garage door opener in NSLS parking lot, see NSLS receptionist or call. Lyn, Ext. 2150

Car Pools

PLAINVIEW - LIE Exit 43, 4th driver needed. Elliott, Ext. 2495.

COMMACK - or LIE Exit 56, additional drivers needed, 8:30-5:00. Conrad, Ext. 4754

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

BROOKHAVEN HAMLET - 3-bdrm. house on quiet, country lane, 2 baths, lr/dr w/fp, avail., 6/1, $925/mo. + sec. & util. J. Barry, Ext. 7607, beeper 0830 or 286-0204.

CALVERTON - 2-bdrm. townhouse, w/w, 1½ baths, appl., patio, $750. 878-0874 after 5 p.m.

FARMINGVILLE - studio apt., full kitchen, priv. ent., single working person, no pets, $425/mo. pays all, 1 mo. sec. Ben, 698-6436.

LAKE GROVE - 1-bdrm. apt., priv. ent., $500/mo. incl. all. Ida, 981-1977.

MEDFORD - new, 1-bdrm. apt., eik, l/r, full bath, priv. ent., cable, own thermostat, full use of yard, 15 min. to BNL, $675/all. Betty, 758-2653.

MEDFORD - 1 room + priv. bath, priv. ent., small refrig., microwave oven, no pets, nonsmoker, $100/wk. incl. all + $100 sec. 475-7250.

MIDDLE ISLAND - loft bdrm. apt., eik, l/r, full bath, cathedral ceiling, skylight, priv. ent. w/deck, cable, no pets, $650/mo. incl. all. Debra, Ext. 2384 or 924-9442.

RIDGE - 1-bdrm. apt., priv. ent., l/r, eik, new appl., 5 min. to Lab, avail. April 1, no pets, $650 includes all. Ext. 5076 or 744-4615.

RIDGE - 1-bdrm. apt., w/w carpeting, cable, pvt. ent., 5 min. to Lab, $550/mo. + ½ elect. Mike, 924-0341.

SHIRLEY - like new, 1-bdrm. apt., l/r, eik, full bath, w/w carpeting, priv. ent., mature working person or couple, $575/mo. incl. util. 281-1840.

HILTON HEAD, SC - 2-bdrm. condo, sleeps six, 2 baths, tennis, golf, beach, pool, $300/wk. Mar., $425/wk. Apr.-Sept. 689-5378.

For Sale

CENTEREACH - 4-bdrm. high ranch, l/r, d/r, eik, 2 full baths, large fam. rm. w/fp, deck, pool, large fenced yard, $148,900. 698-8514.

JAMESPORT - ¾ acre, on cul-de-sac, walk to beach, Hallockville Estates, price negotiable, terms avail. 929-8467.

MASTIC - 3-bdrm. modified Cape, appl., w/w, bsmt., encl. patio, fenced, SCWA, low taxes, energy efficient, $105,000 neg. 399-4356.

MIDDLE ISLAND - 3-bdrm. townhouse, Coventry Manor, 2 full baths, l/r, d/r, kitchen, laundry rm., 5 appl., cac, pool, tennis, ask. $104,000. Ext. 3160 or 289-5704 after 5 p.m.

MIDDLE ISLAND - 2-bdrm. condo, Lake Pointe, gas heat, cac, l/r-d/r area, wood deck off master bdrm., w/d, pool, tennis, clubhouse, maint. fee 85% tax deductible, ask. $78,500. Bob, 924-7316.

NORTH PATCHOGUE - 3-bdrm. ranch, kitchen, fp, full bsmt. w/playroom, low maint. & taxes, appl., louvered porch, ig sprinkler, ask. $129,900 neg. Arnie, Ext. 2040 or 289-1870.

RIDGE - 4-bdrm. Colonial, 2½ baths, eik, d/r, l/r, w/w, gar., deck, ½ acre, minutes to Lab, $157,990. 924-7520.

RIDGE -3-bdrm. Colonial, 1½ baths, l/r, d/r, eik, den, full bsmt., gar., vinyl siding, Andersen windows, fenced 1 acre, 5 min. from Lab, $159,900. 924-2706.

RIVERHEAD - 3/4 bdrms., 2 full baths, 24' l/r, 24' den, d/r, kit., 5 appl., 40' patio, on ¾ acre, 10 min. on LIE, $132,000. 727-0499.

WADING RIVER - custom, multi-level contemp., acre, decks, pool, skylights, fp, Jennaire stove, all appl., w/w carpet, quarry tile, jacuzzi, $209,000. 283-0155.

WEST SAYVILLE - 4-bdrm. high ranch, l/r, d/r, eik, 1½ baths, a/c, 2-car gar., gas heat, Sayville SD, $145,000. Meade, 499-8816.

YAPHANK - 3-bdrm. condo, 2½ baths, fin. bsmt., wood floors, a/c, 5 min. to Lab., $120,000. 751-2216.

YAPHANK - 2-bdrm. condo, 1½ baths, l/r, d/r, kitchen, fin., bsmt., gar., fully carpeted, 5 appl., pool, tennis, 2 miles from Lab, ask, $120,000. 924-2446.

PALM BAY, FL - 2-bdrm. condo near Melbourne, 2 full baths, l/r, d/r, kit., w/d, pvt. screened patio, completely furn., heated pool, near beach, malls, $70,000. Ginny, 698-8514 after 5 p.m.

TAMPA, FL - Paradise Village Mobile Home Park, 1982 Liberty mobile home, 14'x56', 2-bdrms., 1 bath, family park, all appl., cac & heat, awning & shed, excel cond. Glenn, 477-8699.

Wanted

OLD FLOOR SAFE - will gladly pick up. Artie, Ext. 4988 or 325-0743.

SINGER/BASS PLAYER - for hard-rock band, Zep, Aerosmith, Zebra, etc. Ken, 473-7460.

BABY CARE - for 3 mo.-old boy, 5 days/week in your home, begin in May, standard salary. Evelyne, 281-7808.

TIRE - P215 75/R15. Al, Ext. 5817.

LIONEL & AMERICAN FLYER TRAINS - and accessories, top $ paid. Bruce, 924-4097.

HOUSEMATE - to share 2-bdrm. ranch in Sound Beach, own room, l/r, d/r, eik, $350/mo. + 1 mo. sec., avail now. Ext. 3096.

OUTBOARD MOTOR - long shaft, 15-25 h.p., 1980 or newer. Sam, Ext. 2051.

TUBE - audio component by Marantz, McIntosh, Altec, Futterman, REL, W.E., working or not. Jim, Ext. 4584.

PING-PONG TABLE - and accessories, good cond., reasonable. Ext. 7505.

DOG CRATE - for large-size dog, Ext. 7192.

VIDEO CASSETTE PLAYER - Chris, Ext. 4572, pager 0163 or 265-0163.

BABY WALKER - Bente Videbaek, Ext. 3181.

COMPUTER CARTRIDGES - for Radio Shack Tandy TRS-80 Color Computer, will pay reasonable price. Dan, Ext. 4987 eves, or 698-7322 days.

IBM PC - or compatible. Ext. 3765 or 744-5079.

HOUSEMATE - to share Colonial house in Stony Brook w/professionals, $345/mo. + util. Jim, Ext. 2183.

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