BROOKHAVEN BULLETIN
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BROOKHAVEN NATIONAL LABORATORY

Has Stephen Schwartz Slain Gaia?

Gaia is the name that the ancient Greeks gave to Mother Earth, who appeared after the arrival of light and day.

Gaia is also the name that the British ecologist James Lovelock has given to his 20-year-old hypothesis about the living Earth. According to the Gaia hypothesis, living organisms on this planet regulate their environment to maintain optimum conditions for their continued existence.

The first act of the goddess Gaia was to create Father Heaven, Ouranos. For evidence of their hypothesis, Gaia believers have looked over the ocean, up to the sky — and into the clouds.

While every cloud may have a silver lining, clouds don't necessarily hold all the prospects that Gaia believers think they do. So says Stephen Schwartz, a chemist in the Environmental Chemistry Division of the Department of Applied Science and a skeptic about the Gaia hypothesis.

Do Plankton Control Climate?

Clouds form when water vapor condenses on existing aerosol particles that are ever present in the atmosphere. Most of these aerosol particles are composed of sulfate.

In pristine marine air, the sulfate is thought to come mainly from the oxidation of a gas called dimethylsulfide (DMS) that naturally emanates from the ocean. DMS is a metabolic by-product of one-celled marine plants called phytoplankton.

The concentration of sulfate particles in air determines the number of cloud drops in a cloud formed in that air. Of two clouds containing the same amount of water, the one having more sulfate condensation nuclei has smaller-sized cloud drops.

The smaller the size of the cloud drops, the brighter the cloud — and the more the cloud can reflect sunlight away from the Earth and back to the heavens. Thus, the Earth's climate can be cooled.

Lovelock and his Gaia collaborators have recently proposed that, by influencing clouds, marine phytoplankton regulate the Earth's climate to maintain optimum conditions for its continued existence.

According to Lovelock, when the Earth is too warm, plankton produce more DMS. The more DMS, the more reflective the clouds and the cooler the Earth. When the Earth becomes too cold, plankton then emit less DMS, and the Earth is warmed because the clouds reflect away less sunlight.

This negative-feedback loop is the only plausible and testable example of the Gaia hypothesis that has been put forth so far.

Biogenic vs. Anthropogenic Sulfur?

"In 1986, when this example was first presented, it occurred to me that an experiment to test it had already been conducted — inadvertently," says Schwartz.

For the past 100 years, combustion of fossil fuels has been releasing sulfur dioxide into the atmosphere. This too is a source — albeit man-made — of sulfate aerosol. Globally, in fact, there is more than twice as much anthropogenic sulfur dioxide emitted as DMS from marine plankton.

Therefore, if marine DMS emissions influence global climate as Lovelock suggests, then there has to be a large effect due to anthropogenic sulfur dioxide emissions.

In addition, 15 times more man-made sulfur dioxide is released in the northern hemisphere than in the southern hemisphere.

"So, it seemed to me that the proposed sensitivity of climate to gaseous sulfur emissions could be tested both by comparing the reflectivity of present clouds in the two hemispheres, and by comparing the historical records of temperature in the northern and southern hemispheres over the past hundred years," explains Schwartz.

Is the Northern Hemisphere Getting Hotter More Slowly?

In comparing temperature records, Schwartz took into account the warming of the global climate that may be due to the greenhouse effect from increasing carbon dioxide concentrations. If the Gaia hypothesis were correct, any effect of anthropogenic sulfur dioxide would result in the northern hemisphere warming more slowly than the southern hemisphere.

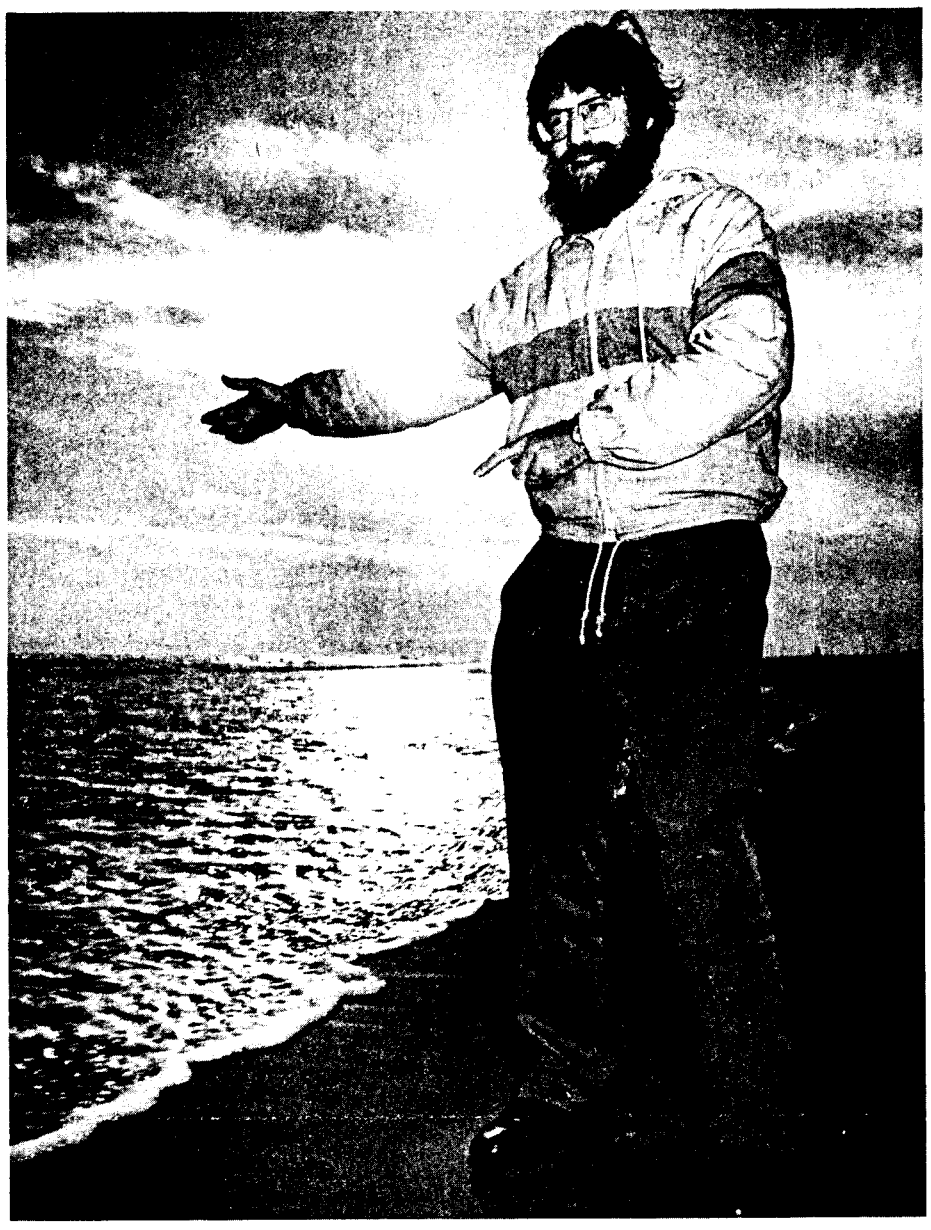
In examining the data, Schwartz found no difference between hemispheres in either cloud reflectivity or the rate of warming that would be consistent with the Gaia hypothesis.

"These variables are not controlled by anthropogenic sulphates, and, by extension, are not controlled by marine DMS emissions," he concluded in the 1 December 1988 issue of *Nature*.

Adds Schwartz, "That the Earth's climate does not respond to DMS emissions as proposed by Lovelock and his colleagues suggests that the climate-control system is much too complex to be influenced by a single variable, such as gaseous sulfur — biogenic or anthropogenic.

"This finding raises the question, 'Why has no influence due to man-made sulfur dioxide pollution been observed?' — and suggests new directions for research."

— Marsha Belford



Roger Stoutenburgh

Stephen Schwartz

Coming Up

Physicist William Morse of the Physics Department will give the next Brookhaven Lecture on Wednesday, March 22. His talk on "Rare K Decays: Searching for One in a Billion" will begin at 4 p.m. in Berkner Hall.

$10,000 Idea: Chips Off the Ol' Blocks

A cool $10,000 — that's the amount of the suggestion award presented this week to Robert Marascia, whose bright idea in an area outside of his own job responsibility has saved the Lab $121,070.

Marascia, a senior designer at the Alternating Gradient Synchrotron (AGS), found a way to recycle the ilmenite, an iron-ore fill, used in old shielding blocks from the Cosmotron to build the new blocks needed as shielding between the AGS and its latest offshoot, the Accumulator-Booster.

"The $10,000 is the largest award ever presented in the history of the Employee Suggestion Program [ESP] and is the maximum that can be given," said Susan Foster, Personnel, who administers ESP. "We hope this stimulates other employees to send in more cost-saving ideas that are not in their field of expertise, so they can be eligible for awards."

Although getting materials for his design work is not Marascia's job, "Recycling is my thing," he said. "I hated the waste of buying ilmenite, which is $192 a ton and can only be mined twice a year in the two mines still working — one in Canada, one in New Mexico — when we had all we needed in the old shielding from the Cosmotron. Those old blocks were useless — rain and ice had damaged the concrete. The ilmenite aggregate would still be fine, but no one knew how to get it out — and that really bugged me."

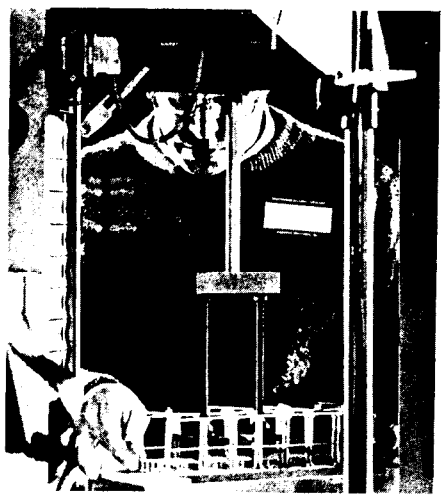
Marascia thought about the problem while taking his younger son, Brett — who has been Long Island's number one motorcycle racer for his age and class for the past three years

(Continued on page 3)

Roger Stoutenburgh

Robert Marascia (third from left) accepts a certificate and a $10,000 check from Derek Lowenstein, Chairman of the Alternating Gradient Synchrotron (AGS) Department. Marascia, a senior designer in the AGS's Experimental Areas Group (EAG), headed by Alexander Pendzick (right), received the Employee Suggestion Program (ESP) award for his idea for recyling material in old shielding blocks to make new ones, including those that stand behind the group. ESP is administered by Personnel's Susan Foster (left).

Breaking Balsa Bridges



BNL Engineer James Cullen places a bridge in the stress tester.

Holding over 3,300 times its own weight, a balsa-wood bridge built by David Quintana of Herricks High School took top honors for the West Region of the 1989 BNL Model Bridge Contest, which was held last Saturday at the Lab.

Quintana built one of the 440 bridges entered in the contest, which was divided into the West Region for high school students in Nassau County and the New York metropolitan area, and the East Region for students in Suffolk County.

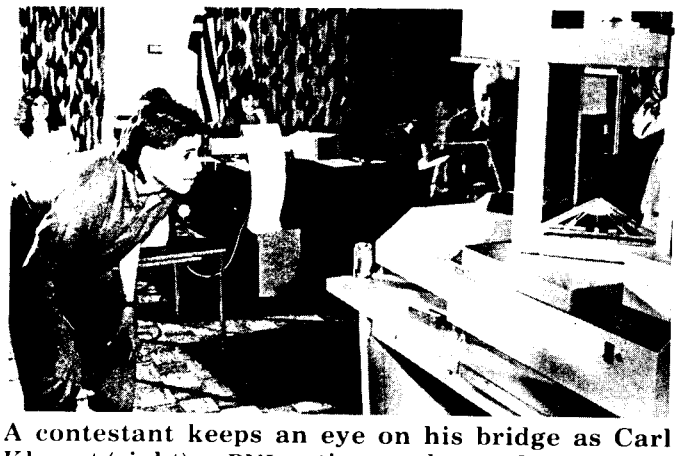
The Tour Program in the Public Affairs Office has hosted the BNL bridge contest since 1981. Each year, the rules are similar: students design and construct model bridges made of balsa wood and glue, according to size and weight specifications. The goal is to build the bridge that supports the greatest weight per gram of bridge mass. Each year, too, every bridge meets its destiny in the stress tester, which presses down on each bridge until it cracks, sometimes dramatically, as pieces of trusses fly into the air.

This year, the first-place winner in the East Region was Warren Kohm, from Cold Spring Harbor High School, with Patchoque-Medford High School students Milo Misut and Tommy Le picking up second and third, respectively. The second- and third-place winners in the West Region were Hopeton Hendricks and Pak Chow Lam, both from Westbury High School.

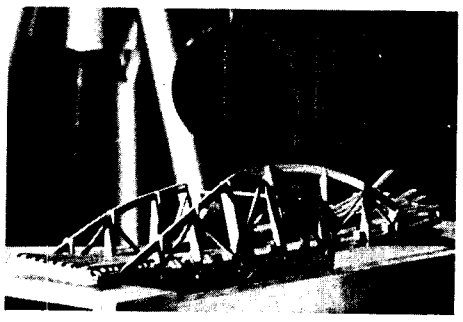
The top two winners in both regions are eligible to enter the 1989 National Bridge Building Contest, to be held in Chicago in May.

Prizes were given to the three winners in each region, as well as to the builders of the bridges judged to be the most aesthetic — Thomas Platti of Longwood High School in the East and David Marcic of Locust Valley High School in the West.

Joy Bertwell, BNL Tour Guide, lines up bridges prior to testing in the 1989 BNL Model Bridge Contest.



A contestant keeps an eye on his bridge as Carl Klamut (right), a BNL retiree and consultant, keeps watch on the control panel dials that indicate how much pressure the bridge is holding.



Photos by Peter Horton.

In a matter of seconds, a balsa-wood bridge succumbs to pressure from the stress tester.

Investment Options: Performance Summary

In February 1982, mutual funds were added as investment options for voluntary employee tax-deferred contributions under the AUI retirement program. In order to provide Laboratory employees with information concerning the various investment opportunities available under the AUI retirement program, the Personnel Division has again compiled the performance records for the TIAA-CREF Regular and Supplemental Retirement Annuities and the Fidelity and T. Rowe Price funds.

Values as of 12/31/88, for monthly contributions of $100 started 1/1/88, 1/1/86, 1/1/84 and 3/1/82.

The chart shows past performance of hypothetical accumulations with dividends and capital gains reinvested and all expenses deducted. Security prices can fluctuate considerably, so these yields should not be considered as representative of future earnings.

Date Contributions Commenced	1/1/88	1/1/86	1/1/84	3/1/82
Total Contributions	$1200	$3600	$6000	$8400
TIAA — CREF				
Regular				
TIAA	$1258	$4130	$7827	$12378
CREF	1279	4078	8685	14833
SRA				
TIAA*	1256	4085	7727	12209
CREF**	1273	4026	8567	14624

* Includes 1½% expense charge which was eliminated on 1/1/88.
** Includes 1½% expense charge which was reduced to ½% on 1/1/88.

Fidelity Group Funds				
Money Market Funds				
Cash Reserves	1249	3997	7178	11007
U.S. Government Reserves	1247	3981	7134	10896
Income Funds				
Flexible Bond	1237	3923	7540	12103
Ginnie Mae	1229	3927	N/A	N/A
High Income	1259	4060	8074	13769
Intermediate Bond	1236	3937	7586	12250
Mortgage Securities	1225	3931	N/A	N/A
Growth & Income Funds				
Balanced	1273	N/A	N/A	N/A
Convertible Securities	1256	N/A	N/A	N/A
Equity Income	1288	4105	8369	14771
Fidelity	1283	4020	8279	14079
Growth & Income	1298	N/A	N/A	N/A
International Growth Inc.	1284	N/A	N/A	N/A
Puritan	1282	4091	8419	14798
Real Estate	1222	N/A	N/A	N/A
Utilities Income	1270	N/A	N/A	N/A
Growth Funds				
Blue Chip	1238	N/A	N/A	N/A
Canada	1293	N/A	N/A	N/A
Capital Appreciation	1365	N/A	N/A	N/A
Contrafund	1272	3934	7897	12652
Europe	1277	N/A	N/A	N/A
Freedom	1242	3985	8408	N/A
Growth Company	1287	3850	7926	N/A
Magellan	1302	4122	9204	17378
OTC Portfolio	1276	3998	N/A	N/A
Overseas	1266	4375	N/A	N/A
Pacific Basin	1264	N/A	N/A	N/A
Trend	1287	3977	8033	13358
United Kingdom	1230	N/A	N/A	N/A
Value	1347	4060	7096	13028
Select Portfolios				
Air Transportation	1333	3791	N/A	N/A
American Gold	1134	3833	N/A	N/A
Automation & Machinery	1206	N/A	N/A	N/A
Automotive	1231	N/A	N/A	N/A
Biotechnology	1185	3263	N/A	N/A
Broadcast & Media	1354	N/A	N/A	N/A
Brokerage	1262	3045	N/A	N/A
Capital Goods	1185	N/A	N/A	N/A
Chemicals	1285	4391	N/A	N/A
Computers	1144	3118	N/A	N/A
Defense & Aerospace	1152	3037	N/A	N/A
Electric Utilities	1302	N/A	N/A	N/A
Electronics	1101	2738	N/A	N/A
Energy	1246	3941	7112	11217
Energy Services	1117	3021	N/A	N/A
Financial Services	1208	3313	7082	13040
Food and Agriculture	1345	4389	N/A	N/A
Health	1217	3607	8153	14267
Housing	1317	N/A	N/A	N/A
Industrial Materials	1255	N/A	N/A	N/A
Leisure	1326	4206	N/A	N/A
Life Insurance	1248	3337	N/A	N/A
Medical Care Delivery	1284	N/A	N/A	N/A
Paper & Forest	1248	N/A	N/A	N/A
Precious Metals	1097	3464	6094	9112
Property & Casualty Insurance	1284	3624	N/A	N/A
Regional Banks	1309	N/A	N/A	N/A
Restaurant Industry	1361	N/A	N/A	N/A
Retailing	1350	4213	N/A	N/A
Savings & Loan	1273	3808	N/A	N/A
Software & Computer Services	1249	3871	N/A	N/A
Technology	1164	3018	5068	8010
Telecommunications	1357	4688	N/A	N/A
Transportation	1392	N/A	N/A	N/A
Utilities	1278	3908	8200	11425

T. Rowe Price Funds				
Money Market Funds				
Prime Reserve	1249	3982	7172	10956
Income Funds				
GMNA	1221	3873	N/A	N/A
International Bond	1230	N/A	N/A	N/A
High-Yield	1290	4293	N/A	N/A
New Income	1238	3964	7527	12081
Short-Term Bond	1293	4137	N/A	N/A
Growth & Income Funds				
Equity Income	1338	4559	N/A	N/A
Growth & Income	1320	4093	7805	N/A
Growth Funds				
Capital Appreciation	1343	N/A	N/A	N/A
Growth Stock	1242	3785	8017	13092
International	1347	4685	11497	20605
New American Growth	1283	3801	N/A	N/A
New ERA	1240	4148	8495	14359
New Horizons	1238	3564	6566	10184

N/A = Funds not in existence for the full time period were excluded from this comparison.

$10,000 Idea (cont'd)

— all over the country to competitions. Driving along one day in May 1986, he saw a huge boulder-crushing machine at work, clearing a rock slide. "As soon as I saw it, I thought — hey, how about our blocks?" he recalled.

Marascia spoke with his supervisor, Alexander Pendzick, head of the AGS Experimental Areas Group (EAG), about the process. The outcome: If Marascia could find a stone-crushing firm to make a free test — go ahead.

So he found East Coast Mine Company and had 14 tons of nonradioactive blocks shipped out in three trucks to Wainscott, on the South Fork.

"I went there for the demo, and it was fantastic, said Marascia. "I videotaped it from above the machine, plugs in my ears, shaking and shaking as the huge hammer smashed the blocks down on to a conveyer belt. The belt shook out the crunched concrete, while a guy picked out the pieces of steel reinforcements by hand. Only the ilmenite was left."

After that, it was a mere detail to have the ilmenite transported to the concrete manufacturer, who added concrete for the 700 tons of new blocks. Installation of the shielding started in June 1988 and was finished as planned by the end of October, ready for the AGS start-up in November.

"That would be the end of the story," said Marascia, "but Joan Depken [EAG executive secretary], who helped me with the paperwork for the pick-up, said, 'Put it in as an Employee Suggestion.' I'm glad I did!"

So are Marascia's wife, Lois, an executive secretary in the Department of Nuclear Energy, and their four children: Robert Marascia Jr., an AGS job shopper; Gina; Jessica; and Brett. "There's no question about what we'll do with the award," said Marascia. "I've got kids in college!"

— Liz Seubert

Roger Stoutenburgh

It was a fine week for the Team Safety program, highlighted by the Central Shops Division's Light Machine Shop team becoming a first-time winner. Congratulations to: (back left, from left) John Walsh, James Gibney and William King; (center, from left) Raymond Savino, Christopher Manning, Robert Bickerton, Juan Gomez, Leonardo Sotomayor, Robert Rowley, Frank Winter, Randolph Seibel, Henry Floege, Juan Castillo, James Iuliano, Anthony Schiavone, Richard Wall, Thomas Godzieba, Edwin Losee; (front, from left) Norman Keller, Elisabeth Deazley, Sheila Land, Scott Newton and Supervisor Tom Lambertson; Missing: George Gordon, Carl Holmstrom, Frank Monroig, Ernst Sohn and Charles Zavesky.

Swim Club

Twelve medals for top-three, age-group finishes were awarded to four BNL swimmers at the annual NYC Parks Department masters swim meet at CCNY, on Sunday, March 5.

50-yard Freestyle

Peter Heotis	25.37	2nd men 35-39

100-yard Freestyle

Peter Heotis	56.75	2nd men 35-39
Roger Klaffky	1:03.13*	4th men 40-44

200-yard Freestyle

Peter Heotis	2:09.45	1st men 35-39
Roger Klaffky	2:30.09	4th men 40-44

50-yard Butterfly

Peter Heotis	28.17	4th men 35-39

100-yard Butterfly

Peter Heotis	1:03.25	2nd men 35-39

50-yard Backstroke

Wlodek Guryn	35.26	2nd men 35-39

200-yard Backstroke

Roger Klaffky	2:58.05	2nd men 40-44

50-yard Breaststroke

Wlodek Guryn	33.28*	2nd men 35-39
Toshi Sugama	33.74	2nd men 40-44

100-yard Breaststroke

Toshi Sugama	1:14.53	1st men 40-44
Wlodek Guryn	1:14.93*	2nd men 35-39
Roger Klaffky	1:21.30	4th men 40-44

200-yard Breaststroke

Wlodek Guryn	2:46.66*	1st men 35-39
Toshi Sugama	2:48.24	2nd men 40-44
Roger Klaffky	3:03.00	4th men 40-44

100-yard Individual Medley

Wlodek Guryn	1:11.66	5th men 35-39

*indicates personal record.

In Stormy Weather: Dial 282-INFO

Equipment Demo

At a tabletop exhibit in Berkner Hall on Thursday, March 16, the Hamamatsu Corporation will display photomultiplier tubes and literature, with special emphasis on high energy physics applications. From 10 a.m. to 2 p.m., representatives from Hamamatsu Photonics K.K., Japan, as well as Hamamatsu Corporation, USA, will be available to answer questions.

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Microcomputer Club

The BNL Microcomputer Club will present a demonstration of AUTOSKETCH, by Ralph Fullwood, Department of Nuclear Energy, at noon on Thursday, March 16, in the main conference room, Bldg. 475. In conjunction with a laser printer, AUTOSKETCH provides report-quality lines, figures and text for non-draftsmen.

All those interested are invited to attend. Bring your lunch if you wish. For more information, contact Frank Salzano, Ext. 4458.

AA Meetings

Alcoholics Anonymous (AA) meetings are being held at the Lab every Monday at 5:30 p.m. All employees, others with current BNL identification cards and their spouses are invited to participate. To find out the meeting location, call the Employee Assistance Program, Ext. 2733. Participation in AA is confidential, so you will not be asked to identify yourself when placing the call.

Daffodils on Sale

The deadline for ordering a bunch of daffodils from the BERA-sponsored Daffodil Sale has been extended through today, March 10, and the pickup date has been changed to Tuesday, March 28.

Paid orders will be taken at the BERA Sales Office in Berkner Hall from 9 a.m. to 2 p.m. today. Daffodils are $4 per bunch of ten and your purchase will benefit the American Cancer Society.

Nursery School

The Upton Nursery School is now enrolling three- and four-year-old children for the 1988-89 school year. The school, a cooperative preschool held on site in the Recreation Building, is open to families of BNL employees and their relatives.

For more information, call Karen Indusi, 473-6550.

Arrivals & Departures

Arrivals

Lee Brammer ..... Chemistry
Michael P. Buckley ..... NSLS
David E. Dale ..... Con. & Proc.
Raymond A. Diaz ..... Reactor
Fernando Jaramillo ..... Plant Eng.
Eileen C. Matz ..... Biology
Steven Nappi ..... Reactor
Mikael M. Safarian ..... Plant Eng.
Suresh K. Sahni ..... DAS

Departures

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

Albert DiLorenzo ..... Plant Eng.

Reports Available

The following reports are available to Laboratory staff and affiliates of DOE, AUI and NRC. Others may purchase the reports 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-52060
Contact: B. Armstrong, Ext. 3361
State of the Art (and Science) of Blood Cell Labeling. Brookhaven Lecture #232. S. Srivastava.

NUREG/CR-3444
BNL-NUREG-51699 V.5
Contact: A. Lopez, Ext. 2902
The Impact of LWR, Decontaminations on Solidification, Waste Disposal and Associated Occupational Exposure — Annual Report Fiscal Year 1987. J.W. Adams et al.

NUREG/CR-5192
BNL-NUREG-52158
Contact: A. Fort, Ext. 2114
Testing of a Naturally Aged Nuclear Power Plant Inverter and Battery. W.E. Gunther.

NUREG/CR-5221
BNL-NUREG-52163
Contact: A. Lopez, Ext. 2902
Biodegradation of Ion-Exchange Media. Topical Report. B.S. Bowerman et al.

NUREG/CR-5051
BNL-NUREG-52108
Contact: A. Fort, Ext. 2114
Detecting and Mitigating Battery Charger and Inverter Aging. W.E. Gunther et al.

Note to Employees:
Attendance at lectures, meetings and other special programs held during normal working hours is subject to supervisory concurrence.

Softball

An organizational meeting for the 1988 softball season will be held on Thursday, March 23, at noon in Room B, Berkner Hall. One representative from each team should attend. The agenda will include league finances, structure and playoffs. This meeting will be the deadline for submission of preliminary rosters.

***Food Drive Goal:* 2,000 pounds per month**

Pounds Collected: **November — 1,680** **December — 1,306** **January — 740** **February — 860**

PSI Meeting

The guest speaker at the next monthly meeting of the Upton Chapter of Professional Secretaries International will be Leah S. Dunaief, editor and publisher of *The Village Beacon*. Dunaief will speak on Monday, March 13, at 6 p.m., in Berkner Hall, Room C.

Bowling

Red/Green League

High games were bowled by C. Flood 253, G. Meinken 232, R. Danowski 229, H. Dawson 221, C. Bohnenblusch 209, W. Powell 205, J. Connelly 202, E. Sperry 202, E. Meier 201, S. Dimaiuta 200, R. Mulderig 200, L. Schairer 200.

Pink League

Kathy Zukowski rolled a 173, Sandy Asselta 173.

L.I. Industrial Tournament

After the first week of bowling, the team representing BNL placed 7th out of 16 teams. Ron Mulderig had games of 213/215/244 for a 672 scratch series, Ken Riker 218.

Volleyball

Standings — Week of February 27

League I		League II	
Upfagrabs	40-8	Fossils	38-10
Dinkers	32-16	Set Ups	36-12
Xrayted	31-17	Krush	33-15
Cannonballs	25-23	Nuts & Bolts	29-19
Phoubars	13-35	Ziegfield Vollies	21-27
Netminders	3-45	Slammers	14-34
		Chunga's Revenge	11-37
		Upton-Ups	10-38

League III		Open League	
Frazzled	48-6	Meriem's Team	41-7
High Volley'em	33-21	Dig Your Lips	40-11
MISfits	33-21	Phoenix	37-11
Printouts	29-25	Tom's Mutants	29-19
Sourcerers	28-26	Magnum	27-21
Spikes	18-36	Vollies	18-30
Good Timers	14-40	Rowdy Radicals	13-35
Renegades	13-41	Pi Chu	11-37
		Constables	0-45

Cafeteria Menu

Week of March 13

Monday, March 13

Soup: Cream of mushroom	(cup)	.75
	(bowl)	.95
Baked ziti w/meat sauce & garlic bread		3.10
Baked chicken w/veg.		3.10
Lite-line: Broiled chicken w/veg.		3.00
Hot deli: Ham		2.85

Tuesday, March 14

Soup: Black bean	(cup)	.75
	(bowl)	.95
Beef stroganoff over noodles		3.10
Pepper pork over noodles		3.10
Lite-line: Broiled fish w/ veg.		3.10
Hot deli: Chicken patty sandwich		2.85

Wednesday, March 15

Soup: Garden vegetable	(cup)	.75
	(bowl)	.95
London broil w/mushroom gravy & veg.		3.10
Macaroni & cheese w/broccoli & veg.		3.10
Lite-Line: London broil au jus & veg.		3.10
Hot deli: Turkey & cheese croissant		2.85

Thursday, March 16

Soup: French onion	(cup)	.75
	(bowl)	.95
Breaded turkey cutlets w/veg.		3.10
Beef liver w/ Creole sauce & veg.		3.10
Lite-line: Turkey breast w/veg.		3.00
Hot deli: Meatball hero		2.85

Friday, March 17 — St. Patrick's Day

Soup: Fish chowder	(cup)	.75
	(bowl)	.95
Corned beef & cabbage		3.10
Irish lamb stew over noodles		3.10
Lite-line: Salad plate		2.25
Hot deli: Fish & cheese on a roll		2.85

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.

LABORATORY RECRUITMENT - Opportunities for Laboratory employees only.

3096. HELPER A - Under general supervision will perform a variety of tasks in Central Shops. Requires knowledge of skills in the trade, although not that of a craftsperson. Duties will include handling minor assignments and assisting craftspeople in more complex assignments. A valid driver's license is required. Central Shops Division.

OPEN RECRUITMENT - Opportunities for Laboratory employees and outside applicants.

3097. TECHNICAL POSITION - Requires AAS in mechanical technology or equivalent and one to five years' experience in one or more of the following areas: mechanical assembly, precision inspection, maintenance of mechanical equipment. Duties will include fabrication and assembly of superconducting particle-accelerator magnets. Some electrical experience desired. (Reposting of Job #3081.) Accelerator Development Department.

3098. TECHNICAL POSITION - Requires AAS in electromechanical technology or equivalent, and experience in electrical and control wiring, 480 Vac, and the design and installation of control circuits. The ability to work from prints, rough sketches and verbal instructions necessary. Responsibilities will incluce hooking up and disconnecting beam-line magnets. Previous electronics experience, as well as previous experience with public address systems, desirable. Alternating Gradient Synchrotron Department.

Motor Vehicles & Supplies

88 DYNASTY - 4-dr., loaded, including digital brakes, alum. wheels, $13,500, will trade for small 1985-87 car. Tallon, Ext. 4847, 473-3987.

87 MAZDA 626 - 2-dr. coupe, 33k mi., a/c, am/fm cass., excel. cond., $8,200. Ext. 3123 or 283-4948.

87 SUZUKI SAMARI - 4WD, silver, excel. cond., low mileage, 5-yr/50,000 warranty, $7,500. Dick, Ext. 4313 or 722-4094.

86 HONDA SPREE SCOOTER - $300, great for camping, errands. Walter, Ext. 3457 or 732-1913.

86 RENAULT ENCORE - sporty, 17k mi., 4-spd., stripes, sunroof, am/fm cass., 4 speakers, mint cond., $3,750. 689-7259 after 5 p.m.

86 HONDA CIVIC SI - h/b, 5-spd., 50k mi., sunroof, am/fm cass., new tires, muffler, clean in/out, asking, $5,000. Chris, Ext. 2022 or 395-6112.

85 CHRYSLER LEBARON GTS - all options, mint, $5,000; '84 Firebird, black excel. cond., louvres, $4,200. Diane, 929-8922.

85 OLDS CUSTOM CRUISER - wagon, p/s, p/b, power windows & seats, a/c, am/fm cass., $4,500. Dino, Ext. 5508 or 334-6950.

84 LTD - Crown Victoria station wagon, excel. cond., a/t, p/s, p/b, a/c, am/fm, $4,000. 744-5422.

84 PONTIAC FIERO SE - red, fully loaded, immaculate cond., $4,500. Dick, Ext. 4313 or 722-4094.

84 SUZUKI RM500 - bored, new pistons and rings, $1,000. Ext. 4666 or 929-3407.

83 HORIZON - decent shape, $1,000 neg. 399-0479.

83 DATSUN/NISSAN STANZA - 5-dr. h/b, 5-spd., 60k mi., sunroof, a/c, am/fm cass., red, orig. owner, asking, $3,800. Lou, Ext. 5454 or 928-7042.

82 VW RABBIT - 4-dr., digital am/fm cass., very good, leaving, must sell, $950. Ext. 5345 or 3102.

82 MUSTANG - many new features and parts, Ford extended service, 19k mi. or 20 months on eng., must see, $4,400. Ed, Ext. 4188 or 363-5170.

82 YZ YAMAHA 490 - totally rebuilt, 25 min. riding time, $750; trike, $100. Brenda, 366-1860.

82 COUPE DE VILLE - 82k mi., $4,800; 82 Yamaha Maxim motorcycle, 1100cc, 32k mi., $1,100. Fred, Ext. 4407/4435 or 499-1214 after 6 p.m.

82 MAZDA B2000 - 79k mi., long-bed, runs well, needs body work, $1,650. Joe, beeper 925 or 728-1859 eves. until 11:00 p.m.

81 BUICK SKYLARK - 2-dr., vinyl roof, blue on blue, loaded, looks good, runs well, wire wheels, good rubber, $2,895. Sue, 737-1636.

79 FORD BRONCO RANGER - XLT 351, 4WD, p/s, p/b, a/t, manual hubs, buckets, console, am/fm, 112k mi., good cond., $5,000 Ray, 472-2024.

79 HONDA CIVIC - h/b, rusted body, runs well, 95k mi., new engine, $1,200. 929-3795.

78 OLDS OMEGA - $500, p/s, p/b, am/fm, new brakes, air shocks & batt., runs well, some rust. Walter, Ext. 3457 or 732-1913.

77 OLDS DELTA 88 - orig., garaged, no rust, no dents, A-1 in/out, needs trans. work, $800. 744-9429.

77 OLDS 98 REGENCY - elec. roof, p/s, a/t, 403 V-8 am/fm, 2-dr., very clean, very good mechanically, $1,300. Joe, Ext. 5409 or 736-2728.

77 MERCEDES 2400 - excel. appearance, needs mechanical work, $1,500, firm. Ext. 3680.

77 MERCURY COUGAR - wagon, body excel., good for big loads, asking $600 w/extras. 924-8558.

74 FORD F250 - 4x4, pick-up, complete drive train rebuilt, 390, a/t, car alum. wheels, must sell, asking $3,500. 474-5715.

72 VOLVO - Urban Warrior, 150k mi., new tires, battery, runs well, some rust, asking $400. Paul (212) 864-5755 eves.

71 CHEVY MINI MOTOR HOME - 350 V-8, 115k mi., sleeps 6, complete kitchen and bath, asking $4,500. Ron, Ext. 2467 or 924-8644.

67 CHEVY - big block 427, 4 bolt, main 30, oversize. 475-9452 after 5:30 p.m.

48 CHEVY COUPE - dependable, drive anywhere, good looking, original car + extra parts, $2,300. Andy, Ext. 7772.

TOW DOLLY - 14" wheels, rated for 3,000 lbs., spare, lite-bar, buddy hubs, $995. Tallon, Ext. 4847 or 473-3987.

TIRE - new 721 Firestone, 235/75R15, Eldo rim, $60. Ernie, 588-4987.

STEP BUMPER - for Ford pickup, never used, $90. 878-4089.

SLIDE-IN STEP - for trailers and slide-in campers, never used, $25. Ron, 878-4089 eves.

TUNE-UP CENTER - Snap-On 3 meter, $250; Snap-On power brake bleeder, $125; 20-ton, air assisted hydraulic jack, $250. 474-5715.

STARCRAFT CAMPER - 11½' slide-on, self-contained, shower, refrig., freezer, heat, stove & oven, $1850. Ext. 4100 or 929-5876 after 6 p.m.

COLEMAN POP-UP TENT TRAILER - Somerset, sleeps 5-6, stove, good cond., $800. Ext. 4238 or 286-3509.

TIRE - 185/70 SR14 radial, $35. Ken, Ext. 2214.

CRAGER RIMS - 15", 4, good cond., no lugs, $75. Frank, Ext. 2795.

Boats & Marine Supplies

33' RICHARDSON - very clean, must sell, best offer. Ext. 3457 or 698-5701.

25' CHRIS-CRAFT - 1980, inboard, FWC, full head, shower, hot water, shore power. Bill, Ext. 2807 or 281-0557.

21½' BAYLINER - cuddy cabin, 130 h.p., OMC, low hrs., depth gauge, ship-to-shore, $7,500. 654-0670, days.

19' BOWRIDER CRUISER - 1972, camper, w/1976 115 h.p. Johnson, Coast Guard pkg. w/trailer, $3,500. Frank, 567-5131.

17' SPORTCRAFT BOWRIDER - 1981, Deep V, 470 h.p. Mercruiser i/o, full canvas, trailer, excel. cond., $5,000. Rod, 878-1580 after 6 p.m.

15' CANOE - Old Town fiberglass construction, red, excel. cond., $200. 363-2070 eves.

SAILBOATS - 420, 14'; Seagull 12', must sell, best offer. 744-6059.

MERCURY ENGINE - 90 h.p., 1984 w/controls and cables, 5 months left on warranty, excel. cond., $2,100. Ken, Ext. 2214 or 281-8458.

Furnishings & Appliances

DINING ROOM SET - traditional trestle table, 6 chairs, 2 captains, 2 leaves, excel. cond., moving, must see, $150. 399-6729.

DINING ROOM SET - country, honey pine, excel. cond., oval table, 2 leaves, 4 chairs, china closet, $550. Ext. 4262.

SLEEPER SOFA - excel. cond., earth-tone color, 2 years old. 884-3763 after 5 p.m.

BOOKCASE - wood, 88"x24"x39"; carpet vacuum, Hoover Dial-A-Matic, best offers. 744-6059.

EASY CHAIR - traditional, subdued plaid, very good cond., $50; double bed frame, wheels, excel. cond., $20. 345-3170 after 6 p.m. and weekends.

TABLE STAND - wrought iron, 4 chairs, kitchen or patio, ivy leaf pattern, needs work, $45. Dick, 878-1580.

DRESSER - w/mirror, mahogany and maple, $100. 689-7326.

ELECTRIC CROCKPOT - $20; walnut coffee table, $20; old wicker basket, $10, coal scuttle, $15; Kitchen Aide portable dishwasher. 744-2203.

HEADBOARDS - wooden spindle, 2, twin-size, 2/$25; G.E. toaster oven, $30; pet taxi for cat or small animal, $8. Ext. 4695 or 744-1917.

WATERBED - king size, dual waveless mattress, heater, metal frame, new $1,000, asking $300. Mike, Ext. 2052.

SPANISH CHANDELIER - imported, 8 candlelights, solid brass, many crystals, $350. 878-2421.

Tools, House & Garden

PUMP - Goulds X2HD well pump, never used, $150. Marie, 399-3401.

WOOD STOVE - Franklin-style with 8" stove pipes to ceiling, excel. working cond., $300 or best offer. Joan, Ext. 2355.

SNOW PLOW - Meyer, complete unit for Jeep Wagoneer, full size, $500 or best offer. 288-1707 after 6 p.m.

GENERATOR - Homelite 2550 W, 115/230, $350. Dino, Ext. 5508.

Sports, Hobbies & Pets

PLAYER PIANO - brand-new, must sell, cherry mahogany, gloss finish, paid $6,000, sacrifice $5,000. 281-6617 after 6 p.m.

SKIS - man's Lange, 170 cm, Salomon bindings, size 12 boots, $150. Ken, Ext. 2214 or 281-8458.

MOTORCYLE HELMET - Bell, white, size large, $40. Ext. 2214.

DRYSUIT - Poseiden, man's large, very good cond., new $1,500, asking $500. 474-5715.

FISHING GEAR - salt-water sinker mold, 4 sizes, $75; fresh-water fishing treble hooks, beads, spoons, swivels, wire leader maker, $100. 475-7257.

PIANO - Lester Betsy Ross spinet, light wood, includes bench, $700. Tony, Ext. 3658 or 3637.

FISH TANK - 30 gal. incl. rocks, filter, lighted hood, $25. 288-9596 after 6 p.m.

BICYCLE - man's Peugeot 10-spd. racing bike, 25½" frame, immaculate condition and some new fittings, $100. Alastair or Gill, Ext. 5303/5508.

CLARINET - wood, LeBlanc Noblet, made in France, very good cond., $195. 751-5868.

MUSIC SHEETS & BOOKS - for accordian, 260 total, 1940's and up, $125 all; old radio tube testers, $8 ea. 878-6637.

SKIS - Rossignol 180, never used, no bindings, $65. Ext. 4052 between 12 and 12:30.

TAP SHOES - Capezio, girl's preschool size 7, used only once, $12. Ady, Ext. 4521 or 331-3785.

Audio, Video & Computers

PIONEER - SX828 stereo receiver, Pioneer CTF500 dolby stereo tape deck, Empire 10-band equalizer, first offer over $200. Ext. 3264 or 928-3868.

AUDIO TAPES - 8-track w/2 rotating storage racks, $15. Tony, Ext. 2050.

CARRYING CASE - for Macintosh SE, nylon, nevery used, paid $99, sell for $70. Ext. 4142.

TURNTABLE - Dual 1226 w/Grado cartridge, $60. 744-6059.

TURNTABLE - belt-driven, Fisher studio standard w/Pickering cartridge, like new, $20. John, 821-3739 after 6 p.m.

BETA MAX - Sears w/tapes, $125; portable GE washer, good cond., $100; 16mm movie projector, $50. 924-8558.

TAPE DECK - JVC, JVC receiver, Azden equalizer, 2 Fisher speakers, 150 watts. Joseph, 325-8004.

SEGA BASE SYSTEM - w/$120 worth of games, hardly used, asking $115. 281-0250.

PC JR - expanded 640k, dual drive, internal modem, printer w/mouse, joystick, misc. programs, $950 neg. Ext. 7189.

TURNTABLE - ADC 3001 direct drive, ALT-1 tone arm, Audio Technica AT12XE cartridge, excel. cond., $65. Ext. 5265 or 234-9487.

Miscellaneous

SWEATERS - handmade, mohair & wool, 50% off orig. price, many colors, imported. Ext. 3102.

SKI JACKET - goose down, red, woman's small, good cond., $25. Ext. 2733 or 878-8491.

TYPEWRITER - IBM electric, model 12, in working cond., recently rehauled, $40 or best offer. Joann, Ext. 2355.

OFFSET PRESS - old but good, 286-1257.

JACKET - blue fox, size 6, excel. cond., asking $395. 473-7667.

ICE CREAM MAKER - new; 10-gal. fish tank, all access.; antique typewriter; plants; kid's pool; separated bunk beds; cowgirl boots. 929-3795.

TICKETS - 2, Metropolitan Opera, Massenet's *Werther*, Sat. matinee, March 18, dress circle, $47 ea. Carmen, Ext. 4135

Wanted

KARMAN GHIA - good body, not necessarily running. Liz, Ext. 2346 or 286-8563.

TABLE SAW - air compressor, drill press. Bill, Ext. 4175, pager 445.

LAWN MOWERS - old, complete, any cond. Dan, Ext. 4987,. 698-7322.

BEEHIVES - and equipment. John, 744-5867.

SOCCER PLAYERS - for Patchogue Soccer Club, registration deadline Sun., Mar. 12. Harry Themann, 289-6994.

Car Pools

BOHEMIA-OAKDALE-SAYVILLE - need 2 more drivers for car pool, also can meet at Exit 59 LI Expressway. Frank, Ext. 2314.

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

CENTER MORICHES - Main Street office space avail., will alter to suit needs, reasonable rate. 874-2934 or 878-1178.

EAST PATCHOGUE - 1-bdrm. apt., eik, full bath, l/r, priv. ent., furn. or unfurn., $600 all. Andy, Ext. 2907 or 289-1755.

SPEONK - 2 bdrm., 1½ baths, 5 appliances, approx. 1,000 sq. ft., 8 mos. old, immed. occup., 1 mo. sec., $850 + util. Rich, Ext. 4834.

WADING RIVER - 1 bdrm. apt., large l/r, eik, full bath, one block to LI Sound, 10 min. to Lab, $575 mo. incl. util. 929-3419 after 6 p.m.

HILTON HEAD, S.C. - 3-bdrm. condo, 2 baths, sleeps 8, tennis, in/outdoor pools, jacuzzi, steam room, ocean & golf view, $500/week. 929-8912.

NEW ORLEANS, LA - timeshare for rent for New Orleans "Jazz Week", April 28th-May 5th, sleeps 4 adults, $140/night. 543-7065.

For Sale

CORAM - 9-rm. Colonial, 4-bdrm., 2½ baths, family rm., f/p, eik, 9-rm. Colonial, d/r, l/r, cul-de-sac, in-ground pool, sprinklers, 2-car garage, mud room, $195,000. Ext. 2303 or 732-3902 after 5 p.m.

EAST SETAUKET - 4-bdrm. Colonial, 2½ baths, eik, l/r, d/r, family rm., f/p, screened porch, finished bsmt., 2-car garage, 0.52 acre, new vinyl siding. Shiue, Ext. 4395/3372 or 751-8224.

EAST SETAUKET - 4-bdrm. ranch, 2 baths, eik, l/r, d/r, finished bsmt., ⅓ fenced acre, 3-Village schools, excel. cond., $139,900. 473-4338 eves.

PORT JEFFERSON STATION - 5-bdrm. hi-ranch, m/d, 3 baths, 2 kit., garage, vinyl siding, fenced yard, ¼ acre, $174,990. 331-1523 eves.

ROCKY POINT - Tides, 1-yr.-old, custom-built home, 3 bdrms., 2 baths, l/r, d/r, eik, large family room, cathedral ceilings, skylight, more. John Ext. 4498 or 744-8762 after 6 p.m..

SETAUKET - 3-bdrms., 2 baths, eik, l/r, d/r, rec. rm., wood floors, patio, full bsmt., 2-car garage, c a/c, ⅓ acre, 3-Village schools, $220,000. Thomas Nolan, Ext. 5265 or 584-8339 after 6 p.m.

SPEONK - Hampton Villas, 2 bdrm. townhouse, 1½ baths, ca/c, swimming pool, 5 appliances, $149,500. Rich, Ext. 4834 or 558-0507.

WADING RIVER - 4-bdrm. large Cape, ½+ acre, 2 baths, d/r, l/r, family rm. w/fp, full fin. bsmt., SWR schools, $230,000. 929-6748 after 3 p.m..

WESTHAMPTON - 1 bdrm. condo, furnished, pool, excel. location, $130,000. Dick, Ext. 4313 or 722-4094.

HOLIDAY, FL - Sandpiper, 3 bdrms., 2 baths, 1½-car garage, corner lot, sprinklers, cathedral ceilings, club house facilities, w/time share in Maderia Beach, $75,900 firm. 474-5715.

MADERIA BEACH, FL - one-week time share, Commodore Beach Club, on Gulf, sleeps 4 adults, must sell, asking $5,000. 474-5715.

PALM COAST, FL - ¼ acre lot, 80'x125', 5 mi. to Atlantic Ocean, 24 mi. N. of Daytona Beach, water drainage & sewage util. incl., $11,995 or $1,995 and assume. Thomas Nolan, Ext. 5265.

In Appreciation

To all my friends and coworkers:

Your prayers, kindnesses and expressions of sympathy on the loss of my husband Dave were deeply appreciated and have helped me through a most difficult time. — Jeanne Penoyar

To my friends at BNL and in the Electric Shop:

Thank you for your friendship and the great send-off. So long. — Albie DiLorenzo