BROOKHAVEN BULLETIN
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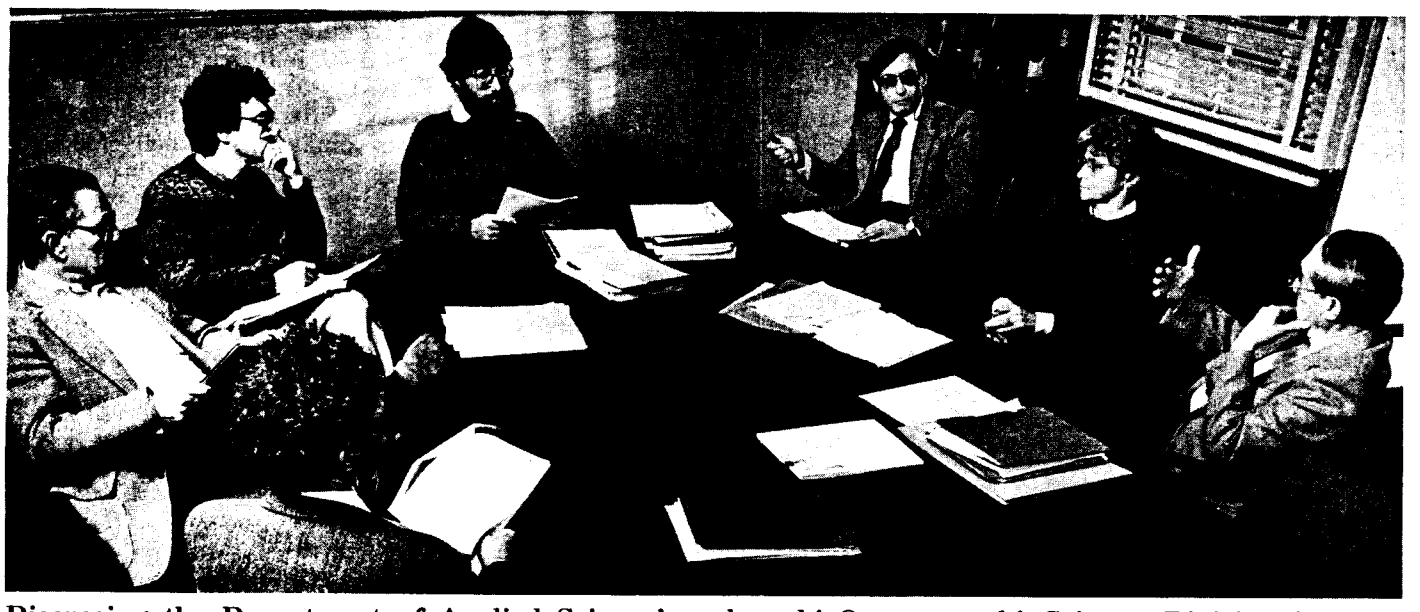
BROOKHAVEN NATIONAL LABORATORY

Five DAS Divisions Join Forces For Global Change Research Program



Discussing the Department of Applied Science's new multi-division research program on global change are (clockwise from left) Ronald Peierls, Mathematical Sciences Division; Paul Michael, Atmospheric Sciences Division (ASD); Paul Falkowski, Oceanographic Sciences Division; Stephen Schwartz, Environmental Chemistry Division; DAS Chairman Leon Petrakis; Joyce Tichler, ASD; and former DAS Chairman Bernard Manowitz.
— Photo by Roger Stoutenburgh

Drawing on a unique combination of resources, BNL's Department of Applied Science (DAS) has initiated a research program on global change.

In announcing the new program, DAS Chairman Leon Petrakis said, "Much controversy exists over the global changes that may be resulting from increases in carbon dioxide and other 'greenhouse' gases thought to cause global warming. However, good scientific data are lacking to allow a proper evaluation of the problem, and unfortunately, without understanding based on good science, the controversy is likely to generate more heat than light.

"DAS has outstanding and, in some cases, unique credentials to address the issues involved. The department is also a logical contributor because of the unique breadth of scientific disciplines represented within it."

The new program is unique in that it combines the Lab's expertise in atmospheric science, oceanography, terrestrial ecology and applied math — areas that together can be applied to improve understanding of the broad question of global change.

The global change program is being funded by the U.S. Department of Energy (DOE), along with seed money from BNL's Exploratory Research Program.

Controversy in Forecasting

Global warming refers to the possibility that the recent rise in temperatures worldwide is part of a consistent trend, rather than a result of natural variability.

Increasing energy-related activities lead to greater emission of such gases as carbon dioxide, which may be responsible for trapping outgoing infrared radiation in the earth's atmosphere and causing a "greenhouse effect." This has led to concerns about possible effects such as higher sea levels from melting polar ice and a variety of climate changes that might result in shifts of agriculturally productive regions and new precipitation patterns — all potentially significant to human society.

Opposing this view, however, are those who challenge the forecast of global warming. They claim that counterbalancing forces, or feedbacks, will negate the effect of greenhouse gases.

In both camps, though, almost everyone agrees that scientists have only a sketchy understanding of global warming.

Forecasts of future warming are based on computer models, programs containing mathematical equations that attempt to simulate the world's climate. Current computer models, however, have many approximations and assumptions that make their results questionable. For example, they fail in properly coupling the change in the temperature of the atmosphere with the ocean's enormous capacity to absorb heat.

As Petrakis says, "No one understands the dynamics of global warming well enough. And that's why we see such contradictory statements on the issue. DAS's mission is to do serious research, which will lead to an improved understanding of global change and improved computer models describing the change."

A Combined Effort

The program will involve five divisions within DAS: Atmospheric Sciences, headed by Paul Michael; Environmental Chemistry, under Leonard Newman; Oceanographic Sciences, directed by Paul Falkowski; Environmental Biotechnology, led by George Hendrey; and Mathematical Sciences, overseen by Ronald Peierls.

Stephen Schwartz is coordinating the initial phase of the effort, and former DAS Chairman Bernard Manowitz has been involved with the program since its inception. Other

(continued on page 2)

Change in Name, But Not the Aim

With the new year came a new name for the Affirmative Action Office (AAO). Since January 1, it has been officially known as the Office of Equal Opportunity (OEO).

Explained OEO Manager Glenn Jennings, "The change in name was prompted by the fact that our office has long been involved with many activities, not just affirmative action. Our emphasis is on personnel placement and employee complaint coordination, but we also do other things, such as work with the Division of Contracts and Procurement to bring minority contractors to the Lab.

"The name change is also appropriate," Jennings continued, "because we're concerned with equal opportunity for all Lab employees, not strictly groups protected by affirmative action regulations."

Historically, a number of student programs were also administered through AAO and the Personnel Division. As of January 1, some of these programs and their adminstrator, Renée Flack, moved to the Office of Educational Programs, headed by Donald Metz.

On that date also, Jeffrey Taylor joined Jennings and Frances Ligon in OEO. Jennings expects that, with an academic background in business administration, interviewing techniques honed during his former assignment in Personnel, and investigative skills developed before that with the Police Group, Taylor will be particulary effective in mediating problems in the workplace, an area in which OEO plans to get more involved.

Haworth Distinguished Lecture

American Competitiveness and Science & Technology Policy

Many believe that the decline of American competitiveness in world markets will continue to be one of the major topics of political debate in the next decade. With almost as many diagnoses of the causes of this decline as there are experts, there exists an even greater number of prescriptions for cure.

These diagnoses and prescriptions will be compared and critiqued on Monday, January 22, in a Lab-wide lecture by Harvey Brooks, Harvard University Benjamin Peirce Professor of Technology and Public Policy emeritus, and Gordon McKay Professor of Applied Physics emeritus. His talk will begin at 4 p.m. in Berkner Hall and will be followed by a reception at 5 p.m.

Harvey Brooks

As the sixth Haworth Distinguished Scientist and the first to be hosted by the Department of Applied Science, Brooks will speak on "Science and Technology Policy and the American Competitiveness Debate," with particular emphasis on the role of science and technology and government policies in this area. With extensive experience, research and publications in the fields of science and public policy, as well as solid state physics, nuclear engineering and underwater acoustics, Brooks is uniquely qualified to address this topic.

Brooks took his A.B. in mathematics at Yale University in 1937 and in 1940 received his Ph.D. in physics from Harvard University. There, he later served as Dean of the Division of Engineering and Applied Sciences from 1957 to 1975. Also in 1957, he founded the international *Journal of the Physics and Chemistry of Solids.*

During the Eisenhower, Kennedy and Johnson administrations, Brooks was on the President's Science Advisory Committee. From 1972-77, he was one of the joint US-USSR commissioners on Scientific and Technological Cooperation. One current membership is on the UN Advisory Committee on Science and Technology for Development.

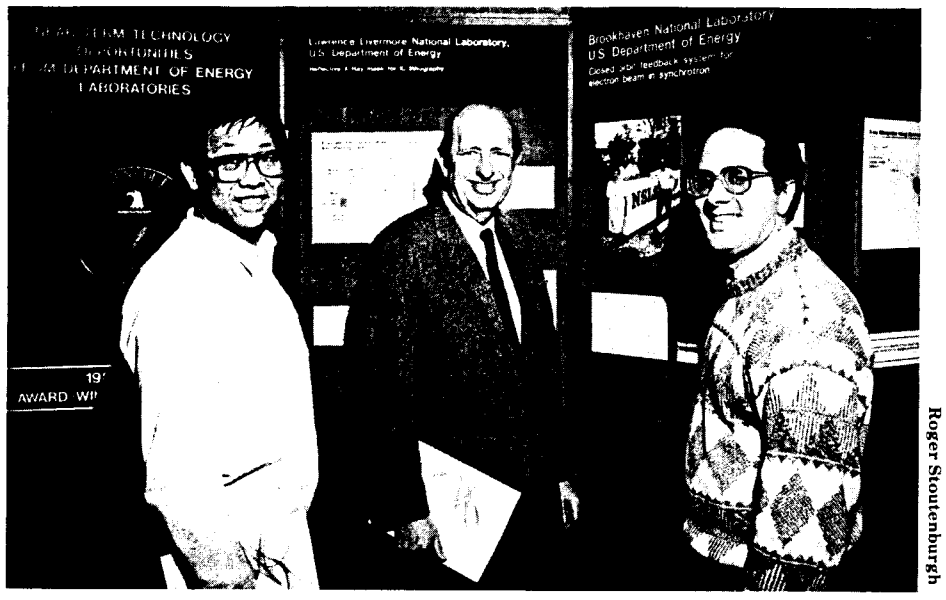
Brooks' present work involves a research program at the Kennedy School at Harvard on dual-use technologies, dealing with national policies for the development of technologies having both military and civilian applications. He also chairs a program concerned with the effects of technology on work organization and the quality of working life.

Among his trusteeships and board memberships are such widely different institutions as Woods Hole Oceanographic Institution, the International Institute for Insect Physiology and Ecology in Kenya, the Franklin Pierce Law Center, Case Western Reserve University, Tufts University, the Council of Library Resources and the National Academy of Engineering.

The Haworth Distinguished Scientist appointments were established in 1984 to honor the memory of Leland J. Haworth, BNL's second Director, who died in 1979. Haworth lecturers spend from one to three weeks per year for up to three consecutive years in residence at Brookhaven, holding scientific discussions with staff and giving seminars, including one of Lab-wide interest.

For more information about Brooks' schedule during the remainder of his stay at BNL, contact Pat Taylor, Ext. 2452. Brooks plans to return to BNL for a week in early May.

Exhibit Showcases DOE R&D-100 Winners



Roger Stoutenburgh

(From left) BNL Physicist Li-Hua Yu, BNL Associate Director for Applied Programs Sy Baron and Samuel Krinsky, Acting Department Chairman of the National Synchrotron Light Source (NSLS), admire BNL's contribution to the exhibit "Near-Term Technology Opportunities From Department of Energy Laboratories."

On display in Berkner Hall through January 30, the exhibit describes the 23 R&D-100 award winning inventions developed at U.S. Department of Energy (DOE) labs in 1988. This includes BNL's real-time harmonic closed-orbit feedback system, invented by Yu, Krinsky and their NSLS collaborators.

Sponsored by Research & Development magazine for the past 27 years, the annual R&D 100 competition recognizes the top 100 technological achievements of each year. From 1963 to 1988, 16 DOE labs have garnered 231 R&D 100 awards — more than any other organization. BNL is fifth among DOE labs, with 12 awards.

If you are inspired by the exhibit, consider entering the next R&D 100 competition recognizing technology that was completed and delivered by a federal laboratory, or became available for contract or licensing during 1989. The Lab pays all entry fees and expenses associated with winning. Applications are available from the Office of Research and Technology Applications (ORTA), Bldg. 475, Ext. 2103. Entries must be received by ORTA by February 16.

BNL'ers Offer Courses At SUNY Stony Brook

Seven BNL'ers are teaching evening courses this spring semester at the State University of New York at Stony Brook, through its School of Continuing Education (CED).

Open to anyone with a bachelor's degree, these and other CED courses are designed for part-time, adult students, and offer graduate credit, which may be applied towards a CED master's degree or graduate-certificate program.

For a course catalog and registration information, call CED at 632-7050 before the final registration period, January 22-26.

- Lawyer **Jerry Cadwell,** a BNL nuclear engineer and lecturer in Stony Brook's Center for Science, Mathematics and Technology Education (CSMTE), will explore the relationship between "Law and Technology," in two sections of the same three-credit courses, one held Wednesdays, 6-9 p.m., the other on Thursdays, 6-9 p.m. at the Shoreham-Wading River High School.

Cadwell will lead discussions on such topics as living wills versus the right to die, legal versus scientific arguments for and against creationism; and the legal controversy surrounding the nuclear industry.

- The Lab's historian, **Robert Crease,** an assistant professor of philosophy, will discuss the "Structure of Inquiry: Philosophy of Science," on Thursdays, 6-9 p.m., during a three-credit course.

Through historical and sociological studies, scientific papers, and philosophical treatises, Crease will explore the nature of science. As a result, he will try to answer such questions as: How does science actually work? What, exactly, is a scientific theory or an experiment — and what is their relationship?

- **Paul Grannis,** a professor of physics and BNL guest physicist, will reveal "The Mystery of Matter: An Anecdotal Look at Particle Physics," in a three-credit course on Mondays, 7-10 p.m.

Grannis will trace the development of particle-physics theory, landmark experiments, and the tools of the trade: detectors and accelerators.

- Lab Project Engineer **Doan Hansen,** a lecturer in the Environmental/Occupational Health and Safety certificate program, will introduce "Environmental Health Issues" in a two-credit course, Tuesdays, 6-8 p.m.

Hansen will review the major environmental health problems — such as water and air pollution, garbage and hazardous-waste disposal, and the greenhouse effect — that are affecting Long Island, New York State and the U.S. Hansen will teach the course through classic case studies, as well as use present-day local examples presented by guest lecturers.

- BNL Scientist **Edward Kaplan,** a visiting associate professor of technology, will develop "Simulation Models for Environmental and Waste Management," during a three-credit course, on Mondays, 6-9 p.m.

Using the principles of environmental systems analyses, Kaplan will present techniques for computer-model development, to be applied to such problems as surface and groundwater management, acid rain pollution, and health-risks assessment of environmental contamination.

- BNL Senior Physicist **Mark Sakitt,** a CSMTE lecturer, will examine "Technology and Policy: National Security," during a three-credit course on Thursdays, 6-9 p.m.

To enable educated laypeople to understand and question defense policy from different national security perspectives, Sakitt will review past and present defense debates, explore the connection between weapons technology and strategic planning.

- Ecology and evolution lecturer **Avril Woodhead,** of BNL's Technical Information Division and Biology Department, will cover the "Biology of Aging" in a three-credit course, on Saturdays, 9 a.m.-noon.

For a comparative view of biologic aging, Woodhead will cover the spectrum of species, from protozoa to humans. To evaluate current theories of aging, Woodhead will present recent findings at the molecular and cellular levels.

In Memoriam

Robert Bickerton, Tool and Instrument Maker, Group Leader, in the Central Shops Division, died on January 9, at the age of 67.

Bickerton started at BNL in November 1967, and spent all of his 22 years at the Lab with Central Shops. Most recently, he was assigned to the Light Machine Shop in Bldg. 462.

He was a resident of Medford, and is survived by his wife Lucrezia and seven children.

Arrivals & Departures

Arrivals

Stephen L. Kramer.....NSLS
Peter C. Kwaschyn.....S&EP
Swapan Kumar Ray.....Biology

Departures

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

Burton Z. Chertok.....Physics
Djamel Medjahed.....Biology
Walter H. Tremel.....DNE

Global Change (Cont'd)

researchers within each division are also participating.

In undertaking this research, DAS has many strong points. These include expertise in measuring trace atmospheric constituents; understanding of the physical, chemical and biological properties of the ocean; and experience in studying the effects of increased carbon dioxide on vegetation. Also, DAS researchers have long-standing experience in conducting and managing field projects, which will be necessary in forthcoming research related to global change.

Essentially, then, the program will involve field measurements, field and laboratory experiments, analysis and interpretation of historical data sets and information derived from satellite images, and computer modeling of the processes involved in global change. Much of the work will be done in collaboration with other DOE labs and with other national and international programs. The ultimate goal of the BNL program is to establish credibility for the measurements and the model as representing reality.

New Funding for FY90

New money this fiscal year comes from DOE as part of a larger national program called ARM, short for Atmospheric Radiation Measurement. For this specific effort, DAS will be developing criteria for selecting sites where future field studies should be based, as well as designing measurement campaigns and procedures to acquire and exchange data with other programs and agencies.

Other work that may begin in DAS in fiscal year 1990 includes:

- Using satellite imagery and computer modeling to test hypotheses related to the influence of emissions from energy activities on upper cloud reflectivity, as compared to natural influences.
- Investigating change in the biological uptake of carbon dioxide in the ocean since the beginning of the industrial revolution. This is to understand processes whereby carbon dioxide is removed from the atmosphere, as only about half of the carbon dioxide from fossil-fuel burning remains in the atmosphere.
- Studying the effect and feedback mechanisms of increased carbon dioxide concentrations on arctic ecosystems. This is to examine whether plant productivity might increase, thereby removing excess carbon dioxide from the atmosphere.
- Examining new computing strategies in order to allow more complete climate models to be used.
- Developing a time-dependent climate model that couples the atmosphere and the ocean, for a better description of the influence of oceans in moderating the greenhouse effect.

Also planned for this spring is a workshop to gather together leading researchers from other government and academic institutions, in order to focus on specific issues of global change, such as feedbacks among climate subsystems.

Long-Term Energy Policy

As the nation enters the 21st century, the federal government must develop a rational long-term energy policy, observes Petrakis. Unfortunately, conflict seems inevitable between economic growth and environmental health.

To judge how humankind's energy activities influence the global environment, he says, a better scientific understanding of global change is required. Policymakers need to base their decisions on the most objective scientific advice possible.

Concludes Petrakis, "In order to plan wisely for the nation's future, we must understand the workings of the global environment and its response to perturbations. By pooling our facilities, capabilities and personnel, DAS is in a strong position to contribute to this national need."

— Mona S. Rowe

Related Seminars

Two seminars related to the global change issue have been scheduled for the near future:

- **On Thursday, January 25, Keith Dixon, of the National Oceanographic and Aeronautics Administration's Geophysical Fluid Dynamics Laboratory at Princeton University, will speak on "Simulating Chlorofluorocarbon Distributions in Numerical Models of the World Ocean." His talk, which will begin at 11 a.m. in the conference room of Bldg. 318, will be accompanied by a videotape showing models of global change, entitled "The Response of a Coupled Ocean-Atmosphere Climate Model to Transients in Greenhouse Gases."**
- **On Monday, January 29, Bernard Manowitz of BNL's Department of Applied Science will address "Global Change — Uncertainties and Policy Implications," at noon in Berkner Hall.**

Inside Info

Boston University has established the **Gertrude and Maurice Goldhaber** Prize, to be awarded to an outstanding graduate student in the entering class in physics each year. The university stated that the goal of the prize "is to further the high ideas of excellence in both theory and experiment as exemplified by Gertrude and Maurice."

Both physicists, the Goldhabers came to BNL in 1950. In 1960, Gertrude Scharff-Goldhaber, a nuclear physicist, initiated the Brookhaven Lecture Series. Maurice Goldhaber was Laboratory Director from 1961 to 1973, and is now AUI Distinguished Scientist emeritus.

Extravaganza to Feature Traditional Gospel, Contemporary Flavor

To celebrate Black History Month, the 9th Annual Gospel Extravaganza will be held at Berkner Hall on Saturday, February 3, at 7 p.m. Sponsored by the Lab's Afro-American Culture Club, the concert is open to the public, and admission will be charged.

The featured group will be Timothy Wright and his Concert Choir from Brooklyn. An ordained elder in the Church of God in Christ, Reverend Wright is a gifted composer, musician and singer. He describes his music as "traditional gospel with a contemporary flavor."

Many well-known gospel groups have recorded Wright's compositions, including the Jenkins Brothers, the Gospel Music Workshop of American National Mass Choir and Myrna Summers. Wright has appeared at Carnegie Hall, and he has conducted workshops across the U.S. and in Great Britain. Last year, his song "Who's on the Lord's Side?" was nominated for the prestigious Stellar Award.

Timothy Wright

Other groups performing at Brookhaven on February 3 will be:

- Anthony G. Evans and the A.G.E. Ensemble from New York City, a group of 25 singers who were named the best gospel group for the years 1984, 1985 and 1986 by the New York Gospel Academy Awards Organization.
- The Exciting Stephens Singers from Jersey City, New Jersey, a group of five talented sisters who have been singing together for 23 years.
- The Magnificent Visions Gospel Singers from Wyandanch, six young musicians from the Wyandanch Missionary Baptist Church.

Also on the program is soloist Maryanne McElroy of Riverhead, a Julliard School of Music graduate who has given solo performances at Carnegie Hall and the Brooklyn Academy of Music.

Advance sale tickets are $10 for adults and $5 for children 11 and under. They may be purchased from April Donegain, Ext. 2459; Fran Ligon, Ext. 3709; Bruce Penn, Ext. 7213; and Mary Durham, Ext. 7143. At the door, tickets will be $12 for adults and $7 for children. This concert is always a sellout, so buy your seats early.

Maryanne McElroy

Speakers Bureau

John Denes, C&CD; **William Sells**, S&EP; Bellport Middle School 6th Annual Career Day, "Careers at BNL," May 2.

Eric Forsyth, ADD; U.S. Merchant Marine Academy at Kings Point, "Superconducting Power Transmission Project," May 16.

Meyer Steinberg, DAS; Purchasing Managers' Association, "How to Solve the World's Problem by Turning Gold Into Lead," May 17.

Suffolk County Science Explorations: **Eva Bozoki**, NSLS, "Synchrotron Radiation: The Light Fantastic"; **Donald Gardner**, Physics, "The History of Truss Bridges"; **Scott Willenbrock**, Physics, "A Tour of the Universe"; May 22.

Michael Creutz, Physics: Nassau County Science Explorations, "Subatomic World of Quarks & Leptons," May 23.

Swapna Mukherji, PE, Career Awareness Exploring Program at Half Hollow Hills High School, "Careers in Engineering at BNL," May 25.

Carmen Benkovitz, DAS: Center Moriches High School Ecology Class, "Where Does the Ozone in the Troposphere Come From?", May 25.

Donald Gardner, Physics: Eagle Scout Luncheon, "Engineering as a Career," June 2.

Eloise Gmur, DO: South Country School District School Board, "Science Fair," June 7.

Scott Willenbrock, Physics: Quogue Wildlife Refuge, "A Tour of the Universe," June 23.

Michelle Cummings, MIS; **Rosario Enriques**, Physics; **Diane Mirvis**, TID: High School Students of the BNL Minority Apprentice Research Program, "Careers at BNL," July 25 and August 24.

William Graves, DO: Long Island Forum for Technology (LIFT), "Technology Transfer From BNL to New York State Industry," October 26.

Donald Gardner, Physics: Career Awareness Program at Center Moriches High School, "Careers in Engineering," November 28.

Paul Kemp, DAS: Suffolk Lutheran High School Career Day, "Biological Oceanography as a Career," December 7.

Richard Sautkulis, Biology: Career Day at Center Moriches High School, "Careers in Biology," December 7.

Eleanor Grist, Biology; **Avril Woodhead**, Biology/TID: 25th Annual Shelter Island Science Fair, science fair judges, December 8.

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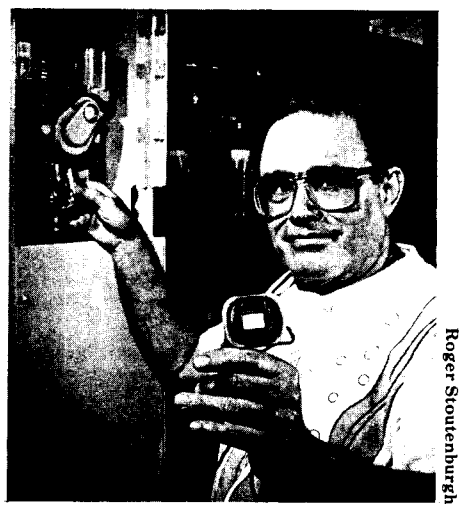
Suggestion of Savings
Recoil Instead of Replace

At the Alternating Gradient Synchrotron, under-voltage trip units protect the circuit breakers in experimental power supply equipment by tripping the breakers if incoming current is too low. To replace one of these important under-voltage trip units costs about $125. But Eugene Kaplan, a technical specialist at the AGS, recognized that, in these units, only the coils ever seem to fail. If that's the case, he reasoned, why not have the units recoiled, rather than purchasing new ones? He submitted his idea to the Employee Suggestion System and, because his suggestion should save the Lab $500 a year, Kaplan recently received a $50 award.



Roger Stoutenburgh

Eugene Kaplan

Chart of Nuclides

A limited number of the latest (14th) edition of the G.E. Chart of Nuclides in now available for pickup at the Technical Information Division. Anyone interested in obtaining a chart may come to Room 18, Bldg. 477B, from 11 a.m. to 1 p.m., through next Friday.

Radio Club

The BERA Amateur Radio Club will meet in Berkner Hall, Room A, on Thursday, January 25, at noon. The agenda includes the progress of the UHF repeater, amateur radio licensing classes and upcoming events.

All licensed radio amateurs employed at the Lab, those wishing to obtain amateur radio licenses, and Lab guests are invited to attend. For more information, contact Andy Feldman, Ext. 3264, or Bob Bacharach, Ext. 7790.

Volleyball

Standings as of January 12

Open League		League I	
GTEAM	31-5	Upfagrabs	30-3
Magnum	28-5	Dinkers	29-7
Phoenix	15-18	Cannonballs	24-15
Me and the Boys	15-18	Xrayted	18-21
Jet Setters	15-21	Up-Setters	11-28
Dig It	11-22	Rude Dogs	10-26
Penetrating Vollies	5-31	Network News	8-28

League II		League III	
Fossils	30-3	Lethal Women	23-1
Nuts & Bolts	27-5	MISfits	17-7
Pteropods	16-17	High Volley'em	16-8
Sourcerers	16-17	Nutcrackers	13-11
Net Wits	15-18	Renegades	12-12
Chunga's Revenge	13-20	Good Timers	11-13
Slammers	8-25	Bad Gnus	8-16
Upton-Ups	7-26	Spikes	4-20
		Turkeys	4-20

Camera Club

Photo presentation will be the subject of the next Camera Club meeting on Thursday, January 25, at 5:30 p.m. in the Recreation Building. Ripp Bowman and Lew Jacobson will discuss a few of the methods they have successfully used. Both members and nonmembers are encouraged to attend this meeting.

Under most conditions, matting and framing cost more than the actual photograph. The Camera Club has the equipment to enable members to create a professional looking, framed picture at a fraction of the cost of a framing studio. Your actual costs are time and materials.

Aviation Club

The BERA Aviation Club will sponsor a course to fulfill the ground school requirements and prepare students for the written exam for their instrument rating. A preliminary meeting will be held on Tuesday, January 23, at noon in Berkner Hall, Room C, for the purpose of deciding when and where the course will be given. If you are interested in attending the course, you must register at the meeting or call Sue Norton, Ext. 3492.

Met Opera Tickets

The following tickets to the Metropolitan Opera are still available at the BERA Sales Office.

Tuesday, February 13	*Faust*
Friday, February 16	*Faust*
Tuesday, April 10	*Die Fledermaus*

For tickets or more information, call Louisa Barone, Ext. 3347, or come to the BERA Sales Office, Berkner Hall, from 9 a.m. to 2 p.m.

No Change for Now In Daily Mail Runs

The reduction in number of daily mail runs from two to one, which had previously been announced to begin next Monday, is being postponed.

Explained Ron Manning, Manager of the Staff Services Division, "We are trying to find a way to maintain twice a day delivery. Over the next two weeks, we will explore ways to do this. During that time, two mail runs per day will continue, although delivery and pickup times may vary. As soon as we have come to a final conclusion about the number of daily mail runs, we will let everyone know."

Family Music By Viki Diamond

Children's entertainer Viki Diamond will perform at BNL on Sunday, January 21, in a concert sponsored by the Upton Nursery School. Her songs and stories, accompanied by guitar, autoharp or hammer dulcimer, will begin at 1 p.m. in the Recreation Building.

This family concert is open to the public, and children must be accompanied by an adult. A donation of $5 per family is suggested.

The Upton Nursery School is a cooperative, open to three- and four-year-old children of BNL employees and visitors. Concert attendees can meet the school's staff and obtain applications for enrollment.

For more information, call Kathy Hershcovitch, enrollment chairperson, 331-3785.

Bowling

Red/Green League

A. Sauerwald had a 231, R. Jones 223, J. Ferrante 209, C. Bohnenblusch 206/200, E. Sperry IV 205, M. Guacci 203, A. Warkentien 202/200, H. Marshall 201, W. Powell 200.

Purple League

Joe Sheehan had a 205, Ed Sperry IV 203, Ted Erickson 203, Dick Adams 202, Annamarie Spira 193, Gail Schuman 185, Jeannette Thiede 184.

White League

Al Pinelli had a 226, Ed Meier 221, Andy Warkentien 206, Ed Sperry 200, Mary Scheidet 193, Sharon Jones 191, Jeanne Penoyar 191, Gerry Riker 187/180, Elaine Zukowski 182.

Note to Employees:

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

On the Menu

Lunch at the Cafeteria

Monday, January 22

Soup: Split pea	.75/.95
Entree: Stuffed shells w/garlic bread & 1 veg.	3.10
Entree: Two knockwurst & sauerkraut	3.10
Fitness fare: Broccoli quiche w/1 veg.	3.00
Carvery: Pastrami sandwich	2.85
Grill: Reuben	2.85
SPICE: Eat drink & be light.	

Tuesday, January 23

Soup: Potato leek	.75/.95
Entree: Veal & peppers over noodles	3.10
Entree: Chicken Parmesan w/1 veg.	3.10
Fitness fare: Cheese & veg. casserole	2.75
Carvery: Roast beef sandwich	2.85
Grill: Monte Cristo	2.85
SPICE: Get fresh, Italian style.	

Wednesday, January 24

Salute to Hawaii — Complete dinner, soup, entree, 2 veg., & med. drink	3.95
Soup: Maui mushroom	
Entree: Hawaiian spareribs	
Entree: Aloha chicken	
Entree: Whitefish w/herbs	
Carvery: Roast loin of pork sandwich	2.85

Thursday, January 25

Soup: Tomato rice	.75/.95
Entree: Honey-dipped chicken w/1 veg.	3.10
Entree: Franks & beans w/1 veg.	2.85
Fitness fare: Seafood linguini w/1 veg.	3.10
Carvery: Baked ham sandwich	2.85
Grill: Reuben's brother	2.85
SPICE: Thursday is thirst day!	

Friday, January 26

Soup: Manhattan clam chowder	.75/.95
Entree: Catch of the day w/1 veg.	3.10
Entree: Beef Stroganoff over noodles w/1 veg.	3.10
Fitness fare: Tuna melt w/1 veg.	2.75
Carvery: Hot roast turkey w/cranberry sauce & gravy	2.85
Grill: Tuna melt	2.85
SPICE: Join the soup club!	

Dinner at the Brookhaven Center

Mon: Vegetable lasagna w/french fries	3.45
Tue: Fried chicken w/mashed potatoes & gravy	3.65
Wed: Open-face hot turkey sandwich w/baked potato	3.85
Thu: Linguini w/white clam sauce & fried mushrooms	3.55
Fri: Seafood platter w/coleslaw & french fries	4.25

IBEW Meeting

Local 2230, IBEW, will hold its regular monthly meeting on Monday, January 22, at 6 p.m., in the Knights of Columbus Hall, Railroad Avenue, Patchogue. On the agenda will be regular business, committee reports and the president's report.

Aerobics & Stretch Resume Next Week

Classes in aerobic dance and stretch, sponsored by the Aerobic Dance Club, will resume next week. The stretch class will meet on Monday, January 22, in the lobby of Physics, Bldg. 510. The aerobic dance classes will be held on Tuesday and Thursday, January 23 and 25, in the North Room of the Brookhaven Center.

ANS Meeting

Charles Meinhold, Head of the Radiological Sciences Division in the Department of Nuclear Energy, will be the guest speaker at the January dinner meeting of the Long Island Section of the American Nuclear Society (ANS). His topic will be "The Development of Basic Radiation Protection Limits: Implications of New Data From Hiroshima/Nagasaki Survivors."

The meeting will take place on Wednesday, January 24, at the Bavarian Inn, Lake Ronkonkoma. The talk will begin at 8 p.m., preceded by cocktails at 6 p.m. and a buffet dinner at 7 p.m. Nonmembers are welcome.

To make reservations, at $16 for members and $18 for others, call Ellie Mitchell, Ext. 7328, by Monday, January 22.

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.

4144. TOOL & INSTRUMENT MAKER - Central Shops Division.

Motor Vehicles & Supplies

88 KAWASAKI NINJA 600R - cherry red/gray, 7k mi., excel. cond., $2,400. Dave W. Ext. 4978, 4544 or 744-2830.

88 HONDA ACCORD LXI - 4-dr., champagne, 34k mi., p/sunroof, loaded, excel. cond., $11,300. Don or Sue, 473-6570 after 7 p.m.

87 TOYOTA PICKUP - extra cab, deluxe, a/t, p/s, am/fm, rear slider, excel. cond., in/out, must sell, $6,250. Joe, Ext. 5213.

87 MUSTANG - h/b, white, 4-cyl., p/s, p/b, loaded, orig. owner, 23k mi., mint cond., $7,800. Emil, Ext. 4289 or Cheryl, 698-2007 after 5:30 p.m.

86 DODGE CHARGER - a/c, p/s, p/b, am/fm radio, excel. cond., asking $3,300. Ext. 3160 or 289-5704 after 5 p.m.

86 VOLVO 240 WAGON - 49k mi., m/t, ac, am/fm cass., 4-speakers, extra seats, $10,500. Ext. 2455 or 331-1432.

86 BUICK SOMERSET - ac, p/s, 4-cyl., Delco am/fm cass., excel. cond., $5,295. Tom, Ext. 5817.

85 OMNI GLH TURBO - 5-spd., new engine, clutch, alternator, black, good tires, fast, fun, very clean, $2,900 neg. Charlie, Ext. 7638.

85 PLYMOUTH HORIZON - 5-spd., new brakes, front end, runs well, $1,500. Jack, Ext. 5565.

85 NISSAN 200SX XE - h/b, 29k mi., ac, p/s, p/w, 5-spd., loaded, warranty, $6,700. Bob, 744-4879.

84 EAGLE - 4wd s/w, a/t, p/s, ac, am/fm cass., 46k mi., clean, ask. $4,600. Ext. 2604 or 473-2473.

84 CHEVROLET CAVALIER - 2-dr., p/b, p/s, am/fm, 87k mi., 4 new tires, $800 or best offer. 928-2397 after 7 p.m.

84 OLDS OMEGA - 2-dr., p/b, p/s, am/fm, ac, 67k mi., good cond., must see, $3,000. Jim, Ext. 4606 or 654-5049 after 6 p.m.

83 BUICK CENTURY - custom, p/b, p/s, ac, am/fm cass., Delco, v.g. cond., new brakes & exhaust, $2,900 neg. Viorel, Ext. 7104.

83 CADILLAC ELDORADO BIARITZ - black w/white int., sunroof, lots of extras, v.g. cond., asking $5,900. 924-6050 after 3 p.m.

83 OLDS SUPREME - 4-dr., loaded, new tires, need eng. work, asking $700. C.J., Ext. 3017.

83 OLDS - s/w, 9-pass., 8-cyl., a/t, ac, p/s, p/b, stereo cass., p/ant., p/seat, cruise, tilt steering, good cond., $3,100. 567-1272.

83 FORD ESCORT - 4-dr., 56k mi., no rust, am/fm cass., new brakes, belts, exhaust, $1,500 neg. Steve, Ext. 5567.

83 DODGE ARIES - 4-dr., p/b, p/s, 90k mi., excel. cond. Hugh, Ext. 4516 or 744-8901.

82 RELIANT - s/w, m/t, runs excel., v.g. cond., excel. mph, $1,175. Bill, Ext. 5320 or 751-1881 after 6 p.m.

81 RELIANT - 4-spd., looks good, runs well, 110k mi., $500. Dave, 475-7891 after 5 p.m.

80 BUICK SKYLARK - ac, p/s, p/b, body good, new tires, needs muffler, 76k mi., asking $800. John, Ext. 3821.

80 MAZDA 626 - 5-spd., ac, am/fm, good tires, runs well, $700. Jim, Ext. 7735.

79 JEEP CJ5 - V-8, 3-spd., new soft top, p/s, tilt, asking $2,500. 395-3456.

79 VW BEETLE - convertible, engine, interior, v.g. cond., body damage, $100. Steve, Ext. 4555.

78 VW VANAGON - 67k mi., am/fm, good cond., $2,500. 286-2412.

69 VOLVO CLASSIC - 1800s sports car, red/black, 5-spd., dual carb, good cond., $2,500. Dean, Ext. 4407 or 924-6619.

RADAR DETECTOR - Passport, orig. $275, like new, w/windshield mount, visor mount, leather case, $175. Ext. 4247.

TRUCK CAP - fits small short-bed truck, silver, screened, tinted slider windows, purchased new '87, excel. cond., $375. Andrew, Ext. 7638.

TIRE - new, 721 Firestone, 235/75R15, Eldo rim, $35. Ernie, 588-4987.

HARDTOP - w/doors, installs on any Jeep CJ7, $650; 235/75x15 tires, Wrangler GTS, $50 ea., 4/$175. John, Ext. 2310.

TIRES - 2, Goodyear Eagles, P245VR50, 16", good cond., $100; 4 more tires, same size, fair cond., cheap. Chris, Ext. 4185.

TIRES - 5, LT235/85R16, $20 ea. Frank, Ext. 7684.

HEADERS - for Chevy 350, good cond., $35; muffler, 2½" pipe, $25; 2 tires, 7.00-16 snow tires, like new, $50. Roger, Ext. 7518 or 878-8847.

TIRES - mounted, P195, v.g. cond., make offer. George, Ext. 4144.

Send a Love Note To Your Valentine

Is there a special message you'd like to send to your valentine next month? If you can keep it short and sweet, you can have your Valentine's Day message printed in the Bulletin on February 9. Send your 15-to-20-word "love note" to the Bulletin, Bldg. 134, by Friday, January 26, on a Sales & Notices Bulletin classified ad form, but mark it "Valentine's Day." You must sign your name and include your life number and extension, but your name will not be printed unless it is clearly part of the message. Copy must be deemed tasteful, and all "love notes" will be accepted at the Bulletin's discretion. Only one message per employee, please.

Boats & Marine Supplies

19' BOWRIDER CRUISER - 1972, w/1976 115-h.p. Johnson, Coast Guard pkg., trailer w/electric winch, $3,000. Frank, Ext. 2314 or 567-5131.

15' SILVERLINE - 1969, 33-h.p. Johnson, new chairs, controls, carpet, paint, teleflex steering, trailer, asking $800. Pat, Ext. 4500 or 744-7017.

OUTBOARD MOTOR - 1984, 40-h.p. Johnson, very low hours, long shaft, super cond., extras, $1,250. 298-4172.

TRAILERS - 1 boat, 1 snowmobile, 3 flat beds, make offer. 395-3456.

Furnishings & Appliances

TABLES - 2, side, smoked glass & brass, good cond., $100; 6' x 9' area rug, blue, mauve & cream, orig. $100, now $60. Kim, Ext. 4461.

WASHER - Kenmore, portable, 1-speed, 2 cycles, straight vane agitator, lint filter, etc., good cond., $200 or best offer. O. Booker, Ext. 3082.

LIVING ROOM CHAIRS - 2, Herculon brown plaid, v.g. cond., were always covered, $50/each. 878-6637.

DESK - solid mahogany, 6' x 3', w/glass top, $300. Chris, Ext. 4185.

WATER BED - king size, waveless, 6-drawer, pedestal, mirrored headboard, heater, $400. Bob, 744-4879.

BEDROOM SET - headboard, chest, dresser, night tables, natural oak finish, good cond., $350. George, 744-4170.

COUCH - comfortable, neutral biege, 48" x 34" x 24", 6 pillows, good cond., $175. Ed, Ext. 2007 or 751-1474 eves.

KITCHEN SET - oval table, walnut, formica & vinyl cushion roling chairs. Barbara, 744-9802.

Tools, House & Garden

CIRCULATOR PUMP - Grundfos UP25-64SF, stainless steel, $40. Joe, pager 0925 or 728-1859 eves.

Sports, Hobbies & Pets

POOL TABLE - Fisher, 4'x8', balls, cover, automatic return, new felt, 3 pc. ¾" slate. 581-6432 after 6 p.m.

BIKE - GT Pro Freestyle, tour-custom-built w/Araya 36-spoke wheels, GT hubs, dyno handlebars, GT neck, $100. Ext. 2346 or 286-8563.

COCKATIELS - 2, great w/children, lively, playful, $50/pair. 744-3069.

CAGES - small animal pens, w/water bottle & food dishes, asking $25/each. 654-4661 eves.

BMX BIKE - Ross, boy's, red, 16", $35. Nancy, 924-8160 or John, Ext. 2667.

SKIS - Rossignol w/Salomon bindings, 160cm & 150cm, $50/pair. Rogers, Ext. 4222.

BOWS - PSE Nova, 30" draw, 60 lb., R.H., $75; Golden Eagle Hunter, 30" draw, 60 lb., R.H., $150. Bill, Ext. 2377.

CAMERA - Canon, FTB, SLR, w/28mm, 50mm, 50 macro, 70-210 zoom lenses, filters, flash, all excel. cond., $395. Bob, Ext. 5042.

Audio, Video & Computer

COMPUTER - Apple IIe, complete w/terminal, disk drives, printer & lots of software, $600. Ted Lazo, Ext. 7615 or 929-8684.

COLOR PRINTER - NX-1000 Star, never used, many fonts, orig. $250, sell for $150. Ext. 2921.

COMPUTER SOFTWARE - Lotus 1-2-3, release 2.01, complete package, like new, $40; Generic CADD Level 3, 3/$15. Steve, Ext. 4555.

HOME ENTERTAINMENT CENTER - Sega, 4 game cartridges, 2 controllers & gun, like new, worth $200, asking $100. 874-2387.

Miscellaneous

SAFE - combination lock, interior 15" x 12" x 11", UL tested, fire resistant to 1700°F, you move, $55. John, Ext. 2710.

TICKETS - New York Islanders, Feb. 13, March 6 & 10, good seats, $30/seat. Michael, Ext. 7909 or 325-0447.

CAR SEAT - Century 3000, STE special touring edition, excel. cond., $40. P. Browne, Ext. 4500 or 744-7017.

TICKETS - 2, Carnegie Hall, orchestra of Ottowa, Haydn, Colgrass, Schubert, Feb. 4, $21/each. Mike, Ext. 4061.

Free

UTILITY TRAILER - 4-wheel, heavy steel frame, no bed, no papers, ring hitch. 581-6432 after 6 p.m.

DISHWASHER - built-in, works well, interior needs cosmetic repairs, you pick up. Bernie, Ext. 4842

CATS - 2, gray tiger-striped, male and female, neutered, shots, nine months old. April, 298-2166.

71 VOLVO PARTS - '67, 3-cyl. Saab and parts. Jay, 286-3679

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

HOLBROOK - new, 1-bdrm. apt., walk-in closet, l/r, full bath, eik, d/r, w/w, vertical blinds, cable, patio, priv. ent., near stores, $700/mo. util. incl. Margaret, 588-7989.

MASTIC - waterfront, large room, pvt. ent., share bath & l/r w/gentleman, refrig. & microwave, $100/wk. + sec. 281-3114

MIDDLE ISLAND - 3-bdrm. house, 2 baths, d/r, l/r, eik, 2-car gar., patio, 10 min. from Lab, $1,000/mo. immed. occup. Boyzie, Ext. 7625

MILLER PLACE - 1-bdrm. apt., kitchen/lr, spare room, utilities incl., priv. ent. Ext. 2537 or 473-1658 after 6 p.m.

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

SHOREHAM - 1-bdrm. apt., full kitchen, bath, l/r, no pets, $550/mo. incl. util., sec. 744-8659 or 744-0648.

WESTHAMPTON - 4-bdrm. house, 1½ baths, d/r, newly renovated bath and kitchen, gar., shed on 1 acre, $850 +, neg. Dave, Ext. 4289 or 288-3011.

KEY WEST, FL - April 22-29, efficiency kitchenette on the Gulf, walk to town, all water sports & boat rental, health spa, pool, $750. Sheryl, Ext. 5384.

HILTON HEAD, SC - 2-bdrm. condo, sleeps 6, 2 baths, tennis, golf, beach, pool, $250/wk. 689-5378.

For Sale

E. SETAUKET - large, central hall Brookfield Colonial, bsmt., ceramic/oak floors, new carpet, ½ acre, l/r, fam. rm. w/fp, d/r, 4 bdrms., 3 baths, eik, 2 car gar., igp, sacrifice at $206,000. 751-9096.

JAMESPORT - Hallockville Estates, ¾ acre, walk to Sound, terms avail., price neg. Kathy, Ext. 5312.

MASTIC - 3-bdrm. ranch, ¼ acre, 1½ baths, den, fin. bsmt., deck, appl., house fan, 3 ceiling fans, shed, fence, near school, shopping, 15 min. to Lab, ask. $115,000. 265-2366 after 6 p.m. wknds.

MEDFORD - 2-bdrm. ranch, 1 bath, energy efficient, passive solar room, solar hot water, wood stove, workshop, gar., $300 annual fuel bill, $130,000. 654-2617.

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

MIDDLE ISLAND - 3-bdrm. condo, 2 full baths, fenced, patio, tennis, pool, 6 mi. to Lab, $107,000. Ext. 3922 or 878-2604 eves.

PATCHOGUE VILLAGE - waterview, 4-bdrm. Colonial, 2 baths, eik, fd/r, fam. rm., f/p, balcony, deck, carpet, appl., gar., ½ acre, walk to pool, trains, schools. Jan/Emily, 286-3623 or 475-0090.

ROCKY POINT - 3-bdrm. high ranch, l/r w/brick fp, cath. ceiling, d/r, large kit., 2 baths, bsmt., cac, deck, 2-car gar. w/elec. doors, beach rights, 0.34 acre, $154,900. Kochman, 744-1057.

SELDEN - Colonial on ½ acre, new kitchen, den w/fp, skylight, Andersen windows, $149,999. 698-0574

ST. JAMES - 4-bdrm. Cape, l/r w/fp, d/r, eik, 2 baths, laundry full bsmt. w/20'x25' fin. heated rm., 2-car gar., tax $2,000, $168,000. 751-9096.

WADING RIVER - ranch, 3/4 bdrms., fd/r, 2½ baths, eik, fam. rm., sun rm., deck, part fin. bsmt., dark rm., detached 2-car gar., $229,000. 929-4631.

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

Wanted

HALF-TON CHAIN HOIST - and 3 h.p. elec. air compressor w/tank and air tools. Ken, 331-1841.

HI FI COMPONENTS - old, tubed, working or not, by Marantz, Macintosh or Western Electric. 474-3766.

MANUAL - for circa-1968 Chrysler 318, marine eng., to buy or borrow. Susan, Ext. 3419 or 581-6432 affter 6 p.m.

PIANIST - w/whom to play duets for fun. Margaret, Ext. 3644.

TREADMILL - motorized, to rent for few months. 475-2509.

REFRIGERATOR - apt.-sized, good working cond., pref. almond or white. 758-2653.

LINCOLN AC 150 GENERATOR - Peter, 623-4519.

SWEENY TODD - cassette tape to borrow. Janet, Ext. 2345.

BICYCLE CARRIER - for auto. Barbara, 878-4285

HOUSEMATE - to share Colonial w/professional, $345 + util. Jim, Ext. 2183.

In Appreciation

I would like to send my heartfelt thanks to all my friends at BNL for their cards, flowers, fruit, phone calls and get well wishes. Thank you so much. — Patrick Glynn

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