BROOKHAVEN BULLETIN
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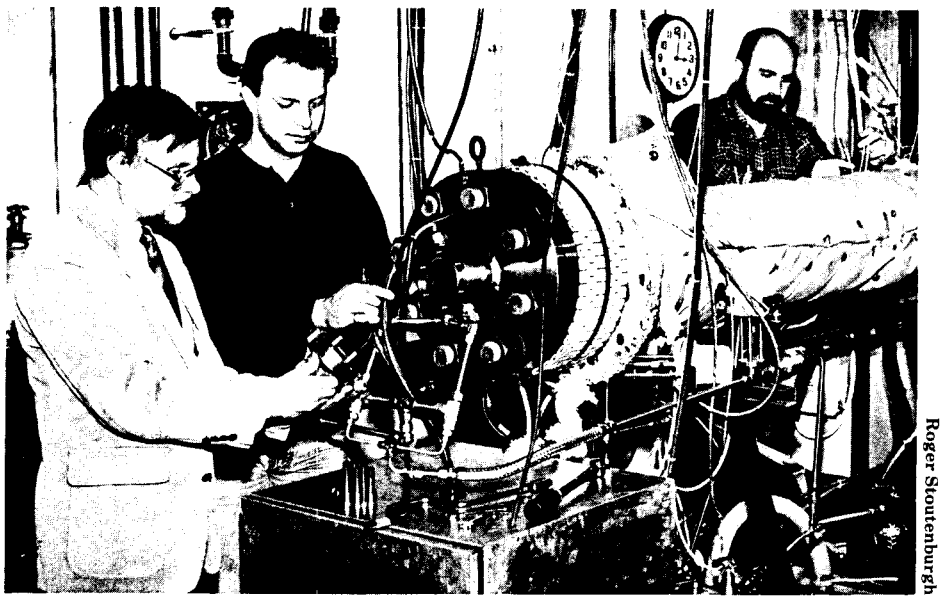
BROOKHAVEN NATIONAL LABORATORY

DNE Investigates Role of Hydrogen Combustion In Severe Nuclear Reactor Accidents

As a result of the partial meltdown of the core of nuclear reactor No. 2 at Three Mile Island on March 28, 1979, hydrogen gas was released into the building surrounding that reactor. Highly combustible and mixed with air and steam, the gas ignited and burned, thus increasing the pressure within the radiation-containment building — and the concern that the containment could be breached during an unlikely but similar meltdown accident, thus releasing quantities of radioactive gases to the environment.

Since Three Mile Island, much nuclear engineering research into the combustion of hydrogen has been done all over the world, but at the relatively low temperatures of 300-400 kelvins (K). The purpose of this work has been to study how the combustion of hydrogen is affected by changes in mixture composition, temperature and pressure, and then to apply that knowledge to the design of a new generation of nuclear reactors and computer models of reactor accidents.

More recently, however, computer models of the severe accidents popularly known as core meltdowns have revealed that, during certain rare accidents of this sort, temperatures within the containment could exceed 400 K.



Roger Stoutenburgh

Standing by the detonation-initiation end of the Small Scale Development Apparatus (SSDA) are: (from left) Joseph Curtis, who, along with Joseph Jahelka (not shown), is responsible for the design and construction of the High Temperature Combustion Facility; Gaby Ciccarelli, who was responsible for the design and construction of the SSDA and who now oversees its experimental program; and Charles Finfrock, who serves as the hydrogen combustion research program's lead technician.

As a result of this finding, BNL's Department of Nuclear Energy (DNE) has been funded since April 1991 by the Office of Nuclear Regulatory Research of the U.S. Nuclear Regulatory Commission (NRC) to advance the study of hydrogen combustion, specifically to extend the knowledge about the nature of hydrogen combustion during severe accidents into the high-temperature and large steam concentration ranges.

To continue through 1996, the hydrogen combustion research program is a collaboration among the NRC; the Experimental Simulation & Analysis Group (ESAG) in DNE's Safety & Risk Evaluation Division (SRED), which is headed by W. Trevor Pratt; and the Nuclear Power Engineering Corporation (NUPEC) of Japan.

To Predict Temperature Effects

Explains Mechanical Engineer and ESAG Leader Ted Ginsberg, "The basic question that we are addressing is 'What is the effect of the temperature of a hydrogen gas mixture on the inherent sensitivity of that mixture to detonate?' The experimental data that we are gathering in answering this question will be used to develop computer models predicting the effect of temperature on mixture sensitivity."

Working with him on this project are: John Boccio, Deputy SRED Head; Assistant Mechanical Engineer Gaby Ciccarelli; Engineer Constantino Economos; Chemistry Associate Charles Finfrock; Senior Project Engineer Joseph Curtiss; Project Engineer Joseph Jahelka; and Masahiko Kinoshita of NUPEC. They are assisted by Senior Secretary Jean

(continued on page 2)

BNL Lecture: Nuclear Rockets and Beyond

Space may be the final frontier, but how are we going to get there from here?

Perhaps the real-life equivalent of the Starship Enterprise will be a nuclear rocket propelled by a particle-bed reactor — a concept that can trace its origins to BNL in the late 1960s.

One of those original researchers was James Powell, the Senior

Roger Stoutenburgh

James Powell

Nuclear Engineer who now heads the Reactor Systems Division in the Department of Nuclear Energy (DNE). Powell will discuss "The Particle-Bed Reactor: Nuclear Rockets and Beyond" when he delivers the 284th Brookhaven Lecture.

Powell will give his talk next Wednesday, February 10, at 4 p.m., in the large seminar room of Physics, Bldg. 510 (please note change from usual location since Berkner Hall is closed for renovation). Former DNE Chairman Walter Kato will introduce the speaker.

As Powell will explain, a particle-bed reactor (PBR) is relatively small — only about the size of a 55-gallon drum. Instead of the long fuel rods found in commercial power reactors, it uses tiny, uranium-based fuel pellets, one-half millimeter in diameter, packed between two porous cylinders in a container -- the particle bed.

When hydrogen is introduced into the cylinders and control rods are withdrawn, nuclear fission occurs. The fuel pellets heat the hydrogen, causing it to rush out of a nozzle, providing thrust.

Determining the feasibility of harnessing the PBR's thrust for nuclear-rocket propulsion is BNL's role in the Space Nuclear Thermal Propulsion program managed by the U.S. Air Force. The Lab is one of a number of collaborators in this joint industry-laboratory partnership.

After reviewing the course of nuclear rocket programs in the U.S., Powell will describe the technical challenges the BNL team has overcome in helping the program to the present ground-test phase. And he will point out that — even beyond the concept of a nuclear rocket — the PRB is at the base of many imaginative ideas for reactor applications.

James Powell first came to BNL in the summer of 1952, as a student in the then Nuclear Engineering

(continued on page 2)

DOE Progress Assessment Team Visits BNL

Winding up an intensive two-week evaluation, a 16-member Progress Assessment (PA) Team from the U.S. Department of Energy (DOE) finishes work here today. The team has been on site since January 25 to assess BNL's progress towards establishing and maintaining good environmental, safety and health programs and practices.

The PA team came as a follow-up to the DOE Tiger Team's visit to the Lab in 1990. Over the last three years, Tiger Teams have been sent to 35 DOE sites to assess compliance with applicable environmental, safety and health regulations. PA teams are being sent to evaluate progress made since the Tiger Team visits.

During the past two weeks, the PA team assigned to BNL has reviewed such areas as the corrective action program, the self-assessment program, directives and conduct of operations, environment, fire protection, industrial hygiene, occupational safety and health, oversight and organization, and planning and training at the Lab and at the DOE Brookhaven Area Office.

The results of the findings are being given to BNL today in a draft report entitled "Environment, Safety and Health Progress Assessment." This report will be available for consultation from the office of M. Sue Davis, BNL's Associate Director for Reactor, Safety & Security. The final report will be obtainable from DOE in a few months.

Said PA Team Leader Susan Brechbill, Assistant Chief Council for General Law at DOE's San Francisco field office, "The review went very well. The team has found progress in all areas at BNL, but there is still more to be done to achieve environmental, safety and health excellence. Given what the team saw, this goal is clearly attainable at BNL. I also appreciate the support and cooperation given my team by all BNL personnel."

As the team leaves the Lab today, Davis said, "I would like to take this opportunity to thank all of the BNL staff who worked so diligently in preparing for, responding to and assisting the team during their stay."

Roger Stoutenburgh

Susan Brechbill, leader, and Bernie Kokenge, member, of the U.S. Department of Energy Progress Assessment Team that concludes its visit to BNL today in a temporary office set up in Compton House.

BNL Lecture (cont'd)

Department (NED). He earned his B.S. in chemical engineering at the Carnegie Institute of Technology in 1953. While still pursuing his Sc.D. in chemical engineering from the Massachusetts Institute of Technology, which he received in 1958, Powell returned to NED as an assistant nuclear engineer in 1956.

Before NED became the Department of Applied Science (DAS) in 1969, Powell was promoted to Associate Nuclear Engineer in 1958, then to Nuclear Engineer in 1962. He was awarded tenure in 1977, the same year that DAS became DNE, then given his present title in 1980.

Among the numerous patents Powell holds is one with Gordon Danby, Senior Physicist in the Alternating Gradient Synchrotron Department — the original patent for magnetically levitated trains. For the internationally acclaimed invention of Maglev, Powell and Danby each received two honors in 1991: a Sparky Award from the High Speed Rail Association, for their contributions towards furthering high-speed rail transportation in the U.S., and a 1991 Tech Island Award from the Long Island Forum for Technology.

Powell is a member of the American Association for the Advancement of Science, American Geophysical Union, American Institute of Aeronautics and Astronautics, American Nuclear Society and American Physical Society.

After the lecture, all are invited to join the speaker for discussion and refreshments. To accompany him to dinner at a restaurant off site, call Annamarie Spira, Ext. 2352.

Note to Employees:

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

ERC — Working to Resolve Problems

Roger Stoutenburgh

If you are an employee who is unable to resolve a work-related problem with your supervisor and you do not belong to a bargaining unit or the scientific staff, then perhaps the Employee Relations Committee (ERC) can help you.

Established in 1980 and reporting to the Laboratory Director, the ERC is made up of eight employees, plus the Employee Relations Counselor from the Personnel Division as an ex officio member. As part of BNL's Employee Relations Program, the ERC reviews employees' complaints and attempts to hear all sides of an issue prior to making a recommendation. Information discussed with committee members is strictly confidential. No action is pursued without the complete agreement of the employee involved.

Every year, the Laboratory Director appoints three new members to replace the ERC members whose three-year terms are up.

Incoming, outgoing and continuing ERC members shown here are: (front, from left) Michelle Cummings, Management Information Systems Division; ERC chair Mary McGrath, Department of Nuclear Energy; Veronica Evans, Computing & Communications Division; new member Ann Emrick, Biology Department; (back, from left) outgoing member Richard Eggert, outgoing chair William Kollmer Jr.; Mark Davis, Reactor Division; new member Carl Jacobs, Physics Department; outgoing member June Herbert, Alternating Gradient Synchrotron Department; and new member Mary Durham, Plant Engineering Division. Absent: Susan Foster, Personnel, ex officio; and Dennis Klein, National Synchrotron Light Source.

To bring a problem to the ERC's attention, call its special number, Ext. 4005, or contact a current member: Cummings, Bldg. 459, Ext. 2077; Davis, Bldg. 750, Ext. 2165; Durham, Bldg. 134, Ext. 7143; Emrick, Bldg. 463, Ext. 5756; Evans, Bldg. 515, Ext. 2851; Foster, Bldg. 185, Ext. 2888; Jacobs, Bldg. 510, Ext. 2244; Klein, Bldg. 725, Ext. 2743; or McGrath, Bldg. 197, Ext. 2815.

Coming Up

Ruth Ann Verell, former Deputy Director of the Office of University and Science Education Programs in the U.S. Department of Energy, will present the next Office of Educational Programs Seminar, on Wednesday, February 17, at noon, in Room B, Berkner Hall.

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The Guild Trio will appear in concert on Thursday, February 18, at 8 p.m., in the Snyder Seminar Room, Bldg. 911 *(please note change from usual location).* The trio's program will consist of works by Gabriel Faure, Johannes Brahms and Antonin Dvorak.

Tickets may be purchased at the door for $12, general admission; $9, students and people over 65; and $5, youths under 18.

Equipment Demo

Sales engineers from Kepco, Inc., will exhibit instrumentation power supplies for systems and bench, as well as switching power supply products, on Tuesday and Wednesday, February 9 and 10, from 9 a.m. to 3 p.m., in Berkner Hall.

Volunteers Needed

Male volunteers, ages 25 to 45 and in good health, are needed to participate in brain and heart-imaging studies being conducted by BNL. A fee will be paid; supervisory approval is required. For more information, call Naomi Pappas, Ext. 2694.

Combustion (cont'd)

Frejka.

This work is being carried out in Bldg. 939, where one apparatus, a four-inch-in-diameter by 20-foot-long detonation tube called the Small Scale Development Apparatus (SSDA), was commissioned in August. Another device, also a detonation tube, but one that is one foot by 70 feet and called the High Temperature Combustion Facility (HTCF), is being designed based on the outcome of SSDA testing.

Each detonation tube consists of a ¾-inch-thick stainless steel pipe. Pieced together with massive flanges, the SSDA can withstand up to 12.4 megapascals (MPa) or 1,800 pounds per square inch absolute (psia), while the HTCF will contain 10.1 MPa or 1,470 psia.

Experiments Under Way

"In our first experiment using the SSDA last September, we detonated a mixure of hydrogen and air without steam at room temperature, to begin collecting information about the inherent ability of these gases to undergo detonation," continues Ginsberg. "After shaking down the facility and establishing our safety and operations procedures, we'll resume with a full program of chemical reaction time and inherent detonability experiments."

When the HTCF comes on line next summer, the experimental program will be extended, to look at, among other phenomena, what is called the deflagration-to-detonation transition.

A deflagration is a chemical reaction whereby a solid, liquid or gas such as hydrogen at room temperature burns vigorously, but with a low speed flame as the reaction propogates into unreacted material. To make the transition from a deflagration to a detonation, the advancing reaction must begin to accelerate so rapidly that it moves supersonically, or faster than the speed of sound.

Roger Stoutenburgh

Representatives of the U.S. Nuclear Regulatory Commission (NRC) came to BNL last October to review the hydrogen combustion research program funded by NRC at the Lab, a collaboration among the NRC, BNL's Department of Nuclear Energy (DNE), and the Nuclear Power Engineering Corporation (NUPEC) of Japan. Seen in Bldg. 939, which houses the program's Small Scale Development Apparatus and will be home to its High Temperature Combustion Facility, are: (from left) John Boccio, DNE; Deputy DNE Chairman Robert Bari; Brian Sheron, Director, Divison of Systems Research, Office of Nuclear Regulatory Research (RES), NRC; RES Director Eric Beckjord, NRC; Gaby Ciccarelli, DNE; Constantino Economos, DNE; Ted Ginsberg, DNE; and Masahiko Kinoshita, NUPEC.

The results from HTCF experiments will be used to develop criteria so that the results can be scaled up and predictions can be made about what would occur within the containment building of a nuclear reactor during a severe accident.

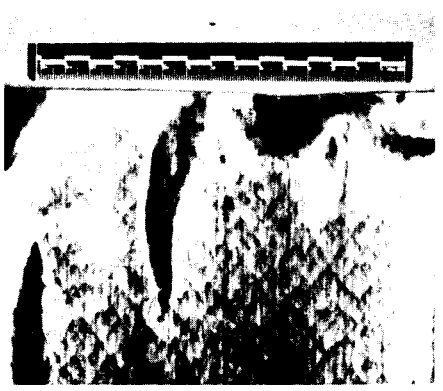
Among other devices, sophisticated pressure transducers, photodiodes and ion detectors will be used to detect the changes taking place during the experiments within the SSDA and the HTCF.

Detecting Detonation Waves

The most simple detector is a piece of aluminum foil coated with soot — a detector that has been used since the 1950s to show the structure of a detonation wave, the combination of a shock wave and flame that accompanies a detonation.

The sooted foil is inserted into a detonation tube before a combustion experiment. After the hydrogen mix is detonated, a shock wave travels the length of the tube, and, as it passes over the smoked foil, it leaves a characteristic fish scale-like imprint.

Measuring the individual fish scale widths yields what is called a detonation cell width; the smaller the cell width, the more sensitive the gas mixture is to detonation. Ginsberg and his colleagues will determine the cell width following detonations of various hydrogen mixtures between 400 K and 700 K, to determine how mixture sensitivity varies with temperature.



Results from the first experiment using the Small Scale Development Apparatus of BNL's hydrogen combustion research program, as seen on a sooted foil of aluminum. The characteristic fish-scale appearance indicates that a detonation wave has passed over the foil. Characteristic of a sensitive mixture containing two molecules of hydrogen per molecule of oxygen, the distance between two vertices of the diamond pattern is 10 millimeters.

"The basic hydrogen-combustion data that we are gathering will not only have an impact on the combustion science community, but also on the safety of nuclear power reactors," concludes Ginsberg. "This research, an interesting combination of basic and applied science, is a prime example of how national labs such as Brookhaven can simultaneously serve science and society."

— Marsha Belford

Arrivals & Departures

Arrivals

Michael J. Bompane.....RHIC
Jack E. Insinga.....RHIC
Donald Von Lintig Jr......AGS

Departures

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

Frank A. Crifasi.....Saf. & Env. Prot.
Peter J. Grillo.....RHIC
Zeev Olami.....Physics
Kathleen A. Ratto.....Nuclear Energy
Siegfried Schindler.....Chemistry
Roland Sick.....Applied Science
Robert Smol.....Applied Science

HMO Enrollment Now Open

Until February 26, eligible BNL employees can either join a Health Maintenance Organization (HMO), change to the AUI Group Medical Insurance Plan administered by Connecticut General Life Insurance Company, choose another HMO, or opt to keep their present coverage.

Effective March 1, BNL employees working 20 or more hours a week will be able to choose their next year's coverage from either the AUI Plan or one of four HMOs: ChoiceCare, Empire Blue Cross Blue Shield (BCBS) Healthnet, Health Insurance Plan of Greater New York (HIP), or US Healthcare.

Under the AUI Plan, employees may choose any physician or health-care facility, and fees for services are reimbursed according to plan policies. In comparison, an HMO provides a number of health services to enrolled members for a prepaid premium. So, instead of charging a fee for each service provided, the HMO collects the premium fee from members' employers in advance.

That fee entitles the member to most health-care services, such as physician visits, surgical costs, x-rays, hospitalization charges and diagnostic tests. Some HMO services require a small copayment from the member, but most services are covered by the prepaid fee.

Associated Universities, Inc. (AUI) will only subsidize the cost of an HMO plan by paying up to the cost it currently pays for the AUI Medical Insurance plans. As a result of a significant increase in the BCBS Healthnet premium rates, effective March 1, 1993, an employee premium will now be required for Healthnet HMO family coverage. That monthly premium will be $35.91 for employees hired prior to January 1, 1992, and $70.47 for employees hired after January 1, 1992.

Membership in the other HMO plans — ChoiceCare, HIP and US Healthcare — will not require an additional employee premium since their March 1 premium rates have not increased to rates above the AUI Medical Insurance plan's. Employees who were hired on or after January 1, 1992, who enroll in an HMO or the AUI Medical Insurance plan will continue to pay their required medical insurance contribution.

Representatives of the various HMOs will be at Berkner Hall on three consecutive Wednesdays — February 10, 17 and 24 — between 11 a.m. and 1:30 p.m. to answer any questions. Plan literature, including lists of participating physicians and application forms, is available from the HMO representative or from Personnel Services, Bldg. 185, Ext. 2877.

To change coverage, employees must obtain the necessary forms from Personnel Services. The deadline for medical coverage changes is Friday, February 26, with coverage effective March 1, 1993, through February 28, 1994.

Let's Dance

Singles and couples are invited to sign up for up to eight weeks of beginners' waltz and merengue lessons, with the BNL Ballroom, Latin & Swing Dance Club.

This series will be offered Wednesdays, from 5:15 to 6:30 p.m., usually in the North Ballroom of the Brookhaven Center. The class will meet as follows: February 10 and 24; March 3, 10, 17, 24 and 31; and April 7.

The cost is $15 per person, in a check payable to the club. To register, send a check to Marsha Belford, club president, Bldg. 134, or bring it to the first class. For more information call Belford, Ext. 5053, or Nedy Santiago, vice president, Ext. 3402.

Cooking Exchange

The Cooking Exchange will meet on Wednesday, February 10, at 11:30 a.m. in the Recreation Building. All are welcome to come to sample a variety of tasty dishes and meet new friends. A donation of $2 per adult is requested, with baby-sitting at $1 per child. For more information, call Laura Gottlieb, 341-1022.

PSI Meeting

Grace Volkmann, of GB Applications, will explain DOS, the disk operating system, at the next meeting of the Upton Chapter of Professional Secretaries International (PSI), on Wednesday, February 10, at 6 p.m., in the North Room of the Brookhaven Center. In addition to discussing DOS and its future, Volkmann will review some computer terminology.

For more information, call Sharon Jones, Ext. 2493.

Social Club News

Call Doris Terry, Ext. 7610, Bldg. 197C for more information about the following events on the Social Club's calendar:

- **U.S. Hot Rod Association** — Fri., Mar. 5, 8 p.m., tickets $13.50, due Feb. 17.
- **Ringling Bros. & Barnum Bailey Circus** — Sat., Mar. 20, 7:30 p.m., tickets $15, due Mar. 1
- **Mystery of the St. Patrick's Day Massacre** — Mar. 12-14, Wilkes Barre, PA; round-trip transportation, three meals, open bar, contest prizes, more; 2/room $200 ea., 3/room $195 ea., 4/room $190 ea., 5/room $185 ea., due Feb. 26.
- **Alaska & the Yukon** — June 4, 12 days, transportation, 25 meals, Juneau, Skagway, White Horse, Denali Nat. Park, more, tour guide; 2/room $2,944 ea., 3/room $2,759 ea., single $3,989, due 4/1.
- **National Parks** — Aug. 11, 13 days, land only, Grand Canyon, Yellowstone, Bryce, Zion, Grand Teton, Old Faithful, Mt. Rushmore, more, 22 meals, tour guide; 2/room $1,785 ea., 3/room $1,757 ea., single $2,260, due June 11.
- **New Orleans Getaway** — Oct. 13, 5 days, transportation, French Quarter, Mississippi River Cruise, dinner at Tujagues, Cafe du Monde and Cancan Revue Show, tour guide, six meals; 2/room $759 ea., 3/room $740 ea., single $949, due August 31.

Tennis Anyone?

Tennis players can still sign up for the tennis party that the Tennis Committee has scheduled on Saturday, March 6, from 7 to 11 p.m., at the Eastern Athletic Club, Montauk Highway, Blue Point.

BNL employees, family members and friends are all welcome; advance payment of $15 person should be made at the BERA Sales Office. Tennis partners will be assigned at the beginning of the party and change during the course of the evening. So bring your racket and enjoy a night of fun!

Cafeteria Menu

Monday, February 8

Soup: Broccoli & macaroni		.80/1.10
Entree: Chicken cacciatore		3.35
Lite Choice: Lemon & pepper catfish		3.45
Carvery: Hot pastrami sandwich		2.95
Grill: Monte Cristo platter		2.95
Taster's Bar: Wings on fire	(oz.)	.25

Tuesday, February 9

Soup: Cream of mushroom		.80/1.10
Entree: Navarin of lamb		3.35
Lite Choice: Spaghetti marinara		3.20
Carvery: Hot roast beef sandwich		2.95
Grill: Breast of chicken teriyaki		3.35
Taster's Bar: Baked clams w/lemon	(oz.)	.25

Wednesday, February 10

Soup: Meat ball		.80/1.10
Entree: Fried chicken w/dumplings		3.35
Lite Choice: Baby back ribs		3.65
Carvery: Hot ham sandwich		2.95
Grill: Chopped steak grinder		3.10
Taster's Bar: Corn fritters	(oz.)	.25

Thursday, February 11

Soup: Winter		.80/1.10
Entree: Beef stew		3.45
Lite Choice: Fettucine w/broccoli & garlic		3.20
Carvery: Hot corned beef sandwich		2.95
Grill: Sloppy Joe on a bun	(each)	1.25
Taster's Bar: Wing dings	(oz.)	.25

Friday, February 12

Soup: Seafood bisque		.80/1.10
Entree: Macaroni & cheese		3.20
Lite Choice: Baked fish of the day		3.35
Carvery: Hot turkey sandwich		2.95
Grill: Reuben plate		2.95
Taster's Bar: Fried mozzarella sticks	(oz.)	.25

Movie Night . . . Brookhaven Center
Wednesday, February 10 . . . 8 p.m.
The Rocketeer . . . free popcorn!

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Basketball

Games of January 28

Runaways 73		Scram 42	
W. Cummings	19	T. Powers	17
J. Gaeta	15	J. Duggan	7
G. Shepherd	12	A. Boerner	5
P. Ratzke	10	P. Bergh	4
B. Wells	8	E. Gregory	4
B. Doty	5	J. Simms	2
C. Saxen	4	J. Skonieczny	2
		J. Barkwill	1

3-point shots: A. Boerner, W. Cummings (2), B. Doty, J. Gaeta, T. Powers (3), G. Shepherd

Magic 86		Deep Six 42	
T. Buck	24	C. Butts	16
D. Branch	22	N. Donahue	10
D. Hoggard	15	N. Tyler	6
M. Williams	10	R. Hart	4
M. Tardd	6	D. Eleazer	4
L. Walcott	5	U. Tapley	2
J. Garrison	4		

3-point shots: L. Walcott

Standings as of 1/28

Runaways	2-0	Deep Six*	1-2
Magic	2-0	Scram*	0-3
Trailblazers	1-1		

**Deep Six won protested game.*

Film badges will be changed tomorrow. Please place your badge in its assigned rack space before leaving work today.

Bowling

Red/Green League

R. Mulderig bowled a 253/226/212/691 scratch series, K. Koebel 246, B. Erickson 231/609 scratch, J. Muller 228, R. Larsen 226, A. Warkentien 225, F. Hohmann 224, R. Eggert 223/214, M. Guacci 222, K. Asselta 219, A. Pinelli 219, R. Wiseman 212/202, C. Bohnenblusch 204, K. Riker 203, E. Sperry IV 203/201.

White League

Ed Beadle bowled a 219/214/631 scratch series, Steve Gushue 193, Marilyn Picinich 192, Elaine Zukowski 175/171, Jeanne Penoyar 173.

Purple League

Mike Meier had 215/567 scratch, Ben Belligan 212/560 scratch, Ed Sperry IV 211, Brian McCarrick 195, Ralph Vega 194, Larry Musso 190, B. McCarrick 176.

BERA Nominating Committee Named

Consisting of the following chairpersons from active BERA activities, a Nominating Committee has been appointed by the BERA Executive Board to select a slate of four candidates to run for the 1993 BERA Board. Elections are scheduled for the last week in March:

Name	Activity	Dept.	Bldg.	Ext.
Marsha Belford	Dance	DO	134	5053
Robert Chrien	Art	Phys.	510A	3903
Jim Desmond	Basketball	NSLS	725A	5724
Tirre Farmer	Softball	PE	452	3288
Ric Jackimowicz	Golf	RHIC	902A	3803
Darryl Kaurin	Toastmasters	DNE	703M	7829
Bruce Penn	Afro-American	DNE	197C	7213
Ed Sperry	Bowling	RHIC	902A	2674
Terry Sullivan	Volleyball	DNE	830	2840
Doris Terry	Social	DNE	197C	7610

To propose a nominee, employees may contact one of the committee members before Thursday, February 18. Please make certain that anyone being proposed will agree to accept the nomination if selected by the committee.

Last Call At BERA Store

This is the last call for the following BERA activities:

- **Bus trip to Manhattan,** Saturday, April 24, for matinee performance of *Miss Saigon,* South Street Seaport and dinner at Cafe 44, $119/person.
- **Atlantic City bus trip,** Saturday, February 27, $20/person with $10 coin return, choice of $5 food credit or $2.50 additional coin, and $5 deferred voucher.
- **Discount entertainment books,** up to 50 percent off travel, dining, more, expires end of 1993, $30 each.

For more information, call Carolann Zebrowski at the BERA Sales Office, Ext. 3347, 9 a.m. to 1:30 p.m., weekdays.

Classified Advertisements

Placement Notices

The Laboratory's placement policy is to select the best-qualified candidate for an available position. Consideration is given to candidates in the following order: (1) present employees within the department/division and/or appropriate bargaining unit, with preference for those within the immediate work group; (2) present employees within the Laboratory; and (3) outside applicants. In keeping with the Affirmative Action plan, selections are made without regard to age, race, color, religion, national origin, sex, handicap or veteran status.

Each week, the Personnel Division lists new placement notices. The purpose of these listings is, first, to give employees an opportunity to request consideration for themselves through Personnel, and, second, for general recruiting under open recruitment. Because of the priority policy stated above, each listing does not necessarily represent an opportunity for all people.

Except when operational needs require otherwise, positions will be open for one week after publication.

For more information, contact the Employment Manager, Ext. 2882, or call the JOBLINE, Ext. 7744 (282-7744), for a complete listing of all openings.

LABORATORY RECRUITMENT - Opportunities for Laboratory employees.

DD 2351. SECRETARIAL POSITION - (part-time) Requires an AAS in secretarial science or equivalent experience and excellent communication skills. IBM PC experience is also required

(continued on page 4)

as is WordPerfect 5.1 and IPAP travel experience. Duties will include preparing technical reports, and correspondence, and arranging domestic and foreign travel for the Advanced Technologies Division Group Leader and scientific staff. Department of Nuclear Energy.

NS 0781. MANAGER, POLICE GROUP - Requires a bachelor's degree, master's degree a plus, or equivalent experience and a minimum of five years' experience managing a major safeguards and security organization. Substantial background supervising large numbers of people, and excellent oral and written communication skills a must. A broad background in various safeguards and security functions should include nuclear security, protective force training, tactical planning and emergency management of security forces. Must be able to obtain/maintain a DOE "Q" security clearance. Safeguards & Security Division.

OPEN RECRUITMENT - Opportunities for Laboratory employees and outside candidates.

NS 0658. TECHNICAL POSITION - Requires an AAS in a technical field and extensive quality assurance/quality control experience. Knowledge of computer applications is necessary. Responsibilities include participation in QA audits, surveillance, corrective calibration and test activities. Must be able to obtain and maintain a security clearance. Reactor Division.

NS 8163. ENGINEERING POSITION - Requires a bachelor's degree in an appropriate field and several years' emergency planning experience, preferably within a DOE facility; nuclear power plant experience is acceptable. In addition, excellent oral communications skills and technical and writing abilities are required, as is knowledge of SARA and OSHA regulations; industrial hygiene or chemistry background a plus. Must be able to obtain and maintain a security clearance. Safety & Environmental Protection Division.

DD 0505. TECHNICAL POSITION - (term appointment) Requires an AAS in electronic technology or equivalent, and experience in the fabricating and testing of integrated and discrete semiconductor circuits. The ability to work from electronic schematics, verbal instructions and rough sketches also required. Mechanical abilities and design skills (CAD) desired. RHIC Project

DD 1100. TECHNICAL POSITIONS - (term appointments) Requires an AAS or equivalent experience and demonstrated mechanical assembly skills. Experience using measuring instruments such as micrometers and electrical test meters, and the ability to read blueprints is highly desirable. Responsibilities will include RHIC Project magnet assembly in the Production Engineering Section. The ability to work with epoxy bonding agents is required, as is the ability to work shifts. RHIC Project.

DD 1037. TECHNICAL POSITION - (term appointment) Requires an AAS in a relevant field and a minimum two years' experience running precision theodolites and levels. Electronic data collection skills desired, as is knowledge of Mancat and T3000. Will be responsible for the installation of alignment monuments into concrete floors. Previous supervisory experience highly desirable. (reposting) RHIC Project.

DD 1038. TECHNICAL POSITION - (term appointment) Requires an AAS in mechanical technology or equivalent experience and good communication skills. Will be responsible for installing alignment monuments into concrete floor. Experience with optical collimation and precision setting of monuments is highly desirable; experience with core drills and installing anchor shields helpful. (reposting) RHIC Project.

Motor Vehicles & Supplies

91 CHEVROLET CAVALIER Z24 - sports coupe, blue, 6-cyl., 10k mi., ac, estate sale, $10,500. Sharon, Ext. 3995.

90 TOYOTA CELICA GT - 5-spd., black, am/fm cass., CD player, p/w, p/l, ac, cruise, alarm, excel. cond., asking $10,500. Ray, Ext. 3243.

90 FORD TEMPO GL - 4-dr., ac, a/t, 47k mi., am/fm cass., maroon/gray, excel. cond., $6,000. Bob, Ext. 4260 or 472-8215.

89 GEO METRO LSi - 4-dr., 5-spd., red, ac, am/fm, $2,495. Joe, Ext. 2898.

88 PONTIAC GRAND PRIX LE - all options, gar., orig. owner, excel. cond., $5,995. 286-2843.

88 CHRYSLER LEBARON - 4 dr., a/t, ac, cruise, low mi., 7/70 warr., new radial tires. 722-3905.

87 CAMARO - V-6, ac, a/t, alarm, no dents, blue/black int., excel. cond., $4,150. 878-0735.

86 MERCURY MARQUISE WAGON - 4-dr., a/t, ac, all power, 6-cyl., engine seized, best offer. John, Ext. 4414.

86 PLYMOUTH VOYAGER - 2.6L, a/t, am/fm, ac, 80k mi., v.g. cond. Ext. 2420/4830 or 341-1020.

85 PONTIAC GRAND AM - red, ac, 5-spd., sunroof, am/fm, 104k mi., v.g. cond., $1,900. Michael, Ext. 3571/2201 or 341-1025.

85 JEEP - 4wd, 5-spd., new tires, full cabin top, summer top, p/s, 63k mi., Calif. bronze, excel. cond. $4,000. Nancy, Ext. 4177.

85 OLDS CUTLASS SUPREME - green, V-6, a/t, p/s, p/b, ac, am/fm, 4 speakers, extras, 102k mi., excel. cond., $1,500. Sy, Ext. 4992 or 289-8182.

85 FORD ESCORT WAGON - white, a/t, p/s, p/b, clean, 82k mi., must sell, $850. Fong, Ext. 3005.

84 FORD THUNDERBIRD - needs some work, $500. Bob, 369-4624 after 5:30 p.m.

82 PLYMOUTH CHAMP - 4-dr., m/t, am/fm stereo cass., needs clutch, $200. Ext. 5184 or 929-0480.

92 LINCOLN TOWN CAR - am/fm cass., ac, a/t, o.d. 758-2254.

81 MERCURY MARQUIS WAGON - high mi., rust, $385. 331-9887.

81 CELICA GT — a/t, ac, s/r, 100k mi., Goodyear G/T tires, needs engine work, best offer. Tom, Ext. 3531.

81 CADDY COUPE DEVILLE — white w/leather int., garaged, full power, orig. owner, excel. cond., $1,895. 737-1636 after 5 p.m.

79 PONTIAC LEMANS - new batt., exhaust, cat. conv., reliable, $800. Jim, Ext. 3372 or 821-0250.

73 CHEVY STATION WAGON - 350 V-8, ac, p/s, p/b, am/fm/tape, new M&S P225LR15 tires, needs rear brakes, $200. George, Ext. 3061 or 751-0265.

ISUZU PICKUP - 4-spd., am/fm cass., w/cap, 91k mi., good cond., $1,700. Tom, 434-9345.

HARDTOP - for '89 Wrangler Jeep, black, good cond., $400 neg. Joe, Ext. 4986.

CLUTCH - '80 Toyota Tercel, 5-spd., $40. Bob, Ext. 7238.

CAP - A.R.E., alum., w/ladder rack, side opening door w/tool bins, rear opening glass door, black, Mazda, etc., excel. Mike, Ext. 3981.

TRAILER - 4'x8', heavy-duty, 15" wheels, $75. Ken, 331-1841.

SERVICE MANUALS - '66 & '77 Chev., Corvette, etc.; '78 Chrysler, Dodge, Plymouth, excel. cond., $5 ea. Tom, Ext. 4507 or 878-1060.

Boats & Marine Supplies

26' SAILBOAT - 1976 Chrysler, 1991 9.9-h.p. Johnson, swing keel, roomy, clean, sleeps 5, $5,000. Tom, Ext. 7115.

22' MARSHALL CATBOAT - freshwater-cooled Yanmar diesel, VHF radio, depth sounder, Danforth compass, head. Gordon, 477-2269.

31' CHRIS CRAFT BOWRIDER - i/o Merc., 8'6" beam, canvas, am/fm, bottom not painted, E-Z Load trailer, loaded. 732-8793.

19' SPORTCRAFT BOWRIDER - 1990, 131 Volvo i/o engine, extended warranty, trailer, VHF, skis, much more, $12,300. George, 722-3588.

JET SKI - 1986 Kawasaki, 440cc, low hrs. on new motor w/all receipts, off-season sacrifice, must sell, $880. Bill, Ext. 7145.

Furnishings & Appliances

BEDROOM DRESSER - triple, w/mirror, Thomasville, light oak, orig. $800, asking $300. 821-1277.

BEDROOM SET - maple, full bed, 4-poster, bureau, dresser w/mirror, 2 night tables, $300; vanity w/trifold mirror, $50. Sharon, Ext. 3995.

CARPET - 12"x15', nylon, Karastan, gold, $25; 2 cane swag lamps, $15; fondue set, $12. 473-6546.

COUCH - sectional, w/2 recliners & built-in end tables, lamps to match, $550. Rich, Ext. 2434.

COUCH - sectional, blue, w/sleeper, $1,000; crib & changing table, $325; Magic Chef dishwasher, $225; all neg. Tom, Ext. 7287 or 744-4535.

ENTERTAINMENT CENTER - radio, phono, space for TV, speakers, maple, 6'Hx3'x2', $150; hutch, country pine, new cond., $400. 744-3842.

FREEZER - upright; shredder/chipper; antique d/r set; elec. typewriter, all reas. 363-7032.

FREEZER - upright, Admiral, 16 cu. ft., $250; refrigerator, excel., apt. size, energy-efficient, $200. Russ, 325-0563.

FURNITURE - Colonial, 10 yrs. old, orig. $1,500, sell for $400. John, Ext. 2980 or 395-5922.

LIVING ROOM - contemporary, cushioned chairs, gray tweed, 3, sell together or separate, $20/ea. Joann, 472-6742.

RANGE - GE, elec., self-clean, 2 yrs. old, orig. $520, sell for $250. Gene, Ext. 7113.

REFRIGERATOR - Whirlpool, 19 cu. ft., new, almond, $400; Kenmore stove, double oven, almond, $300; $600/both. Ext. 7238.

REFRIGERATOR - GE, 13.6 cu. ft., v.g. cond., white, $125. Martine, 286-9725.

REFRIGERATOR - s/s, Hotpoint, 22 cu ft., sideboard; armchairs; Lazyboy recliner; round table; very reas. Barry, Ext. 4472 or 941-9115.

REFRIGERATOR - Admiral, 3-dr. combo freezer, side-by-side, 18 cu. ft., ice maker, works well, $125. Marty, 654-5888.

SOFA & LOVESEAT - genuine leather, glass coffee table, 3 yrs. old, excel., orig. $2,831, $1,400/all. Grace, Ext. 2529 or 286-0556 eves.

WASHER - Speed Queen, s/s tub, $50; GE dryer, $30; Sears wood furnace, 50k Btu, $75; cast-iron wood stove, $25. Ken, 331-1841.

Tools, House & Garden

DEEP WELL PUMP - ½-h.p., excel. cond., $125. 744-2060.

FIREWOOD - seasoned oak. J. Scesny, 732-2849.

FIREWOOD - seasoned hardwood, split, delivered, $115/cord, $50/half cord. Glenn, 924-2035.

FURNACE - 90k Btu, oil-fired hot air, Beckett burner, controls, humidifier, like new, $350. Ext. 7145.

OUTSIDE SMOKER - elec., fish & meat, w/hickory wood chips & sawdust, $35. Kelly, 744-3069.

WINDOWS - pair, Anderson-type, patio doors, 8x6½', double glazed, $450. Hughes, 286-3301.

Sports, Hobbies & Pets

BICYCLES - 2, 10-spd., good cond., $35/ea. or $60/both. 744-7549 after 4 p.m.

DIE-CAST COLLECTIBLES - racing cars, trucks, 1/64 replicas. Joe, Ext. 5320.

FISHING POLE - 6' shark pole, custom wrap, Diawa 9.0 reel, fighting belt, excel. cond., $150. Artie, 696-2398.

GUITAR - Arta Pro II, elec., model #CS-400, $450; Holmes 100W amp, $75; Fender acoustic, $100. Craig, 744-8765.

GUITAR - Fender Stratocaster, teal blue/white, excel. cond., $300. Dan, Ext. 4605.

GUITAR - Franciscan, Spanish-style, nylon strings, w/case & 2 starter books, never used, $100. Larry, Ext. 4295.

MOPED - Tomas, 25 mph, excel. cond. Mark, Ext. 2599.

SCOOTER - Yamaha, 50cc, new helmet, 1,400 mi., $300; extra helmet, new, $25. Ext. 5080 or 751-1884.

SOLOFLEX - 2 yrs. old, like new, w/leg & butterfly attachments, new set of wt. straps, under warranty, $800. 981-9351 fter 5 p.m. weekdays.

The Brookhaven Bulletin is printed on paper containing at least 50 percent recycled materials, with 10 percent post-consumer waste.

Audio, Video & Computer

ANSWERING MACHINE - AT&T phone, model 1330, v.g. cond., w/tapes, $25. Tom, Ext. 4507 or 878-1060.

COMPUTERS - Atari 1040, ST mono., $300; Atari 520 ST, color, $300. George, 722-3588.

COMPUTER - Commodore 64, w/1541 disk drive, Okimate 20 printer, lots of software, $175. Walter, Ext. 4986 or 757-6392.

COMPUTER - 386-33 IBM compat., 8 meg, 80 meg HD, 1.2 & 1.4 floppies, 14" SVGA monitor, Ioline D plotter, more. $1,950/all. Rich, Ext. 2434.

COMPUTER - Tandy, RL1000, 20 meg, 3½" floppy, 1 expansion slot, mouse, IBM compat., 4 pro. installed. Michelle, Ext. 5975.

COMPUTER - CompuAdd, 286, 20 MB hard drive, mono. monitor, dot matrix printer, MS-DOS, spreadsheet software, $500. D. Hatton, Ext. 5073.

COPIER - Sharp 7100, plain paper, small desktop, recently rebuilt, leter & legal size commercial quality, supplies, $500. Bob, Ext. 7802 or 4446.

DISKS - 360k, 25/pack, Tyvec sleeves, labels, $6; enlarging lens, El-nikor, 50mm. 2.8, excel., $75. Susan, Ext. 7647.

GRAPHICS TERMINALS - Tektronix, w/keyboards; graphics PC system, w/ROM mod., storage system, hardcopy. T. Posillico, Ext. 3007.

INPUT TERMINAL - Linx MC-5, secondary for Unix-based system, w/keyboard, never used, orig. $500, asking $200. Mimi, 727-4718.

MOTHERBOARD - 386DX, 25 MHZ, 9MB memory, expansion board, no CPU, $35. Brain, Ext. 7519 or 234-9487.

SIMM MODULES - 70ns, 1x3, new, never used, $35/ea. or $200/six. Tom, 434-9345.

SLIDE CAROUSEL - $12; man's ice skates, $20; man's bowling ball, $20; stenciled cake dish, $35; tennis racket, $35. Kathy, 744-2203.

STEREO CABINET - oak, glass front, 46"L x 35"H x 17"D, $150. Bryce, Ext. 3668.

VIDEO GAME - Atari Lynx, hand-held, color LCD, w/Slime World, Bill & Ted's Excellent Adventure, $100 or best offer. Pete, Ext. 7657.

VCR - Panasonic, model PV4750, stereo, 4-head, on-screen prog., quartz tuning, HQ, excel. cond., $200. Warren, Ext. 2080 or 924-7552.

Miscellaneous

COATS - burgundy, wool, 4/6, $50; gray tweed suit, 6, $40; fashion boots, 2 pairs, woman's, leather, orig. $90/ea.; sell for $35. Gene, Ext. 7113.

FUR JACKET - silver fox, w/white tuxedo, med., hardly worn, $300. Ext. 3699.

SCHOOL JACKET - Sachem colors, black w/yellow, brand-new, no lettering, large, $30. Ext. 5080 or 751-1884.

SODA MACHINE - old Coca-Cola 10¢ bottles, good cond. Joe, Ext. 5320.

Car Pools

GLEN COVE VICINITY - another traveler wanted to share joys of LIE. Ext. 4386 or 671-3975.

Wanted

JEWELRY - any costume or loose beads, class project. Mail to Marilyn, Bldg. 134C, Ext. 2259.

FRIENDS OF JIM PONTIERI - come to retirement party, 2/25 at the Rec. Bldg,, $20 each, res. & details, RSVP 2/19. Fred Kuehl, Ext. 7947.

OLD FOUNTAIN PENS - cash paid. Catherine, 744-3383.

PEOPLE TO JOIN TOASTMASTERS CLUB - on site, improve your public speaking skills. Darryl, Ext. 7892 or Mike, Ext. 3189.

RECORDS - 33⅓ or 45 rpm, polkas, any year, rock & roll, 1955-65. Frank, Ext. 3120 or 727-5096.

RECORD PLAYER - automatic, 33 & 45. 924-4921.

SKIERS - to ski Windham, 2/17, send $42 for bus & lift to Augie Hoffman, Bldg. 510C.

TRAINS - Lionel & American Flyer, priv. collection, pay top $. 934-4097.

Services

Services are listed in the first Bulletin *of every month as a courtesy to BNL employees. They are neither screened nor recommended by the* Bulletin. *Services forms are available in the* Bulletin *lobby, Bldg. 134.*

ALARMS - installation of all types, ties into central, free estimates. James, 395-6055.

ATTICS & BASEMENTS CLEANED - Tim, 928-5322 after 8 p.m.

BABY CARE - experienced mom seeking children to care for on site, ft/pt, clean, quiet, plenty of TLC. Karen, 341-1007.

BABY-SITTER - mother of one, my home, Mon.-Fri., 5 min. to Lab, reasonable. Camille, 345-2157.

BABY-SITTING - will care for children in my home, near Lab, other BNL refs. 821-1558.

BAKERY-STYLE CAKES - custom designs for all occasions, order early for Valentine's & St. Patrick's Day. Millie Laster, 822-2863.

BRICKWORK - masonry, patios, walks, swimming pools, retaining walls, landscaping ties, Belgium block, 25 yrs. exp., Lab. disc. Tony, 698-9274.

CARPENTRY - dormers, installing windows, extensions, fin. bsmts., garages, roofs, Sheetrock, done w/excellence, free est. Dennis, 395-6055.

CARPENTRY - and cabinet making, first quality, refs. Craig, 744-8765.

CARPET/UPHOLSTERY CLEANING - spot, pet stains, odor removal, auto interior, fabric protector, free est., Lab discount. Jerry, 924-6019, days.

CATERING - good ol' Italian home cooking, homemade pasta, ravioli, eggplant Parm. & so much more, call for menu. Luisa, 395-6055.

CHILD CARE - children, 3-5 yrs., E. Moriches, certified teacher mom, preschool activities. Kathy, 878-8673.

CHIMNEY CAPS - fireplaces, wood, coal & oil flues, stainless steel, lifetime guarante, installed, Lab disc. Mike, 821-5526.

COMPUTER DATING - find your perfect match via "Chat-n-Match" bulletin board. 744-0537.

COOKIES - bakery-style varieties, order by the lb., trays wrapped in cellophane or boxed, on-site delivery. Jon Laster, 822-2863.

COUNSELING exp., lic. social worker will help w/individual, marital, or family problems, insurance reimbursable. Linda, 929-5860.

DJ/MC - party & dance music from 40s-90s, all occasions, music & entertainment personalized for your affair, BNL refs. Lou, 698-8210.

DOLL RESTORATION - old dolls lovingly restored, cloth bodies duplicated, re-stringing, custom clothing for most dolls. Arlene, 473-6680.

DOOR REPAIRS - and installations, int./ext., patio & storm doors, lic. & ins. Al, 928-7239.

DRYWALL - spackle, painting, int./ext. renovations, windows, doors, roofing, decking, fast, clean work, reas. prices, free est. Scott, 325-0706.

ELECTRICIAN - all phases of electrical work, service upgrades, high-hats, storm damage repair, lic. & insured. Gregg, 874-8631.

FACIALS - color analysis & complete make-overs. Michele, 733-4125.

FLOORS - waxing, stripping, carpets & upholstery shampooed, house cleaning, windows, free est. Leo, 447-6522.

HEATING - ac, ref., hot-water heat pumps, professional, reas., lic. & insured. Jerry, 399-6457.

HOME IMPROVEMENT - carpentry, drywall, spackling, painting, plumbing, ceramic tile, free est., Lab disc. Don, 744-2921 after 5 p.m.

HOME INSPECTION - by professional engineer, lic., exp., Lab disc. 751-2469.

HOUSE CLEANING - reas., very efficient,, refs. Marty, 399-3496 any time.

KAYAK LESSONS - basic & intermediate, 6 weeks per course, start 2/20, SUNY Stony Brook pool. 281-7873.

LOCKSMITH - sales & service, 10% Lab discount, keys cut during lunch. Pete, 399-2813 after 5 p.m.

MAILBOXES - custom-made, heavy gauge steel, 9 custom colors, free lettering, free catalog, installation avail, 20% Lab disc. Mike, 821-9709.

MAINTENANCE - home & business, repairs or new, qualified, honest, reliable. 878-1178.

PAINTING - power washing, cedar shakes, decks, fences, alum. siding, refinished, waterproofing, int. & ext. painting, quality work. Ed, 399-5701.

PAINTING - int./ext., spackling, Sheetrock, polyurethane, power washing, roof, seamless gutters, decks, more, ins. James, 399-4912.

PLUMBING - heating alterations & repair work by retired BNL employee. Jim Morris, 472-1205.

POOL TABLE RECOVERY & REPAIR - choose from 27 custom colors. Philip, 369-9610.

REFRIGERATION - air cond., hotwater heaters, repaired, installed, free est., lic., insured. Jerry, 399-6457.

ROOFING - Lab discount, many Lab refs., free est., lic. & insured. Joe, 395-6767.

SECURITY ALARM SYSTEMS - cental station monitoring, Lab disc., Bob, 654-3989, or Gregg, 874-8631.

SHEETROCKING & SPACKLING - free estimate. Kevin, 563-9855.

SKYLIGHTS - complete, prof. service, cleaning, preventive maint., installations. Joseph, 924-6019.

TAXES - also bookkeeping. Loretta. 929-8287.

TAXES - individual taxes prepared at home, N. Patchogue. Nick, 475-8330.

TAX PREPARATION - taxes prepared in your home or mine, reas. rates, 7 years exp., resident aliens welcome. Bruce, 821-2395.

TAX PREPARATION - 20 yrs. exp., IRS enrolled, prepared in your home, reas. Jack, 864-2236.

TAXES PREPARED - by tax consultant, your home or mine, reas., servicing Lab people for over 15 years. John, 732-2472.

TUTOR - SAT, communication skills, individualized instruction, also resume advice, preparations & printing. 924-5505.

TYPING - word processing, tape transcription avail., reas., 24-hr. turnaround, pickup avail., IBM compatible computer, Heidi Quigley, 929-3071.

VIDEOGRAPHER - capture those precious moments on video, will tape weddings, parties,, all occasions. Larry, 281-7240.

WELDING - repairs, window & door guards, railings, flitch plates, columns, trailers, snow plow & equip. repairs, immed. service, Tony, 281-2513.

WOODWORKING - custom, your design or mine, for kit. cabinets, tables, bookshelves, dresser, etc. Phil, 722-3010.

WORD PROCESSING - manuscripts, resumes, database, mail lists/labels, edit, laser printer, fax, Janice Lamb, Office Services. 589-2848.

In Appreciation

Thank you to everyone who thought of me at the time of my loss. — Sally Calabrese

Our sincere thanks go out to all our BNL friends and co-workers for their support and expressions of sympathy at the loss of my wife Joan.
— Les Lawrence & family

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