BROOKHAVEN BULLETIN
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BROOKHAVEN NATIONAL LABORATORY

Model Plans for Future Power Needs

Imagine a typical New York heat wave — the temperature way up, the humidity unbearable, a warning issued against using much air-conditioning, and one's computer about to crash in the brownout.

Preventing this nightmare in the future was the main subject at the Workshop on Modeling of International Electricity Exchanges held at BNL on April 5-6. The workshop organizers were Douglas Hill and Miriam Kroon of the Department of Applied Science (DAS).

Present at the workshop were 31 researchers and analysts, representing governments, academic institutions and the electric power industry. They met to review progress in the analysis of international electricity exchanges — most especially, the export of additional electricity from Quebec, Canada, to the United States.

This electricity may become less expensive through the U.S. and Canada Free-Trade Agreement recently signed by the President. In the agreement, the "least-cost alternative test" that now sets a minimum price on Canadian electricity is eliminated.

Studies indicate that Canada has vast hydroelectric resources that can provide electricity to the U.S. as well as meet Canada's own domestic needs. At the workshop, Jeffrey Skeer from the Department of Energy's (DOE) Office of Policy, Planning and Analysis, analyzed "Nine Scenarios for Canadian Electricity Exports Through 2010."

Using published Canadian information, Skeer compared the cost of developing and transmitting hydro-

(Continued on page 2)

Mort Rosen

Photographed during a break in the Workshop on Modeling of International Electricity Exchanges held at BNL on April 5-6 are (from left): Jeffrey Skeer, Office of Policy, Planning and Analysis, Department of Energy (DOE); Carol Lee, Office of International Affairs, DOE; James Parmelee, New York State Energy Office; Alain Haurie, GERAD, Ecole des Hautes Etudes Commerciales, Montreal; Francis Dupuis, Hydro-Quebec, Montreal; Miriam Kroon, BNL; and Robert Eynon, Energy Information Administration, DOE.

Light Comes Out Of X-Ray Ring

X-ray light was let out of the x-ray ring at the National Synchrotron Light Source, as the recommissioning of the ring progresses following a major, scheduled shutdown.

For 18 minutes, the light shone down beam line X-14 beginning at 3:10 p.m. on Tuesday, April 19, according to X-Ray Ring Manager Benjamin Craft. At that time, the x-ray ring was circulating electrons at the design energy of 2.5 billion electron volts (GeV), a parameter that had been reached two days before, on April 17.

The fact that light came out of the synchrotron and down a beam line means that the position of the electron beam orbit has been roughly established. As soon as the orbit is corrected and the operating position prior to the shutdown restablished, alignment of the experimental beam lines can take place.

Before that, however, the x-rays will be kept within the ring, where they will be used to clean the wall of the vacuum chamber in which they circulate. X-rays can eliminate the residual contaminants that negatively affect the electron beam's lifetime.

BNL Lecture: Modern Views of Molecules

Atoms join together to form molecules, and they form the world as we know it. Most of the time, a molecule is in its ground state, in which the nuclei and electrons that combine to form it are near or at their lowest energy level. With some extra energy, however, a molecule can go from its ground state to an excited state.

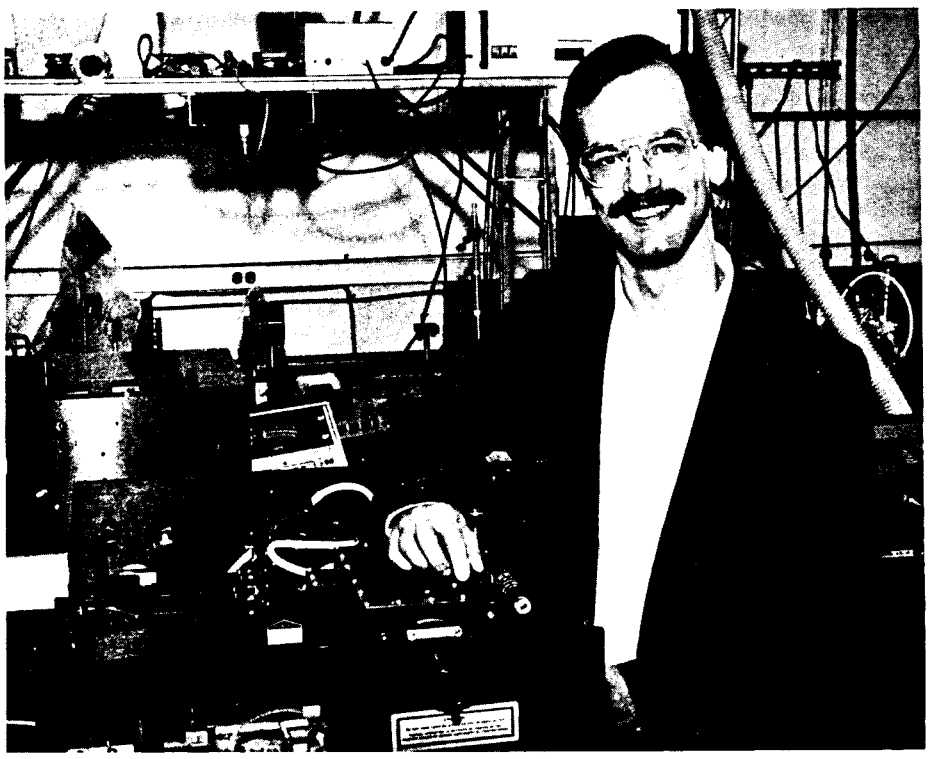
As the excitation energy is increased further, the excited electron can be completely removed from the molecule, resulting in a molecular ion and a free electron. If this excess energy is provided by the absorption of energetic light, the process is called *photo*ionization.

Coupled with tunable light sources, photoionization is an extremely powerful tool for investigating the energy states of molecules and gas-phase chemical dynamics. Although vacuum ultraviolet light (VUV), such as that produced at the NSLS, is often used for photoionization studies, modern, high-power pulsed lasers make it possible to ionize atoms and molecules with visible and near ultraviolet light by inducing *multiphoton* ionization.

Such "Modern Views of Molecules by Multiphoton Spectroscopy" will be discussed by Chemist Michael White, Chemistry Department, when he gives the 243rd Brookhaven Lecture. His talk will begin at 4:30 p.m. on Wednesday, April 27, in Berkner Hall.

Ionizing molecular ground and excited states requires an intense, tunable source of energetic radiation. White has two complementary sources of such radiation at his disposal: At beam line U11 of the VUV ring at the National Synchrotron Light Source

(Continued on page 3)



Peter Horton

Michael White

Scharff-Goldhaber Honored as Lifelong Woman in Science

About 100 of her colleagues, family and friends came to honor Gertrude Scharff-Goldhaber for her lifelong contributions both to science and to the cause of women in science, at a Nuclear Structure Colloquium and testimonial dinner on Thursday, April 14. At that time, she was made a lifetime member of Brookhaven Women in Science, which sponsored the event. Scharff-Goldhaber is seen speaking about her research, which she discussed in one of the three Colloquium lectures.

Peter Horton

Gertrude Scharff-Goldhaber

Former Associate Director Rodney Cool Dead at 68

Rodney L. Cool, the well-know experimental physicist who was BNL's Associate Director for High Energy Physics from 1966-70, died of cancer Saturday, April 16, in New York He was 68 years old.

Since leaving Brookhaven, Cool had been associated with Rockefeller University, where he established an experimental physics group.

Among the recent studies on which Cool had collaborated was the CERN experiment that confirmed the theory postulating the existence of quarks as the fundamental building blocks of nuclear particles.

After obtaining his Ph.D. from Harvard University in 1949, Cool came to BNL as an Associate Physicist, becoming a Physicist in 1953. He was appointed Senior Physicist and Deputy Chairman of the Physics Department in 1960. Four years later, he became Assistant Director, and he was named Associate Director in 1966. He was also Chairman of BNL's High Energy Advisory Committee.

Even with his administrative responsibilities at BNL, Cool managed to find time to participate in experiments. He was involved in the first hyperon magnetic moment experiments at the Cosmotron and the Alternating Gradient Synchrotron (AGS). These were succeeded by a whole series of high precision total cross-section experiments at both the AGS and Fermi National Accelerator Laboratory.

Throughout his years at BNL, Rodney Cool was a Bellport resident. In later years, he resided in Manhattan.

He is survived by his wife Margaret; three daughters: Ellen Kwait, of Marblehead, Massachusetts, and Adrienne Cool and Mary Gupta, both of Boston; a son John, of Pelham, New York; six grandchildren and a sister, Harriet Hanna, of Orange, California.

A memorial service will be held at Rockefeller University on Thursday, April 28, from 3-4:30 p.m., in the Caspary Auditorium.

Power Needs (cont'd)

electricity with the cost of operating domestic U.S. coal plants. He concluded that much of this Canadian potential can be economically developed for export to the U.S.

In New York State (NYS), importing electricity may significantly affect the pattern of fuel use and the types of power plants needed. For example, with additional transmission lines, imported electricity could help with base loads while NYS utilities cover peak power needs with gas turbines.

The complexity of the possible alternatives makes a computer model an invaluable decision-making tool for electric utility planners. The Groupe d'Etudes et de Recherche en Analyse des Decisions (GERAD), Montreal, and over a score of countries have successfully used MARKAL as a method of evaluating energy needs.

MARKAL is a energy system model. It was developed at BNL in the late 1970's in cooperation with the West German laboratory Kernforschungsanlage Jülich, under the aegis of the International Energy Agency. Alain Haurie, Director of GERAD, has modified MARKAL to represent two energy systems with separate electricity grids — Quebec and NYS.

Another member of GERAD, Richard Loulou, Professor of Management at McGill University, Montreal, commented on the criticism that such models do not reflect realistic behavior of the market. GERAD has begun to overcome this problem with a method of altering computations to get a close approximation of real market prices.

Since Quebec's resources have the capacity to supply power to New England, Ontario and possibly the Midwest, GERAD is also developing a multiregional extension of MARKAL. At the workshop, Robert Eynon, Chief of Data Analysis and Forecasting for the Energy Information Administration, DOE, encouraged the notion of multiregional modeling, which, he believes, could be very useful in understanding the dynamics of trade among the provinces of Canada and the northeastern U.S.

The need for this international modeling typifies the increasingly complex problem faced by utility planners, according to Seymour Baron, BNL's Associate Director for Applied Programs. He discussed the current Federal Energy Regulatory Commission proposal to allow market forces to set prices for new power supplies. Unregulated power producers are being encouraged to build new power plants historically built by regulated utilities.

Such market competition is already taking place in New England, agreed Bruce Bentley, New England Power Planning. Kroon suggested that some of the problems might be solved by using different kinds of models for the different aspects to be resolved.

To the workshop attendees, the unanswered questions strongly suggest a continuing need for a forum on the new electric utility planning. Concluded Frank Salzano, BNL's Office of Research and Technology Applications, "This workshop has provided useful dialogue. We hope to continue with this kind of meeting, perhaps at the new BNL Utility Research and Development Center. The program at the Center, which will open in the near future, is expressly designed to facilitate interaction and technology transfer between utilities and Brookhaven Lab."

— Liz Seubert

IBEW Meeting

Local 2230, IBEW, will hold its regular monthly meeting on Monday, April 25, 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.

1988 AUI Scholarships Announced

Fourteen sons and daughters of BNL employees have been chosen to receive 1988 AUI Trustee Scholarships. Each winner will receive $2,000 towards his or her college education, for up to four years of study.

The finalists were selected from 76 applicants by an independent committee appointed by the College Scholarship Service, Princeton, New Jersey, which administers the program for Associated Universities, Inc.

Marko Burgar is the son of the late Ludvik Burgar, Applied Mathematics Department. He lives in Centereach and attends St. Anthony's High School in South Huntingon. To major in economics or history, he will attend Notre Dame University.

Susannah Gardner, the daughter of Donald Gardner, Physics Department, lives in Bellport and attends Bellport High School. She plans to matriculate at the Massachusetts Institute of Technology, to major in mechanical engineering.

Norman Chou is the son of Mei Han Chou, Chemistry Department, and Tzi-Shan Chou, National Synchrotron Light Source Department. A student at Ward Melville High School, he lives in Setauket. He will matriculate at either Dartmouth College or Stanford University, to pursue a biology major.

Michael Gordon, the son of Howard Gordon, Physics Department, is a resident of Flanders and a student at Riverhead High School. To major in physics, he may attend Yale University.

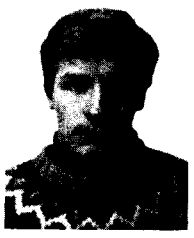
Brian Conrad, son of Cheryl Conrad, Department of Nuclear Energy, will enter either Harvard University or Stanford University to major in mathematics. He is now a student at Centereach High School, residing in Selden.

Ahovi Kponou is the son of Barbara Kponou, Instrumentation Division, and Ahovi Kponou, Alternating Gradient Synchrotron Department. A Rocky Point resident, he attends Rocky Point High School. He will major in economics at either Harvard University or Stanford University.

Keith Conrad is a son of Cheryl Conrad, Department of Nuclear Energy. He resides in Selden and is a student at Centereach High School. To pursue either a mathematics or a physics major, he plans to attend either Princeton University or Stanford University.

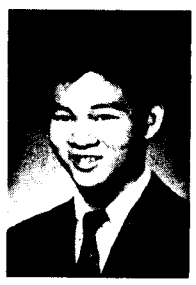
Jason Mouzakes, son of Sylvia Mouzakes, Staff Services Division, lives in Rocky Point and is a student at Rocky Point High School. To pursue his interest in medicine, he will enter a seven-year accelerated program run by Union College and Albany Medical College.

Jean Cornish, the daughter of George Cornish, Alternating Gradient Synchrotron Department, is a student at Deer Park High School and lives in Deer Park. She is planning to matriculate in the University of Delaware honors program, majoring in the biological sciences.



James Rorer is the son of David Rorer, Reactor Division. A resident of Port Jefferson, he is a student at Phillips Exeter Academy in New Hampshire. He will major in science at Duke University.

Jared Cumming, the son of James Cumming, Chemistry Department, lives in Bellport and attends Bellport High School. He will enter Williams College, where he will major in physical science, with course work in liberal arts.



Peter Shiue is the son of Grace Shiue, Biology Department, and Chyng-Yann Shiue, Chemistry Department. A resident of Setauket, he goes to Ward Melville High School. At either Brown University or the University of Chicago, he will study biology, in hopes of pursuing a career in medicine.

Jennifer Dickinson is the daughter of Thomas Dickinson, National Synchrotron Light Source Department. A student at Bellport High School, she lives in Brookhaven. She will enter Bryn Mawr College, where she will major in linguistics.

Joyce Warner, the daughter of George Warner, Instrumentation Division, is a resident of West Sayville and a student at Sayville High School. To major in languages, she plans to matriculate at the State University of New York at Stony Brook.

Equipment Demo

Multichannel data acquisition will be discussed in a seminar on Monday, April 25, to be given by Richard Brown, Sales Engineer for Nicolet Instrument Corporation. For this presentation, he will be joined by two factory engineers, from 10 a.m. to 3 p.m., in Room D, Berkner Hall.

The seminar will feature the capabilities of the soon-to-be-announced Nicolet System 500, which include: up to 496 channels of input, up to one million points per channel, 10 MHz - or faster — digitizing rates, 68020-based controller and a Compaq 80386 (20 MHz) system controller supplied with complete Microsoft Windows software.

Other recent products from Nicolet will be shown in the Berkner Hall lobby.

Local Users Group

Conflicts with other Labwide meetings have made it necessary to reschedule the next Upton Users Group meeting for Wednesday, May 11. The meeting was originally planned for April 27.

Arrivals & Departures

Arrivals

Marylin A. Banks ..... Tech Info.

Departures

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

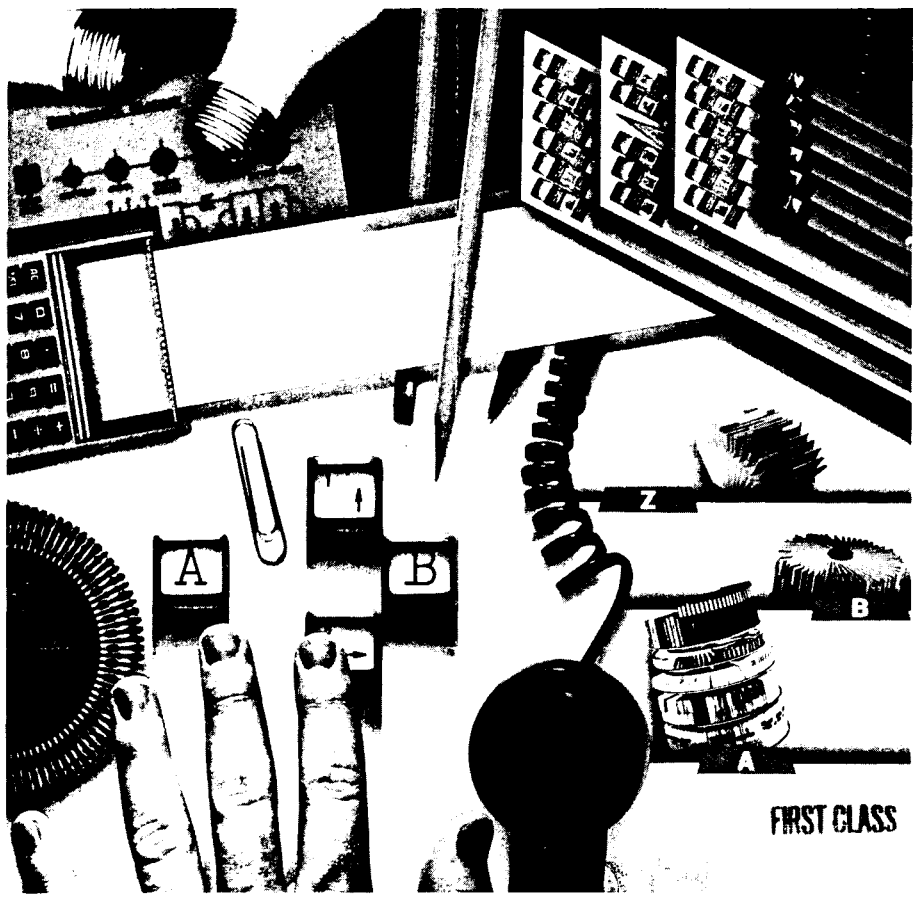
Joanna T. Hanz ..... Medical
David R. Seebaugh ..... Medical

If You Don't Have Children . . .

Or if you can't afford the rates charged by local day-care centers, don't throw away your child-care survey form.

If you don't have children who require child care and don't plan to, there still are questions on the form for you to answer. If you can't afford the day-care center rates, there is space for you to indicate what care your children do require and what you are paying at present.

If you threw out your form but would like another, please contact Ruth Coughlan, a member of the Child-Care Initiative Committee, at Ext. 5060.



WORLD OF OPPORTUNITY

Today's secretaries must be at ease in the world of technology. The "World of Opportunity" that this technology opens is illustrated in this poster designed to promote Professional Secretaries Week, April 24-30, and Professional Secretaries Day, Wednesday, April 27.

Professional Secretaries week dates from 1952, when Secretary of Commerce Charles Sawyer proclaimed Secretaries Week and Secretaries Day, after meeting with National Secretaries Association (NSA) President Mary Barrett. Its purpose was to recognize ". . . the American secretary, upon whose skills, loyalty and efficiency the functions of business and government offices depend." Its objective was to call attention "through favorable publicity, to the tremendous potential of the secretarial career."

In 1955, the last week in April became the permanent date for observing the week, and Wednesday of that week was singled out for Secretaries Day. In 1981, when the NSA changed its name to Professional Secretaries International (PSI), the name of the week was changed to Professional Secretaries Week.

An Upton Chapter of PSI was formed in 1982. For more information about PSI, call Membership Chair Sharon Jones, Ext. 2493.

PSI News

In collaboration with Martesa Fashion and Rose Jewelers, the Upton Chapter of Professional Secretaries International will present a fashion show and luncheon on Saturday, April 30, from noon to 4 p.m. At a cost of $15 per person, it will be held at the Medford Brauhaus, Rt. 112, Medford. For further information, call Cheryll Christie, 654-2041, or Pat Towey, Ext. 3445.

Aviation Club

About 200 area pilots will gather in Berkner Hall to discuss the proposed new FAA airspace regulations. The meeting, sponsored by a number of flying organizations, including the BNL Aviation Club, will take place on Friday, April 29, at 7 p.m.

Congressman George Hochbrueckner will be present, and the principal speaker will be Martin Shuey, the vice president for airspace regulations and technical affairs for the Airplane Owners and Pilots Association.

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Antique & Classic Motoring Club

The Antique & Classic Motoring Club has planned its first cruise of the year, to the Mattituck Armory and Antique Museum, on Sunday, May 1. The Mattituck complex houses WWII vehicles and memorabilia and East End autos.

Weather permitting, the group will meet at the Brookhaven Center at 10 a.m., for a departure at 10:30 a.m. sharp.

For more information, call Ken Asselta, Ext. 5110 or 4581.

Bowling

Red/Green League
High games were bowled by K. Riker 230, J. Morris 212/222/612 scratch, R. Mulderig 215/212/620 scratch, C. Bohnenblusch 215, H. Marshall 209, C. Bachsmith 202.

White League
Rich Scheidet rolled a 233, Jim Petro 219/208, Ed Beadle 203, Kathy Griffin 202, Pat Manzella 184, Sandy Asselta 183, Betty Jellett 182.

Purple League
Dick Adams had games of 231/200, Ed Meier 201, Mary Grace Meier 188/186, Caryl MacDougall 188/181, Sharon Smith 185.

Nursery School

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

For more information, call Marypat Takacs, 727-3218, or Marietta Veligdan, 878-6098.

BNL Lecture (Cont'd)

(NSLS), he studies direct ionization from the ground state using very energetic VUV radiation; in his Chemistry Department laboratory, using a tabletop laser, White looks at the multiphoton ionization of molecules from optically-prepared excited states.

In his talk, White will focus on the laser work that he and his collaborators have developed at BNL. First, he will discuss the basic characteristics of high-power, pulsed lasers, which make multiphoton ionization possible, and describe the Chemistry Department's versatile, megawatt Nd:YAG laser system, which provides narrow-band radiation throughout the visible and near-ultraviolet regions.

By analyzing the energy and direction of the elctrons that are ejected in the multiphoton ionization process, White can investigate the electronic structure of the excited and ionic states, as well as the spatial orientation of the molecule.

Recently, as White will describe, he and his colleagues have developed a new probe of molecular state alignment involving a two-color, two-polarization, multiphoton ionization scheme.

The technique, called circular dichrosim in angular distributions (CDAD) looks at dichroic effects resulting from ionization by circularly polarized light. Unlike other circular dichroism experiments, such as that found in biochemistry, CDAD does not result from an inherent asymmetry of the atom arrangement in the molecule, but from the non-random motions of the molecule induced by multiphoton excitation or other alignment processes.

White will report how the results of recent experiments firmly establish the utility of the CDAD method for determining spatial alignment and provide a foundation for its extension to the study of such alignment induced by chemical processes.

Michael White was graduated from the University of Pittsburgh, with a degree in chemistry, in 1974. After earning his Ph.D. in chemistry in 1979, from the University of California, Berkeley, White spent a year as a postdoctoral fellow at the University of British Columbia, Vancouver, Canada.

He came to BNL in 1980, as an Assistant Chemist, becoming an Associate Chemist in 1982. White was named Chemist in 1984.

All those interested in getting together after the lecture are invited to go with the lecturer to a restaurant off site. To be part of this group call Jonathan Hanson, Ext. 4378.

WIS Meeting

Larisa Rudenko, Biology Department, will talk about "The Correlation Between DNA Damage and Biological End Points," as the next guest speaker at a Brookhaven Women in Science luncheon meeting. The meeting is scheduled for noon on Wednesday, April 27, in Room A, Berkner Hall.

Rudenko is a doctoral candidate in the Cellular & Molecular Pharmacology Program at the Medical School of the State University of New York at Stony Brook. Currently, she is completing her research in the mechanism of genetic toxicology in BNL's Biology Department, under the guidance of Richard Setlow, Associate Director for Life Sciences.

Everyone is invited, please bring your lunch.

Spring Sprung

One hundred-twenty BNL'ers and friends sashayed Saturday night away at the "Leap Into Spring!" square dance and contradance, netting $200 for the Renate W. Chasman Scholarship Fund sponsored by Brookhaven Women In Science. Tax-deductible contributions may be made to the Chasman Scholarship Fund, P.O. Box 183, Upton, N.Y. 11973.

On Site

To install water facilities at the Chilled Water Facility, the contractors will be excavating across Rochester Street over the next two to three weeks. During this period, Rochester Street will be closed periodically near the Service Station. Follow the traffic signs and avoid the area while this work is proceeding.

Volleyball

Standings - Week of April 11

League I (playoffs)		League II	
Upfagrabs defeated		Nuts & Bolts	36-18
Cannonballs		Set-Ups	35-19
Dinkers defeated		Slammers	32-22
Xrayted		Fossils	28-26
		Chunga's Revenge	26-28
		Upton Ups	18-36
		Photons	14-40

League III		Open League	
Sourcerers	44-16	Phoenix	42-9
Printouts	44-16	Dakota	41-10
Spikes	38-22	Serendipity	42-12
Renegades	31-29	Not Too Bad	22-29
MISfits	30-30	Rowdy Radicals	15-36
Screwballs	24-26	Duituits	10-41
Airheads	16-44	Leftovers	8-43
Good Times	13-47		

Second Camp Upton Relic Found

Like Plant Engineering's Michael Tesla, George Dell, a physicist in the Accelerator Development Department, likes to take noontime walks around the Lab site.

So when Dell read in the Bulletin about the live land mine left over from the site's days as the U.S. Army's Camp Upton that Tesla had found during one such walk on April 5, Dell thought it best to report the suspicious, rusted object he had noticed during his strolls through the woods north of the Collider Center, Bldg. 1005S.

The report was made at about 1 p.m., on Friday, April 15. By 3:30 p.m., the area was cleared and secured, and personnel from the Suffolk County Police Department's Emergency Services Section were on the scene — ready to use their new Hadrian robot for the first time.

Working flawlessly, the robot picked up the suspect device, took it to a nearby hole the police had dug in the woods and dropped it in the hole. At 5:31 p.m., an attempt was made to detonate the device by remote means. It did not explode, leading to speculation that it was a training device from the Camp Upton era.

Dell described the device as looking "like a piece of metal, except for the end, which looked like a shotgun shell."

Despite the object's now apparent lack of danger, Roy McWilliams, the Safety & Environmental Protection Division's representative on the Lab's Firearms Committee, said, "Dell did absolutely the right thing. There was no way to tell whether or not the device was dangerous until the detonation attempt was made."

McWilliams reminds employees who find suspicious objects to leave them untouched and report them to Lab Security, Ext. 2238, immediately.

Cafeteria Menu

Week of April 25

Monday, April 25

Tomato rice soup	(cup)	.75
	(bowl)	.95
Baby beef liver w/ sautéed onions & 1 veg.		2.85
Cheese ravioli w/ sauce & garlic toast		2.75
Broccoli & cheese quiche & 1 veg. (lite-weight)		2.85
Hot Deli: Baked ham		2.75
	(roll)	2.85
	(hero)	2.95

Tuesday, April 26

Bavarian lentil soup	(cup)	.75
	(bowl)	.95
Orange chicken w/ 1 veg.		2.85
Beef, macaroni & tomatoes w/ 1 veg.		2.75
Chef's salad (lite-weight)		2.25
Hot deli: Italian meatball hero		2.85

Wednesday, April 27

French onion soup	(cup)	.75
	(bowl)	.95
Top round of beef au jus & 1 veg. (lite-weight)		3.05
Pork El Paso w/1 veg.		2.85
Pizza deluxe	(slice)	1.35
Hot deli: Roast turkey	(bread)	2.75
	(roll)	2.85
	(hero)	2.95

Thursday, April 28

Split pea soup w/ ham hocks	(cup)	.75
	(bowl)	.95
Chicken breast parmigiana w/1 veg.		2.85
Baked fresh fish w/ parsley, lemon & 1 veg. (lite weight)		2.95
Hot deli: BBQ pork on a bun		2.75

Friday, April 29

New England clam chowder	(cup)	.75
	(bowl)	.95
Salisbury steak w/ gravy & 1 veg.		2.75
Chicken chow mein w/ noodles over rice		2.85
Fillet of fish Florentine w/1 veg. (lite-weight)		2.95
Hot deli: Fishwich on a bun		2.75

Classified Advertisements

Placement Notices

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

Each week, the Personnel Office lists new personnel placement requisitions. The purpose of these listings is, first, to provide open placement information on all non-scientific staff positions; second, to give employees an opportunity to request consideration for themselves through Personnel; and, finally, for general recruiting purposes. Because of the priority preference policy stated above, each listing does not necessarily represent an opportunity for all candidates. As a guide to readers, the listings are grouped according to the anticipated area of recruitment.

Except when operational needs require otherwise, positions will remain open for one week following publication date.

For further information regarding a placement listing, contact the Employment Manager, Ext. 2882.

LABORATORY RECRUITMENT - Opportunities for Laboratory employees only.

2836. HELPER A - Under general supervision performs a variety of tasks in Central Shops. Requires knowledge in that trade, although not that of a craft person. Duties will include handling minor assignments and assisting craft people in more complex assignments. A valid driver's license is required. Central Shops Division.

2837. SITE SUPERINTENDENT POSITION - Requires a bachelor's degree or equivalent experience in a relevant field. Responsibilities will include overseeing the maintenance of all roads, grounds and land on site, and providing custodial and rigging services for the Laboratory. In addition, will plan, direct and control the service functions of these maintenance units and coordinate the work, considering Division and Laboratory requirements. Heavy equipment maintenance and lifting experience highly desirable. Position reports to the Manager, Operations and Maintenance Division. Plant Engineering Division.

2838. SECRETARIAL POSITION - Requires AAS in secretarial science or equivalent experience and a thorough knowledge of Laboratory policies and procedures. Responsibilities will include typing technical manuscripts and correspondence on a word processor, and arranging foreign and domestic travel. Additional duties will include coordinating workshops, conferences and meetings, and maintaining budgets and records. Will interact with group members at various locations in the U.S. and Europe and act as contact person for visiting staff. Word processing experience essential. Personal computer experience desired. Physics Department.

2839. MAINTENANCE MANAGEMENT POSITION - Requires BS in industrial engineering, industrial management or an appropriate field. Will assist the Manager, Operations & Maintenance Division in developing maintenance policies, establishing of priorities, scheduling routines and creating reference files. Under general guidance, will direct the preventive maintenance and work-order management within Plant Engineering. Requires knowledge of and experience in industrial engineering, work measurement and prior supervisory experience. Experience in planning and estimating highly desirable. Must be proficient with personal computers and automation principles. Plant Engineering Division.

2840. DRIVER - Will be responsible for driving on site and occasionally off site. Additional responsibilities include making deliveries both on and off site. Must have a valid Class 3 driver's license or ability to obtain a Class 3 license within six months. Supply and Materiel Division.

OPEN RECRUITMENT - Opportunities for Laboratory employees and outside applicants.

2841. ELECTRICIAN A - (2 openings - temporary 5/31 - 9/30/88) Under minimum supervision, lays out, constructs, installs, maintains, repairs and operates systems, equipment, controls and related devices. Requires minimum of five years' industrial electrician experience. Plant Engineering Division.

2842. P&GA SPECIALIST - (darkroom) Requires AAS in photography or equivalent and 3-5 years' experience in both color and black & white photographic processing and printing. Experience in the use of copy camera and the production of color slides, as well as maintaining and servicing equipment necessary. Photography & Graphic Arts Division.

2843. TECHNICAL POSITION - Requires an AAS degree in electronic technology or equivalent experience and background in complex electronic and electromechanical equipment, including vacuum systems. Will construct, repair, modify and operate equipment and facilities at the Tandem Van de Graaff Accelerator. Must be willing to work shifts. (Reposting of Job No. 2811) Physics Department.

2844. TECHNICAL POSITION - Requires an AAS degree in electronic technology or the equivalent experience. Must be experienced in the construction, test, repair and maintenance of rf equipment. Experience with digital circuitry and power supplies desirable. Alternating Gradient Synchrotron Department.

2845. METAL WORKER MAINTENANCE A - (temporary 5/31/88 - 9/30/88) Will construct and install a variety of metal equipment needed in plant maintenance such as sinks, gutters, ventilating hoods, stands, hangers, etc. Perform layout, preparation, measurement, assembly and installation. Perform necessary brazing, welding, and silver soldering incidental to the job. Make own templates, sharpen tools, and perform maintenance incidental to operation of machines. Plant Engineering Division.

2846. SCIENTIFIC ASSOCIATE POSITION - (2 year appointment) - Requires BS in biophysics, physics, chemistry or equivalent work experience. Proficient computational skills necessary. Will work on all aspects of neutron scattering users program. Biology Department.

Motor Vehicles & Supplies

83 305 V8 CHEVY ENGINE - complete, low mileage, excel. cond., $900; 350 V8 Chevy engine parts available. Tom, Ext. 4084 or 878-1060.

88 TRAVEL TRAILER - 32', a/c, sleeps 5-6, must sell, asking $18,000. Dan or Darlene, 929-8673.

84 RENAULT ENCORE - 4 dr., a/c, 54k mi., red, excel. cond., $2,800; 74 Volvo, runs well, $700. Torsten, Ext. 3817 or 878-1210.

80 TOYOTA CELICA GT - 5-speed, moonroof, cass., widget, good cond., runs well, $1,700. Bill, Ext. 2378 or 758-3284.

FORD F-250 TRANSMISSION - $300; 5-speed industrial motor, must sell, $150. 744-3968, leave message.

82 FORD ESCORT-L - red, 2 dr., hatchback, good cond., $1,100. Phillips, Ext. 4235 or 288-1556.

HIGH PERFORMANCE PARTS - for Ford small block motors. Wayne, Ext. 3499.

SCOTTY TRAVEL TRAILER - 14', stove, ice box, toilet, sleeps 5, can be pulled by 4 cyl. car, good cond., $600. 878-2239.

72 YAMAHA 650 - new tires, battery, many extras, good cond., $300. Kevin, 281-8031.

87 E150 CARGO VAN - 15k mi., 6-year warranty, 6 cyl. Dave, Ext. 2076.

80 MAZDA PICKUP - cap, new tires, $600. R. Larsen, Ext. 3464.

84 FORD MUSTANG - console, am/fm tape, p/s, a/c, sunroof, alum. wheels, excel. cond., asking $5,500. Ext. 4846 or 363-6940.

81 BUICK CENTURY ESTATE WAGON - loaded, V6, $3,500. Ext. 4682 or 689-8740.

86 SUBARU GL-10 - 4WD, loaded, turbo, 5-speed, 40k mi., unlimited mileage warranty, asking $12,500. Henry, Ext. 4547 or 727-7227.

77 TOYOTA CELICA GT - 87k mi., good tires, 5 speed, very good mech. cond., needs radiator, $1,000. Rick, Ext. 3932.

88 CHEVY PICKUP - 4x4, 2500 Silverado, western plow, running boards, loaded, must sell, $18,000. 734-7325.

80 MUSTANG - w/350 Chevy engine, mint, asking $4,500. John, Ext. 5222 or 698-5701.

75 FIATS - two, one runs, one for spare parts, $200; 78 Suzuki 750 GS, many good parts, $120. Bob, Ext. 5010 or 2986.

76 CHEVY CAPRICE CLASSIC - 2 dr., a/c, am/fm, reliable, 92k mi., asking $650. Ext. 2321.

79 CAPRICE - needs work, body good, a/t, p/s, p/b, a/c, am/fm cass., $700. Ext. 4118 or 928-5714.

71 VW BUG - best offer. 286-9427, days & wknds. after 7 p.m.

75 CHEVY IMPALA - station wagon, very good cond., 405 cu. in. motor, $600. Arnold, Ext. 2050 or 473-6432.

SUZUKI LT-80 ATV - 4 wheel, elec. start, auto clutch, brand-new, retail $1,300, sell for $850. Dick, Ext. 3273.

85 WILDERNESS TRAILER - 24½', 5th wheel, sleeps 6, awning, am/fm stereo cass. 286-4572 after 5 p.m.

76 AVCO MOTOR COACH - 28', fiberglass, 440 Dodge, 42k mi., loaded, microwave, color tv/vcr/cb, sleeps 4, asking $22,000. 286-8234.

TAILGATE & BED MAT - for Nissan standard 6' bed pickup. Ext. 4710 or 744-6474 after 6 p.m.

VW SUPER BEATLE - runs well, new tires, $275. 821-0686.

71 PLYMOUTH VALIANT - all new parts, slant 6, 225 engine, runs great, $700. 744-9429.

78 TOYOTA COROLLA ENGINE - runs well, w/transmission. Al, Ext. 2043.

81 LINCOLN MARK VI - signature series, black, 2 dr., loaded, all options, moonroof, cb radio, $6,950. Fred, Ext. 3259 or 473-8622.

86 SUZUKI FA50 SCOOTER - excel. cond., $300. 821-0250.

Boats & Marine Supplies

15' LYMAN - 1953 Lapstrake, no engine, $100. Don, Ext. 4821 or 286-2267.

27' TROJAN - 1978, loaded, 10 hrs., single engine, VHF depth-finder, ac/dc, refrig., stand-up head, shower, sleeps 6. 744-2493 eves.

21' GALAXY - 1983 Volvo I/O, fiberglass, cuddy, cabin, stereo, trailer, $7,300. 654-3333.

14' BLUEJAY SLOOP SAILBOAT - w/trailer, as is, best offer. Ext. 7657 or 924-2933.

22' SEAFARER SAILBOAT - 1974, 3 sails, Volvo o/b, full keel, $4,000 neg. Fred, Ext. 4407/4435 or 499-1214.

19' MFB CUDDY - used 4 months, Coast Guard package, Loran radio, extras, $14,000. Jeanne, 281-7568.

BOAT SLIP FOR RENT - 30' plus, excel. location on Patchogue River. Ext. 2021 or 289-8340.

25' BAYLINER SARATOGO - 1975, w/225 h.p. Volvo Stern drive, galley, head, tabs, VHF, am/fm stereo, asking $8,500. 281-5364.

Miscellaneous

ANNUALS - impatiens, begonias, marigold, petunias, ageratum, $10/flat; geraniums, $2; vinca vine, $1.50; salvia, $1.00. Ken, 744-0722.

FRESH FLOWER ARRANGEMENTS - in Mother's Day mug, $15; other arrangements also, delivery available. 821-1560.

COFFEE & END TABLES - $100; b&w TV, $35; punch bowl, $25; Waring blender, $20; lounge chair & ottoman, $75. Ellie, Ext. 3395 or 325-1537.

OVAL BRAID RUG - brown, 4½'x8½'; 10 yards of copper-colored silk; pressure canner & jars, reasonable. 821-1455.

GIRL'S BICYCLE - 3-speed, Ross, excel. cond., best offer; woman's bicycle, 10-speed, French, like new, best offer. Ext. 4449 or 751-8403 after 6 p.m.

MAGIC CHEF MICROWAVE - large, like new, $75; WW II Army command set, 5-band, receiver w/power supply & speaker, 1.8-30 mh. Al, Ext. 2043.

DISHWASHER - used; GE woodburning stove; GE heavy-duty dryer; Westinghouse dishwasher, new, white. 653-6692.

BUNNY RABBITS - $6. John, Ext. 3675 or 924-3528.

GOLF BAG - Ram, w/cover, excel. cond., $20; molding, 2-⅝" Sprung Crown, white, good cond., 190', 25¢/ft. or $40/all. Ext. 2452.

SEWING MACHINE - Singer cabinet model, good cond., $50. Don, Ext. 4821 or 286-2267.

SCREENS & STORM WINDOWS - wood, 9 each, good cond., $35. Cliff, Ext. 3794.

GRANDFATHER CLOCK - moving moon dial, triple chime movement, $400. Joe. Ext. 2898.

WASHER & DRYER - space saver, 24" wide, dryer on top, very good cond., $300. 878-2239.

PRINCESS OAK DRESSER - w/original oval mirror, unique heirloom, $500. Henry, Ext. 4547 or 727-7227.

STROLLER - umbrella, light-weight, excel. cond., $17; roomy multi-pocketed diaper bag, w/pad, sky blue, brand-new, $10. 929-3795.

KITCHEN TABLE - w/2 drop leaves, $35; child's dressers, 8-drawers, $50; 3-drawers, $25; teak coffee table, $50. Ext. 2007 or 751-1474.

AQUARIUS COMPUTER - w/16k memory, data rec., printer, file form, etc., good starter system, make offer. Bernie, 588-4987.

BICYCLES - adult, 3-wheel, w/basket, $125; woman's bicycle, Fuji 10-speed, $75; frostless freezer, 18 cu. ft., $50. Ext. 2434.

IBM ELECTRIC TYPEWRITER - wide carriage, good cond., $125. Susan, Ext. 7716.

WOOD LATHE - Delta 11" Swing, w/motor stand cabinet, accessories, excel. cond., $375. Carl, Ext. 3507.

PORTABLE DISHWASHER - good cond., $50; air conditioner, window, 14,000 Btu, $100. Ext. 3579.

GE AIR CONDITIONER - 7,500 Btu, $50; Kero-Sun heater, Radiant-10, $50; Farberware rotating broiler, $20. 744-3792.

CARPET - 10x15, green; apt. size gas stove. 325-0447 after 6 p.m.

PING PONG TABLE - good cond., no net or paddles, folding, w/wheels, $20 Rick. Ext. 3932.

IBM TYPEWRITER - model C, long platen, good cond., $100. Dave, Ext. 2622/2694 or 941-9022.

POLAROID AUTO 250 - w/case, flash, cable release, make offer. Ernie, 588-4987.

REFRIGERATOR - $30. Stephen, Ext. 4477 or 4483.

HAYES 1200 BAUD MODEM - w/SmartComm II, $275 or best offer. Elaine, Ext. 5329.

THERMO-PANE WINDOWS - new, (5) 32"x62", (5) 32"x50", (1) 32"x34", orig. $2,200, best offer. 589-4792.

HEALTH CLUB MEMBERSHIP - Jack LaLanne, annual renewal fee, $69. Ext. 7226.

Yard Sales

GARAGE SALE - Sat., 4/23, 10 a.m.-4 p.m., 25A & Randall Rd., off Antioch Drive, Shoreham, follow signs.

Free

LANDSCAPE STONES - approx. 1-inch dia., you remove. 473-5012.

CHICKENS -John, Ext. 3675, or 924-3528.

CAMERA - Polaroid Mod. 220 & access. Sal, Ext. 2460.

WOOD FRAMES - 8 horseshoes, 2 folding chairs, 2 1950 plastic chairs, 11 4' wood pickets, 2 tennis rackets, 2 car cushions. 744-3792.

Car Pools

BABYLON/BAYSHORE - need rider to form 4-person carpool, 8:30 a.m.-5:00 p.m. Mike, Ext. 2705.

BAYPORT/BLUEPOINT - need 1 driver. Phil, Ext. 3500 or 363-2070.

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

MORICHES - waterfront room in shared house, avail. June 1, $330/mo. + util. 874-3729 eves.

HILTON HEAD, SC - 2 bdrm. condo, sleeps 6, beach, pool, golf, tennis, April-Sept. $420/wk. 585-9147.

NORTH SHIRLEY - 3 bdrm. apt., excel. cond., 1 mile to Lab. 924-1374, (215) 758-3930 or (215) 867-8064 after 5 p.m.

ROCKY POINT - 3 bdrm., l/r, d/r, eik, f/p, 10 min to Lab, $850/mo. + util. 473-3171.

CALVERTON - 2 bdrm. condo, 1½ baths, f/p, patio, central a/c, 5 appliances, 2-story, l/r, dining area, no pets. 878-0874 eves.

YAPHANK - Whispering Pines condo, 2 bdrm., 1½ baths, bsmt., garage, 5 appliances, central a/c, pool, tennis, $850/mo. + util. 924-4926.

EAST MORICHES - summer rental, 15 min. from Lab, 2 bdrm. house, furnished or unfurnished, in-ground pool, no yard work, $695/mo. includes util. Ext. 4261 or 878-8875 eves.

SPRING HILL, FL. - 40 miles N. of Tampa, 2 bdrm., furnished house on ⅓ acre, vacation rental from $120/week, monthly rate available. Ext. 4530 or 261-2719 after 5 p.m.

BROOKHAVEN HAMLET - 3 bdrm. house, quiet, fenced area, close to Lab, $775/mo. + util. 281-3479.

RONKONKOMA - 1 bdrm. apt., l/r-kit combo, full bath, w/w, cable, priv. ent., park, heat, near LIE, Exit 59, $500 all. Ext. 2625, 4428 or 467-8297.

For Sale

PORT JEFFERSON - Harbor Hills, 3 bdrm. Colonial, l/r w/fp, d/r, eik, 2½ baths, near beach & country club, fenced yard/patio, $210,000. 473-4668.

MASTIC - 3 bdrm. ranch, eik, Florida room, all appliances, fp w/built-in bookshelves, part. finished bsmt., brick front, front & rear brick patios, ½ acre, $110,000. Ext. 3969/5054 or 286-5897, leave message.

PORT JEFFERSON - Harbor Hills, 3 bdrm. ranch, 3 baths, wooded golf course setting, balcony, deck, patio, 2-car garage, 3-zone gas heat, $259,900. Ext. 3791 or 928-7154 eves.

PORT JEFFERSON - Harbor Hills, 4 bdrm. split ranch, d/r, eik, family room w/fp, brick patio, winter waterview, 24'x44' bsmt., excel. cond., $199,000. Ext. 4483 or 473-3689.

HILTON HEAD, SC - 3 bdrm. condo, sleeps 8, 2 baths, washer/dryer, wet bar, 6 tennis courts, 3 pools, whirlpool, golf, ocean view, asking $89,000 or will rent. 929-8912.

SETAUKET - north of 25A, 6 rm. Cape, 2 baths, 2-car garage, wooded area, 3-Village schools, asking $190,000. 751-1401.

HOLIDAY, FL - sandpiper, 3 bdrms., 2 baths, oversize garage, corner lot, cathedral ceilings, laundry rm., clubhouse facilities, asking $80,000. 744-3968.

STONY BROOK - mint 4 bdrm. Colonial, 2½ baths, eik, d/r, l/r, 2-car garage, new siding, Andersen windows, ½ acre, 3-Village school district, asking $225,000. 689-8605 eves & wknds.

RIDGE — mint 3 bdrm. L-ranch, ⅓ acre, new bath, full bsmt., 2 decks, pool, washer & dryer, dish, oil-hot water, Efel coal stove, 3 miles to Lab, asking $137,900. Ext. 7772 or 744-8581.

CENTER MORICHES - S. of Montauk, 5 mo. old, 4 bdrm. Colonial, l/r, d/r, den, f/p, eik, 2½ baths, full bsmt., 2-car garage, abuts bird preserve, many extras, 15 min. to Lab, asking $295,000. Ext. 2957.

CENTEREACH — one acre, 3 bdrm. ranch, eik, full bsmt., 1½ bath, 2-car garage & shop, in-ground pool, dead-end st., $176,000, neg. 585-7342 after 3 p.m.

EAST MORICHES - 2 bdrm house w/attached barn-great room, in-ground pool, plus contemporary 1 bdrm. cottage, $160,000. 878-8875, eves.

Wanted

BOBCAT CEMENT MIXER — wet saw, to buy or rent. Tony, 698-9274.

SUMMER HOUSING - for visiting couple furnished, 1-2 months, starting July or August, Tang, Ext. 3869 or 5186.

DROP-LEAF TABLE - closed about 30x45, fully opened about 45x90, needs to sit 8 or 10. 727-3608 after 5.

POOL LINER - used. Ext. 2007.

VIOLIN - full-size. Ext. 5202.

HOUSE OR APARTMENT TO RENT - two bdrms., for family, near Lab. Aoki, Ext. 3748 or 3176.

HOUSE TO SIT - Eastern Suffolk preferred. Ext. 4144.

RIDING LAWN MOWER - w/catcher in good cond. Ken Ext. 7915 or 744-0722.

VIDEO-TAPE CONVERSION - European to American format. Northam, Ext. 2808.

BASEBALL CARDS - any cond., young boy want to start collection. 924-4070.

OLD LP PHONOGRAPH RECORDS - 1940's, '50's, '60's, will pay reasonable amt. 744-9429.

LAWN MOWERS - old, gas, complete. Dan, Ext. 4987 or 698-7322.

ROLLER SKATES - size 1, or skateboard. Ext. 3499.

HOUSE TO RENT - 3 or more bdrms. in SWR school district, needed immediately. Alan, Ext. 2928 or 821-1389.

ROOMMATE - to share a house 5 min. from the Lab. Ext. 2485 or 924-0123.

CRIB - changing table, play pen, good cond., reasonable. Judy 698-4882 after 6 p.m.

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