BROOKHAVEN BULLETIN
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BROOKHAVEN NATIONAL LABORATORY

When Is a Dose Not a Dose? Researchers Detect Flaw In No-Threshold Hypothesis for Low-Level Radiation Effects

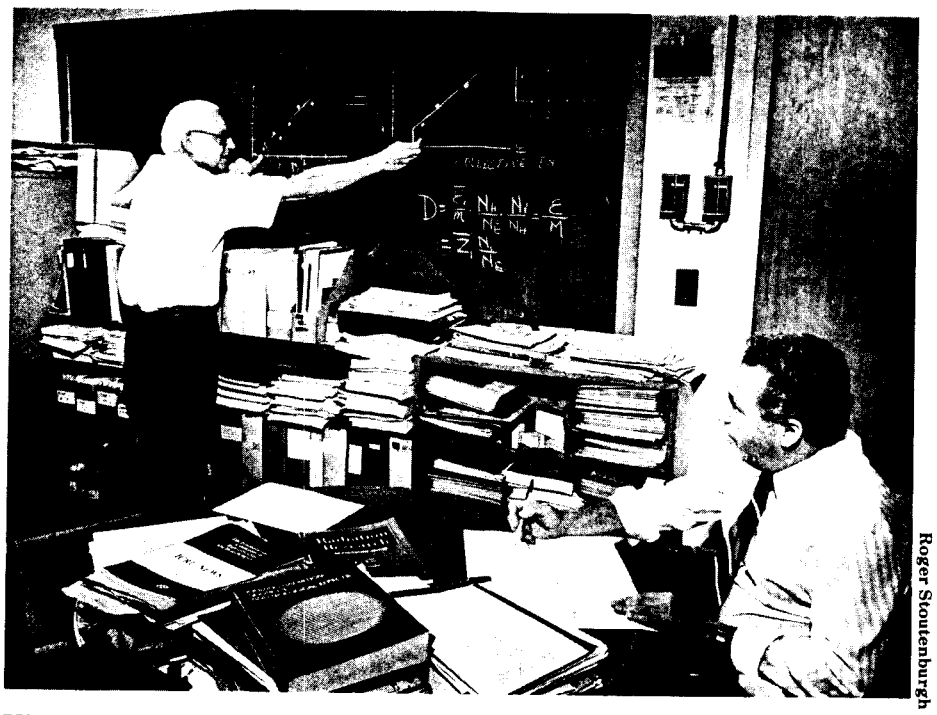
Currently, any amount of ionizing radiation, however small the dose, is thought to be capable of causing cancer. This widely accepted "no-threshold" notion of radiation effects is known as the linear non-threshold hypothesis.

But recent research conducted at BNL suggests that this hypothesis is a misconception.

By using the same cancer data that were used to support the linear hypothesis, BNL researchers have shown that *unless* a whole population is exposed to at least a *threshold* amount of radiation, cancers attributable to that radiation are *not* observed.

Collaborating on this groundbreaking work were Victor Bond of Brookhaven National Laboratory, Vili Benary of Tel Aviv University and Charles Sondhaus of the University of Arizona, Tucson.

They describe their research in a paper entitled "A Different Perception of the Linear, Non-Threshold Hypothesis for Low Dose Irradiation," published in the October 1 issue of the *Proceedings of the National Academy of Sciences*.



Roger Stoutenburgh

Victor Bond (at blackboard) and Vili Benary discuss additional implications of the threshold they uncovered using human cancer data.

Take Two Doses

"The misconception stems from there being two meanings of the term 'dose' in toxicology and medicine," said Bond. "One is the concentration dose, which indicates only the average amount of the agent or medication per unit mass — the weight — of the patient. We term this D.

"The other is the administered dose, which we call ϵ," continued Bond. "Here, the concentration dose D is scaled up to the mass or weight m of a patient, giving the total amount of medication the patient is to take at one time."

So, very simply, $\epsilon = D \times m$. This form of dose ϵ is the one used in the drugstore, because it includes the full information needed to evaluate how severely a drug will affect a particular individual.

Bond explained that, in the early days of radiobiology, the acute effects of large amounts of radiation on cancer or normal tissues were seen to resemble the toxicological effects of large amounts of a drug on a patient. Thus, it became customary to use the toxicological model for radiation energy given to a patient.

However, the amount of radiation was defined in terms of dose D only. In fact, ϵ was not officially recognized as a form of radiation dose.

"This practice caused no particular ambiguity," said Bond, "because it was generally understood that, with any dose D of radiation, the mass was always one target subject — one organ, one tumor site."

Down the Linear Path

"The system worked well," agreed Benary, "until radioepidemiological studies — studies of radiation effects on exposed populations — got started."

Most frequently quoted are those studies done on irradiated survivors of the atomic bomb in Japan, showing that cancers in excess of the natural rate occurred. If a graph of the fraction of the irradiated population that got lethal cancers is plotted against the dose D, the resulting "dose-response curve" appears as a straight line (see Figure 1).

Because of this linearity, Bond explained, people inferred that, if the curve were extrapolated down to very low doses where no excess cancers can be found, they could still get an estimate of the individual risk of cancer.

The procedure has been criticized on the grounds that to get an actual numerical value of risk, one must start with an *observed* excess number of cancers, *not* extrapolated and therefore hypothetical estimates of that number. But the substitution continued, leading people to conclude that any amount of radiation, however small, may cause cancer.

In other words, the linear, non-threshold hypothesis became generally accepted as true.

"But," Bond pointed out, "what no one seems to have taken into account adequately was, that these analyzed data are *not* toxicological, they *are* radioepidemiological. We are not dealing with the mass of one tumor site, but the mass of a large number of persons who received randomly varying doses. Also, there are very different numbers, or masses, of persons at each dose. Using D, the only officially defined radiation dose, won't do — you need dose ϵ, with which the mass is taken into account at every point."

"That's why the curve in Figure 1, which uses D, not ϵ, cannot adequately assess the severity of effect on an exposed population," said Benary. "And that's why the linear hypothesis model that comes from that curve is both flawed and badly misleading."

The Real Dose Stands Up

The BNL researchers remedy this situation by supplying the missing information on mass in a new model

(continued on page 2)

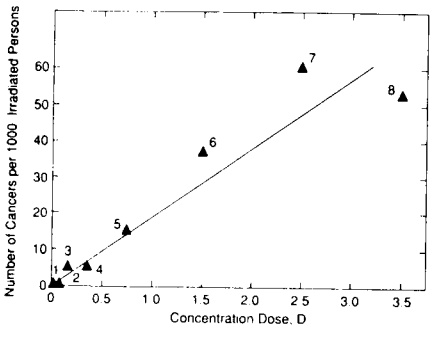


Figure 1. Number of excess cancers per 1,000 irradiated Japanese atomic bomb survivors, plotted against the radiation dose, D (in units of gray). All data points are numbered in order of increasing dose.

BNL Lecture: The Magnetism of Surfaces

Technological advances are most often made possible by years of fundamental scientific research.

Such is the case in the fast-growing, magnetic thin-film industry, where research into the surface magnetism of solids is critical, for example, in developing magnetic memory technologies for computer storage capacity and cassette tapes. The requirements for information storage are currently increasing by an amazing 40 percent a year.

Physicist Peter Johnson, one of the BNL specialists in this field, will discuss his work on "The Magnetism of Surfaces," in the 274th Brookhaven Lecture, on Wednesday, November 13. At the talk, which will begin at 4 p.m. in Berkner Hall, the speaker will be introduced by Myron Strongin, Associate Chairman of the Physics Department.

With BNL colleagues and collaborators from other institutions, Johnson has been investigating the magnetic properties of the surface areas of selected metals under varying conditions.

This work has included the construction of a unique facility for growing thin magnetic films. With growth occurring right in the experimental apparatus, the films' properties can be examined directly without contamination from the atmosphere.

In describing some of this research, Johnson will explain that the magnetism of a solid is derived from the spin of the electrons in the solid's atoms. To get information on a solid's magnetic properties, one can therefore measure the spin of the electrons.

Electrons' spin can be determined by using the photoemission process in experiments at the National Synchrotron Light Source (NSLS). Johnson will discuss this technique and how it has been improved with the NSLS's new ultraviolet undulator — a magnetic device that hugely increases the flux of photons used in the process.

In recent experiments, Johnson and his colleagues have investigated how the presence of foreign atoms may influence the magnetic properties of an iron surface. He will detail how, by depositing metallic atoms layer by layer, it is possible to study the properties of magnetic thin films and the interfaces between them.

As Johnson will relate, the experimenters are also able to grow a material such as iron in different crystal structures to see how this alters the magnetic properties — information that can be developed to suit the specific technological needs of the recording industry.

Roger Stoutenburgh

Peter Johnson at the spin-polarized photoemission facility at the National Synchrotron Light Source.

Peter Johnson earned his B.Sc. in physics in 1972 from Imperial College, London, and his Ph.D., also in physics, in 1978 from Warwick University, England.

After three years as a research fellow at Warwick, he moved to Bell Laboratories for two years and then joined the Physics Department at BNL as an associate physicist. In 1985, he was named a physicist and received tenure in 1988. Earlier this year, he also became a adjunct pofessor in the Materials Science Department at the State University of New York at Stony Brook.

Johnson is a member of the American Physical Society, the American Vacuum Society and the Materials Research Society. In addition to organizing and chairing or cochairing NSLS conferences, he has been a representative, an executive member and chairman of the NSLS User's Executive Committee.

After the lecture, those attending are invited to join the speaker for discussion and hor d'oeuvres. To join the lecturer for dinner at a restaurant off site, call Eileen Morello, Ext. 3827.

In Memoriam

John M. Dunning Jr., a senior technical specialist in the Alternating Gradient Synchrotron (AGS) Department, died on October 31, at the age of 56.

Dunning came to BNL on March 18, 1963, as an advanced technician in the Physics Department. He was promoted to technician III in 1967, technician IV in 1969 and technical specialist in 1970, when he transferred to the Department of Nuclear Energy (DNE).

In 1971, he joined the AGS and was named to his final position in 1980. For the past four years, Dunning has been the lead technician in the AGS Power Supply Group.

A resident of Selden, Dunning is survived by his wife Marie, son John and daughter Marner.

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Rose Grandolfo, who was a clerical assistant with the Lab's secretarial pool since July 21, 1980, died on October 29. She was 66 years old.

Except for the times she was asked to help out with the BNL Blood Drive, Grandolfo was assigned almost exclusively to the Director's Office.

Grandolfo lived in Rocky Point. She is survived by three children, Eugene, Joseph and Mary Ellen, and by three grandchildren.

•

Retiree **P. Ansil Dixon** died on October 27, at the age of 92.

Dixon joined the Laboratory on September 22, 1947, as a senior clerk in the Architectural Planning & Plant Maintenance Department. In 1954, he moved as an accounting clerk A to the Accounts Payable Division, which later became the Fiscal Division.

He retired in October 1962, but returned in June 1963 for a year as a temporary accounting clerk.

Dixon was living in St. Petersburg, Florida, where he met and married his wife Elizabeth. He is also survived by his son Robert of Stuart, Florida; daughter Helen Liebert of St. Louis, Missouri; four grandchildren and several great-grandchildren.

•

Retiree **Henry Gorczyca,** died on October 10, at the age of 72.

As a technician with the Alternating Gradient Synchrotron, Gorczyca came to BNL on July 31, 1961. Named advanced technician in 1962, senior technician in 1965 and technician IV in 1967, he became a senior technical specialist when he transferred to DNE in 1970. He went on long-term disability in April 1977 and retired one year later.

A resident of Kings Park, Gorczyca is survived by his wife Jean, daughter Nancy, son James, and two grandchildren, Daniel and Kristen.

Equipment Demo

XEROX Corporation will demonstrate its Open Systems products in Berkner Hall on Thursday, November 14, from 10 a.m. to 2 p.m.

XEROX GlobalView (XGV) — a network environment with a graphical user interface, windowing subsystems, and an integrated suite of applications — will be shown on industry-standard computing platforms: Sun SPARC/UNIX, Intel DOS and OS/2.

Highlights will include: integrated information management and document management solutions, compatability with UNIX, OS/2 and DOS environments, and communication with minicomputers, mainframes and other networks.

Publishing solutions, graphic editors, scientific notation and chemical illustrations structures, multinational language capabilities and translation, and access to databases will also be featured.

Introducing a Better Shredder

Roger Stoutenburgh

The report is thick, and you want to recycle it. But it's a very sensitive document, so first you've got to shred it — and that will be a time-consuming job. And, when you've finally finished shredding, how will you transport all those difficult shreds neatly to the proper recycling container?

Now, there's one simple answer: Take your sensitive document to the central shredder-baler facility that is in operation in Bldg. 650 — on the north side of Cornell Avenue, just east of Railroad Street.

Capable of shredding 2,000 pounds of sensitive documents per hour — whether on computer or white paper — this central facility is expected to reduce substantially the time spent with office-type shredders.

Shown here demonstrating the new shredder-baler are members of the recycling program committee responsible for its establishment: (from left) Garfield Hawthorne, Staff Services Division; Richard Giesler, Safeguards & Security Division; Oscar Blevins, Plant Engineering (PE) Division; Roy McWilliams, PE; Recycling Coordinator Nelson Tyler, PE; and Mark Israel, Fiscal Division. Other committee members are Maurice DuBois, Fiscal; and Edward Skrezec, Staff Services.

For information about using the new shredder-baler, call Tyler, Ext. 2303.

Healthline Lecture

Cholesterol, Triglycerides & Diet

With the relationship between elevated cholesterol and triglyceride levels and heart disease well established, Americans are trying to reduce their blood levels of these substances to prevent heart attacks and sudden death.

Fortunately, most people with elevated blood cholesterol and triglyceride levels can lower them by a combination of diet and exercise.

While Americans have been told to limit their dietary cholesterol to no more than 300 milligrams per day and their total fat to 30 percent of their calories, not many know how to calculate these factors.

To learn how, bring a calculator to "Cholesterol and Triglycerides — What You Need to Know," the next talk in the Healthline lecture series sponsored by the Health Promotion Program of the Occupational Medicine Clinic. It will be held on Tuesday, November 12, from noon to 1 p.m. in Berkner Hall.

The speaker, registered dietician Joan Stollberger, will define cholesterol and triglycerides, then discuss their origins and importance, and dietary ways of keeping them in healthy ranges. She will also review how to develop a dietary fat budget.

Stollberger has a nutrition counseling practice in Smithtown, specializing in developing cardiovascular and diabetes-controlling diets with her patients. In addition to demonstrating low-fat cooking for the American Heart Association, she has presented nutrition workshops for the past eight years. Stollberger holds a master's degree in nutritional sciences from C.W. Post College of Long Island University.

Register today by returning the bottom portion of the Healthline flyer that was recently sent to all employees today to Mary Wood, Health Promotion Program director, Bldg. 490. If space permits, registration will be accepted at the door.

For more information about the Healthline lecture series or the Health Promotion Program, call Wood, Ext. 5923.

Inside Info

Joseph Indusi, Associate Chairman of the Department of Nuclear Energy and Head of its Technical Support Organization Division, has been elected a member-at-large to the executive committee of the Institute of Nuclear Materials Management (INMM).

The INMM is a nonprofit, international professional organization, to which Brookhaven belongs as a sustaining corporate member. INMM members are dedicated to providing assurance that nuclear materials are properly protected and controlled, and that these materials are used only for purposes approved by treaty or law.

To do this, the INMM promotes research into nuclear materials safeguards and security methods, as well as into the proper transportation of nuclear materials and management of nuclear waste.

As an INMM executive committee member, Indusi will be working to expand the organization's activities and broaden its services to its membership. The organization recently expanded its interests into the field of arms control, and, for the past two years, Indusi has organized and chaired arms-control sessions at the INMM's annual meeting.

Threshold (cont'd)

that deals only with real, observable effects (Figure 2).

Using the same data on the Japanese atomic bomb survivors, they obtain the total dose ϵ, which includes the mass at every point. Against this, they plot the number of excess cancers known to have occurred. Their cumulative population dose-response curve now represents the actual number of cancers, which gets larger as the dose ϵ increases.

"From this cumulative curve," commented Benary, "if you know the total amount of radiation energy deposited in any irradiated population, you can immediately read off the absolute number of excess cancers that can be expected from previously observed results."

"And, most importantly," stressed Bond, "unlike the first curve, which could be extrapolated below the observed number of cancers to obtain the abstruse quantity 'risk,' this new curve has an abrupt cutoff point — a threshold — at *one* attributable cancer."

The reason for this cutoff point (see insert, Figure 2) is that the actual number of cancers at the low end of the curve must change abruptly from one to zero — because it is impossible to have half or any other fraction of a cancer.

Also, the graph demonstrates that, in order to reach the collective amount of radiation energy (dose ϵ) needed to give this one cancer, there has to be *both* a certain amount of dose D *and* a large enough population with mass m — because $\epsilon = D \times m$.

Further Along the Line

"Of course, we went further," continued Bond. "We plotted the observed amount of energy required for a cancer against dose D. The resulting curve, which was flat over a wide range of doses, shows that the energy threshold is independent of D."

That this result holds to very low values of D was confirmed, Bond said, in the researchers' soon-to-be-published work using systems of lower organisms.

"This means that the very same linearity that has conjured up visions of cancer at even the smallest value of D, *in fact* shows that, even at the smallest dose D, at least a threshold dose ϵ is needed for a cancer," emphasized Bond.

Bond also commented on the significance of the present practice of giving "risk coefficients" obtained from the curve in Figure 1 in terms of "cancers per person-gray."

"You get the value of person-gray by multiplying dose D by the number of persons — in effect, the mass — irradiated at that point," he said. "This is tacit recognition of the idea that the mass, and, thus, ϵ as well as the dose D, must be involved."

Concluded Bond, "This work has significant implications for estimating the carcinogenic effects, not only of low-level radiation, but very likely of chemical carcinogens as well. No assessment or interpretation based on concentration dose alone is adequate: Administered dose must also be brought explicitly into the picture." — Liz Seubert

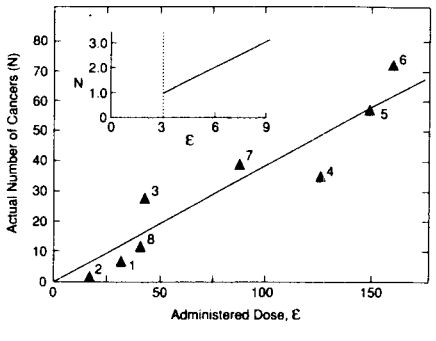


Figure 2. Actual number of excess cancers in the same population as referred to in Figure 1, plotted against the administered dose, ϵ (in units of kilojoules). Insert is an enlargement of the lower end of the curve, showing a threshold at about three kilojoules. Note that the order of the points differs from that in Figure 1.

Arrivals & Departures

Arrivals

Marita L. Allan.....App. Science
Daniel J. Carapezza.....Accel. Dev.
Richard E. Deem.....Nuc. Energy
Donald J. Farnam.....Cent. Shops
Richard S. Gonzalez.....Accel. Dev.
Patrick C. Harris.....Accel. Dev.
Kenneth A. Koebel.....NSLS
Carol L. Korzeniowski.....Medical
Kandallu R. Kumaresan.....Biology
James R. Luneberg.....Accel. Dev.
Joseph I. Miceli.....Accel. Dev.
Richard A. Przybylinski....Accel. Dev.
Victor P. Schulze Sr......Accel. Dev.
Benjamin J. Sternlieb.....Physics
Ralph T. Wiedmann.....Chemistry

Departures

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

Tanmoy Bhattacharya.....Physics
Joseph R. Cuccia.....Accel. Dev.
Yuchen L. Kuo.....Medical
Shelley A. Landon.....Biology
John Scrofani.....NSLS

Off to a Great Start — the United Way

In just four days, 340 BNLers have donated $55,012 to the United Way — where 85¢ of each dollar goes directly to 147 human service agencies helping Long Islanders in need. Over a dozen of these agencies came to Berkner Hall last Monday to give BNL employees a closer look at where their donations would be going. Several of those who stopped by won two Entenmann's cakes. Shown here between Lorraine Brown, United Way Representative, and Mike Hurley, BNL's Fund Drive organizer, are two of the lucky winners.

Another week of the drive remains — and your pledge card will be very welcome, whatever the amount you give. Don't forget, there are prizes for early pledges. Thanks to Associated Universities, Inc., Local 2230 IBEW, Local 8-431 OCAW, and LIGU Local 37, weekly drawings of all cards received will be held for dinners for two in local restaurants, and a grand end-of-the-drive drawing on November 18 for a complete theater weekend for two in New York City.

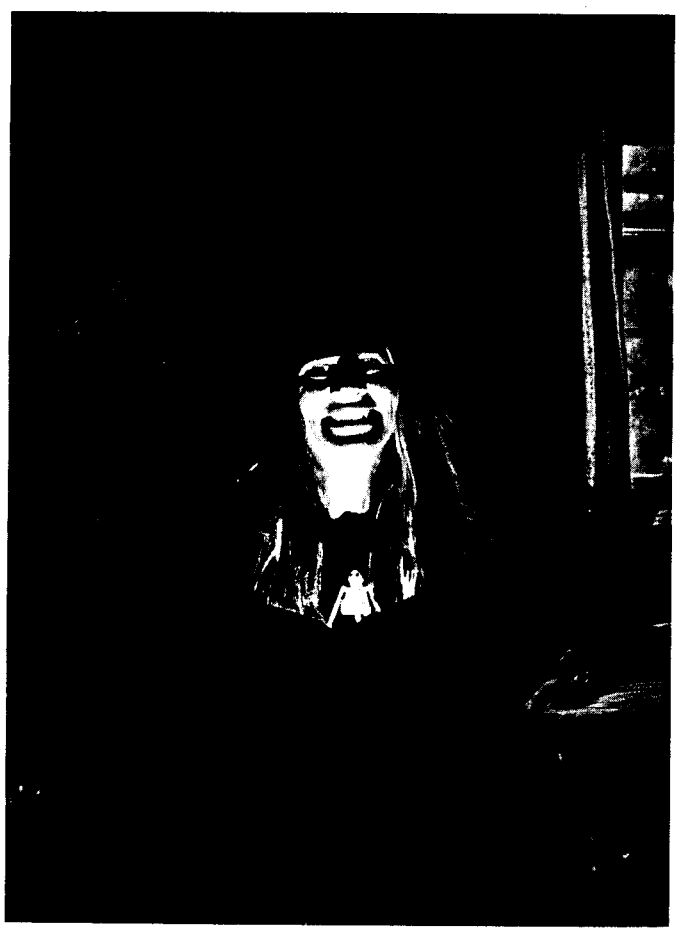
For further information, call Mike Hurley, Ext. 7400.

Halloween at Spookhaven

Halloween dawned dark and stormy, but that didn't dampen the good and ghoulish spirits at BNL. Among the places they showed up in were . . .

Plant Engineering (PE), where three Maintenance Metal Workers in the Sheet Metal Shop (photo left) donned disguises for the day: Pete Goebel wore his authentic 1740 garb; John Berry posed as a Playboy bunny; and Steve Eckhoff took the part of a PE planner-estimator.

Photos on this page by Roger Stoutenburgh



Biology, where Dr. Hugo S. Crow (photo right), who had been lounging in the reception area for a few weeks, greeted and treated department staff and visitors. Here, he is flanked by his creators, Bldg. 463 Custodians Doreena Victoria and Jim Callihan.

Personnel, where Personnel Representative Joyce Wund (photo left) was be-witching. She's been costumed for Halloween since 1987, and has entranced her coworkers over the years as a nurse, a clown, Dracula and Mickey Mouse.

Photography & Graphic Arts (P&GA), where P&GA Specialist Vicki Feldman (photo above) impersonated Minnie Mouse to trick her colleagues this year.

Squirrels' Story

Mike Blewitt cradles one of the two baby squirrels that he nursed back to health after they were orphaned during Hurricane Bob.

Blewitt, a graduate student from the State University of New York at Stony Brook who is working in the laboratory of Biology Department Chairman William Studier, got the squirrels from Senior Scientist John Dunn, also of Biology.

While inspecting his yard after the hurricane, Dunn recalled, "I found a drowning, quaking baby squirrel. Then, another fell out of the tree, knocked cold. They seemed to have been abandoned by their mother."

After the babies survived on the infant's formula Dunn fed them, he mentioned the orphans to Blewitt, who had raised a squirrel once before. So Dunn handed over his charges to the more experienced Blewitt.

The squirrels thrived and were recently released into the woods, just in time to gather the nuts they'll need to see them through their first winter.

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Born in a Basket

Ever wonder what happened to the four eggs a resourceful robin laid in the basket of a bicycle resting in a rack behind Instrumentation, Bldg. 535B last spring? Almost two weeks later (left), the hatchlings left their shells and opened their beaks, if not their eyes, to the outside world. In another two weeks (above), they were looking a lot less vulnerable and a lot more like mama. Shortly after this last photo was taken, the birds flew the basket.

Second Bus Going To Atlantic City

A second bus has been enlisted to accommodate all those who wish to take the next BERA-sponsored one-day trip to Atlantic City on Saturday, November 16. To sign up or for more information, call Carolann Zebrowski, Ext. 3347.

Holiday Parties: Time to Reserve

Recreation Building

Lab organizations and BERA activity groups interested in reserving the Recreation Building in the apartment area for holiday parties are invited to send a representative to a meeting on Wednesday, November 13, at 11 a.m., in the conference room of Bldg. 185A. As in past years, reservations will be made in the order determined by a lottery, which will be held for those at the meeting.

As long as dates are available, subsequent reservations may be made through Friday, November 22, by contacting the Recreation Office, Ext. 2873.

Brookhaven Center

Reservations for parties at the Brookhaven Center may be arranged by calling Jane Guido, Staff Services, Ext. 2553.

Hospitality News

Parent-Toddler Group

The Parent-Toddler Group meets every Wednesday morning, from 9:30 to 11:30 a.m., at the Recreation Building, in the apartment area. Everyone is welcome, especially those with young children.

Welcome Get-Togethers

The informal get-togethers that the Hospitality Committee holds on the second and fourth Tuesday of every month, from 10 a.m. to noon in the lounge of the Recreation Building, provide a good chance for newcomers to the Lab to meet other on-site residents. Please come for coffee and conversation, and bring the children.

Note to Employees:

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

Cafeteria Menu

Luncheons

Monday, November 11 — Veterans Day
Snack bar service — 9 a.m. to 2 p.m.

Tuesday, November 12

Soup: Country vegetable	.75/.95
Entree: Stir-fried beef & peppers over rice	3.10
Entree: Fried liver w/onions & bacon & 1 veg.	3.10
Fitness: Chef's choice	3.10
Carvery: Prime rib special	3.65
Grill: Tuna melt w/fries & cole slaw	2.55

Wednesday, November 13

Soup: Tomato rice	.75/.95
Entree: Top-your-own hot dog (each)	.95
Entree: Sausage jambalaya w/1 veg.	3.10
Fitness: Chicken Parmesan w/1 veg.	3.10
Carvery: Hot corned beef sandwich	2.85
Grill: Reuben	2.85

Thursday, November 14

Soup: Chicken noodle	.75/.95
Entree: Vegetable plate	2.25
Entree: Baked stuffed shells	3.10
Fitness: Yankee pot roast w/1 veg.	3.10
Carvery: Baked ham sandwich	2.85
Grill: Chicken tenders & mozzarella stick	2.85
SPICE: Hero by the inch (inch)	.90

Friday, November 15

Soup: Manhattan clam chowder	.75/.95
Entree: Fried fish w/1 veg.	3.10
Entree: Knockwurst & sauerkraut & veg.	3.10
Fitness: Spinach quiche w/1 veg.	3.10
Carvery: Hot turkey sandwich	2.85
Grill: Seafood nuggets w/fries & cole slaw	2.85

Breakfast Served w/coffee & small juice, 7:30 - 10:30 a.m. 2.65

Mon.: 2 eggs, bacon & pancakes
Tue.: Western omelet, French fries, toast
Wed.: Spanish omelet, home fries, toast
Thu.: 2 eggs, bacon, cheese on croissant, fries
Fri.: French toast, 2 eggs, bacon, home fries

Employee Art Show Next Week

Roger Stoutenburgh

Next week is BNL's 12th Biennial Fine Art Show "Artistic Harvest." Helen Jones, Management Information Systems Division, is one of the talented BNL employees who will exhibit work. She is pictured here with *Pop* and *Sails*, two of her paintings that were featured in the 11th fine art show.

All are invited to see Jones's new work next week, along with many other exhibits from employees, retirees and their families. The show will be held at Berkner Hall, Tuesday to Friday, November 12-15, from 11:30 a.m. to 1:30 p.m. daily, with an evening reception from 5 to 7:30 p.m. on Tuesday. Home-baked refreshments will be offered.

Cooking Exchange Meeting Next Week

Dishes from Israel and China, and a Swiss dessert will be featured at the next Cooking Exchange meeting on Wednesday, November 13, at 12:15 p.m. in the Recreation Building in the apartment area. Learn how to cook the dishes — and then get to sample them.

All are welcome, especially newcomers to BNL. A donation of $2 per adult is requested to cover expenses for the ingredients and a light lunch. For more information, call Andrea Aeppli, Ext. 3090; Megumi Akiba, Ext. 3015; Yfke Boosman, 736-2880; or Weiyi Yin, Ext. 3035.

Bowling

Red/Green League

R. Mulderig had a 264/203/652 scratch series, A. Warkentien 246/228/672 scratch, A. Borrelli 231, T. Prach 223, R. Eggert 215, K. Riker 212, H. Arnesen 211/202, H. Dawson 211, J. Muller 208, R. Wiseman 208, K. Asselta 206, N. Parrinello 200.

White League

Ken Batchelor had a 234, Ron Picinich 216, John McCarthy 213, Jim Petro 211, Sharon Smith 198/180.

Purple League

Philip Radusewicz had a 223, Maryellen Hubner 221, Jim Goode 214/604 scratch, John Weiner 211, Brian McCarrick 206, Lee Grimes 203, Sam Logan 200, Maryann Reynolds 181, Barbara McCarrick 180.

Volleyball

Standings as of October 30

Open League		League I	
Magnum	6-0	Upfagrabs	6-3
Phoenix	5-1	Network News	5-1
Leftovers	3-3	Rude Dogs	4-2
GTeam	2-4	Dinkers	4-2
Penetrating Vollies	2-4	Setups	3-3
Me and the Boys	0-6	Six Pack Attack	2-4
		Bump and Sets	0-9

League II		League III	
Net Wits	6-0	Renegades	5-1
Mon. Night Live	6-0	High Volley'em	5-1
Night Court	3-3	Nutcrackers	4-2
Fossils	3-3	Over the Top	4-2
Muffits	2-4	Good Timers	3-3
Nuts and Bolts	2-1	Sourcerers	2-1
Just Up	1-5	Interns	1-5
Upton Ups	1-5	Undertakers	0-3
Volley of the Dolls	0-3	Silver Bullets	0-6

FORE-most Golfers of PE!

Roger Stoutenburgh

Birdies flew thicker than bogeys among the three winning teams of the Plant Engineering Golf League on their par-ting meet of 1991, at the Swan Lake Golf Club. A hole lot of fun gripped all 26 players making up the 13 competing teams, with first place won by (from left) John DiNicola and Ove Dyling; second place, Tony Scheschowitz and Ken Kowalski; and third place, Kenny Davis and Pete Eterno.

At the BERA Store

United Artist theater tickets, discounted for $5 each, are again available at the BERA Sales Office in Berkner Hall; the usual price at theaters is $6 to $7 each.

Also new are two separate books that include discounts — some up to 50 percent on many items, including informal and fine dining, car rentals, hotels and numerous everyday savings. They cost $25 — a savings of $5 over local bookstores.

Old standbys at the Sales Office include:

- **Handouts** — twofers for some Broadway shows, flyers, wholesale club information, other discount offers.
- **Merchandise** — photo-processing services by Employee Photo Service of Totawa, New Jersey; film; an attractive selection of Majestic and Gordon Fraser greeting cards; Long Island postcards; T-shirts, $7 each; sweatshirts, $13 each; assorted balloons, $1.50 each; BNL postcards, mugs and hats.
- **Tickets** — free Magic Kingdom membership cards for Disney World, Epcot Center, Disneyland and MGM Studio (also good for 10 percent discount at local Disney stores).
- **Participation Awards** — The Sales Office is the official redemption center for BERA Participation Awards.

The Sales Office is open weekdays from 9 a.m. to 2 p.m. For more information, call Carolann Zebrowski, Ext. 3347.

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.

OPEN RECRUITMENT - Opportunities for Laboratory employees and outside applicants.

DD 1007. DRAFTER POSITION - (term appointment) Requires AAS or equivalent experience and a thorough knowledge of standard drafting practices. Excellent AutoCad skills as well as the ability to produce mechanical and/or electrical schematics from layouts and sketches also required. Accelerator Development Department.

DD 1008. DESIGNER POSITION - (term appointment) Requires AAS or equivalent and strong fabrication techniques using a variety of materials, a thorough knowledge of AutoCad and geometric tolerances as per ANSI Y14.5M, and excellent mathematical skills. Familiarity with safety codes and the ability to work from sketches and verbal communications also required. Previous piping system experience highly desirable. Accelerator Development Department.

DD 1009. DESIGNER POSITIONS - (term appointment) Requires AAS or equivalent and strong fabrication techniques using a variety of materials, a thorough knowledge of AutoCad and geometric tolerances as per ANSI Y14.5M, and excellent mathematical skills. Familiarity with safety codes and the ability to work from sketches and verbal communications also required. Previous vacuum equipment design experience is highly desirable. Accelerator Development Department.

DD 8989. TECHNICAL POSITION - Requires AAS in electromechanical technology or equivalent experience. Will maintain and upgrade specialized instruments at the HFBR for neutron spectroscopy. Previous experience installing, operating and maintaining electrical and electronic components desired; some computer experience helpful. Physics Department.

DD 8108. TECHNICAL POSITION - Requires AAS in physical or environmental sciences or equivalent. Familiarity with quality assurance procedures as applied to radiological sample preparation and analysis desired. Responsibilities include preparation of environmental, facility and bioassay samples for radiological analysis, receipt and logging of samples as required, data reduction, dose computation,

See Supplement for more Placement Notices and other Classified Advertisements.

Classified Ads (cont'd)

submission of summary reports and maintenance of bioassay records. Safety & Environmental Protection Division.

DD 6114. TECHNICAL POSITION - (term appointment) Requires AAS in mechanical technology or equivalent experience, and the ability to operate basic computer systems and diagnostic equipment. Will provide mechanical support to the AGS Vacuum Group, including installation, repair/replacement of vacuum components and leak checking. Must be willing to work in a radiation environment. Reposting. Alternating Gradient Synchrotron Department.

DD 8110. ENGINEERING POSITION - Requires BS in geology/hydrogeology (MS preferred) or equivalent, and experience in designing, reviewing and updating groundwater monitoring programs and developing groundwater management plans for research facilities or operations potentially impacting the environment. Experience performing groundwater modeling, a knowledge of regulations governing groundwater impacts and LI regional hydrogeology is desirable. Safety & Environmental Protection Division.

LF 5594. SCIENTIFIC ASSOCIATE POSITION - Requires a BS in meteorology or equivalent, experience in preparing weather forecasts, and an understanding of meteorological instrumentation. Familiarity with data loggers, electronics and the use of IBM PC, Apple Macintosh, SUN workstation and DEC VAX computers is a plus. Responsibilities will include the installation, maintenance and calibration of meteorological instrumentation as well as preparation of weather forecasts. Department of Applied Science.

LF 0841. TECHNICAL POSITION - Requires AAS or equivalent, a knowledge of vacuum and cryogenic apparatus, and good communication skills. Familiarity with basic electrical/electronic wiring and troubleshooting is highly desirable. Responsibilities will include maintaining the Chemistry Department's spectrometers at the HFBR, and the fabrication, modification and operation of experimental equipment such as cryostats, vacuum stations, furnaces, etc. Chemistry Department.

NS 0991. ENGINEERING POSITION - Requires BSEE and a minimum of eight years' experience in the design of digital systems. Must be proficient in both hardware and software aspects of designs. Experience with microprocessors, digital signal processors and programmable logic arrays highly desirable. Experience in analog circuit applications and knowledge of CAD and circuit analysis programs a plus. Will be responsible for the design, procurement, installation and test of systems used in the construction and testing of superconducting magnets and their subassemblies. Accelerator Development Department.

NS 0986. ENGINEERING POSITION - Requires BSME or other appropriate discipline and a minimum of seven years' QA experience in an engineering/production environment. At least three years' supervisory experience is necessary. Work involves preparing Magnet Division QA procedures, documentation files, training personnel in QA concepts, preparing technical and process specifications, etc. Accelerator Development Department.

NS 0995. ENGINEERING POSITIONS - (3 one-year term appointments) Requires BS/MSME and a minimum of two years' appropriate experience. Responsibilities will include cryogenic system process calculations and the design of pressure vessels, vacuum vessels, piping and other similar hardware used in particle accelerators. Knowledge of ASME pressure vessel and pressure piping codes required. RHIC Project, Accelerator Development Department.

NS 1010. COMPUTING/ANALYST POSITION - Requires MS in computer science or related field and seven to ten years' experience, including accelerator controls and system analysis. Fluency in C and a good working knowledge of UNIX externals required; experience with real-time operating systems desirable. Demonstrated ability providing technical guidance and leadership to a software-development staff, good communications skills and experience working on large software projects necessary. RHIC Project, Accelerator Development Department.

Motor Vehicles & Supplies

88 HONDA ACCORD LXi - h/b, a/t, ac, am/fm cass., excel. cond. Kathy, Ext. 5312 or 929-8467 after 5 p.m.

87 CAPRICE CLASSIC BROUGHAM - gray, loaded, new factory installed motor, new brakes, 60k mi., excel. cond., $7,500. Ext. 7686 or 878-0897.

87 MAZDA 4x4 PICKUP - 37k mi., lifted oversized tires, alarm sys., fiberglass cap, extended warr., $6,500. 369-2716 after 6 p.m.

87 TOYOTA MR2 - a/t, p/b, p/s, cruise, T-top, ac, 41k mi., am/fm cass., excel. cond., runs well, $10,000. Ext. 5922.

87 DODGE DATONA - low mileage, very clean, $750. Rich, Ext. 7160.

86 HONDA ACCORD - metallic blue, 5-spd., ac, Sony stereo, 4 speakers, new brakes & tires, excel. cond., $5,500 neg. Ext. 5919 or 722-3010.

86 TOYOTA 4x4 PICKUP - roll bar, off-road lights, 31" tires, 4-cyl., 5-spd., alarm, $4,000. Kerrie, Ext. 7426.

85 T-BIRD - 94k mi., black, loaded, 5L V-8, cosmetic damage left front side, runs well, looks sharp, asking $1,000. Frank, Ext. 3433.

84 OLDS DELTA 88 - white w/blue int. & hardtop, 93k mi., excel. cond., $2,300. Toner, Ext. 2769.

84 MALARD MOTOR HOME - 24', sleeps 8, 29k mi., excel. cond., 878-1178.

84 FORD TEMPO - a/t, ac, cruise, cass., 100k mi., $1,000; '84 Dodge Caravan LE, a/t, ac, p/s, p/b, p/l, tilt, more, 72k mi., $4,800. Ext. 4591.

83 PONTIAC 6000 LE - a/t, 6-cyl., fully loaded, moonroof, mint, asking, $3,000. 689-9234.

83 DODGE ARIES WAGON - great car, clean, good gas mileage, 83k mi., $1,400. Ron, 698-9603.

83 FORD CROWN VICTORIA - 2-dr. sedan, 59k mi., white w/maroon vinyl top & int., excel. cond. Arthur, 727-7678.

83 RELIANT WAGON - 99k mi., good cond., runs well, good car pool car, ask. $2,000. Roger, Ext. 2382.

82 CHEVY CHEVETTE - blue, 4-dr., 4-spd., new clutch & radial tires, 65k mi., excel. cond., $900. Ron, 698-9603.

81 HONDA CB900 - custom w/color match fairing, dual range, triple disk, shaft drive, Dunlop K-491s, extras, 14k mi., $1,500. Jim, 473-1658.

80 CHEVY VAN - black, V-6, new exhaust, runs well, good for work, best offer. Bob, Ext. 4672.

79 PONTIAC SUNBIRD - 2-dr., 4-spd., sunroof, orig. owner, 95k mi., good cond., asking $475. Ady, Ext. 4531 or 331-9514.

79 OLDS CUTLASS SUPREME - all or parts, body good, needs engine work. Ken, Ext. 4514.

78 AMC CONCORD - 4-dr., 6-cyl., low mileage, good cond., $500. Bob, Ext. 4489.

77 HONDA - runs well, no rust, $600. Georgia, Ext. 2384 or 929-8185.

76 JAMBOREE MOTOR HOME - mini, sleeps 5, ac, 7k mi. on rebuilt eng., 3k mi. on new trans., good tires, $7,500. Larry, Ext. 5796 or 366-0541.

83 LINCOLN MARK VI - 30k mi. on new engine, all options, excel. cond., $4,000. Al, Ext. 2075 or 281-6617 after 6 p.m.

81 HONDA - 4-dr., 74k mi., mech. excel., drives well, new clutch, body OK, front trans. problem, $350. 698-9299 after 6 p.m.

80 CHEVY MONZA - m/t, 2-dr., 4-cyl., engine runs well, needs valve-cover gasket, $800. Carol or Frank, 399-3446.

80 DODGE OMNI - a/t, good running cond., looks good, some rust, ask. $500. Ext. 3172 or 878-1731.

78 FORD FAIRMONT - a/t, new tires & other parts, needs heater, runs well. Milan, Ext. 3733.

78 PURITAN CAMPER - 19', needs interior work, mechanics & body in excel. cond., $700. John, Ext. 7623.

78 CHEVY BIG 10 PICKUP- 350, V-8, new tires & Diehard batt., ac, p/s, p/b, dual gas tanks, excel. motor, needs trans., best offer. L. Potter, Ext. 4127.

77 VW RABBIT - fuel injected, mechanic's challenge, sort of runs, $50. Herb, Ext. 2011 or 929-4446 eves.

76 DATSUN 280Z - parting out, new, still in pkg. exhaust sys., alum. wheels, louvers, etc., engine parts & int. good cond. Ted, 924-7477.

74 SUNLINE TRUCK CAMPER - 8½', self-contained, $500. 289-0967.

67 PONTIAC LEMANS - big block Chevy, 450-h.p., everything new, many extras, never driven. 744-3284 after 6 p.m.

66 PONTIAC CATALINA CONVERTIBLE - 50k orig. mi., excel. orig. cond., $5,800. Ext. 7518 or 878-8847.

31 CHRYSLER - 2-dr., rumble seat, all orig., excel. cond., ask. $8,000. Rosalie, Ext. 3160 or 289-5704.

RIMS - Toyota, 4-lug, $10 ea. Jim, Ext. 3372 or 821-0250.

SWAY CONTROL BAR - Husky, w/drawtite, 750 lb. tongue weight for up to 10k trailer, 2" ball, 2x2 bar, orig. $535, now $200. Al, Ext. 2043.

TIRES - 2:15-75R-15, w/w, radial, set of 4. Ken, Ext. 4514.

AUTOMOTIVE MAGAZINES - 650+, call for list from the '70s to present, *Hot Rod, Car Craft, Motor Trend, Auto Week*, etc. Roy, Ext. 7357.

TIRES - two, Yokohama, radials, P195/75R14, $25; two, 14" rims, Chrysler, $5. Tom, 434-9345.

MOPED - Yamaha, low miles, $397. 399-1868, leave message.

CAR STEREO - Kenwood, am/fm cass.-receiver, 19-channel memory presets, digital clock, plus more, brand-new. Sue, Ext. 4461.

TRAILER HITCH - for Dodge Van, heavy-duty, 1985-1991, $75. 369-0432.

RADIATOR - for '85 Mitsubishi, 4 cyl., 2.6, brand-new, $75. 698-0654.

Boats & Marine Supplies

30' CHRIS CRAFT - 1959, twin 350s FWC, F/B, more, $3,000 firm; 28' Carver, 1973, twin 302s FWC, more, $12,000. Harry, Ext. 7527 or 744-2715.

SEA CRUISER - 1972, alum. rowboat, $250; 7-h.p. ob., $150; 16' Silverline, f/g, w/tandem trailer, $500; 70-h.p. Johnson ob., $1,200. 732-3707.

ICE EATER - ½-h.p., used one season, still in box, $100. 732-6280 after 4 p.m.

Furnishings & Appliances

FURNITURE - antique, from late 20s & 30s, dressers, mirrors, more. 698-0654.

BEDROOM - 4-poster full bed, pine, armoire, 2 nightstands, lamps, $375; 2 loveseats, tan, walnut wood, $125. Hurst, Ext. 3844.

CHINA CLOSETS - oak, beveled glass front & sides; walnut, 1 drawer; mahogany credenza, glass doors, open sides. Mike, 929-4716 eves.

COUCH & CHAIR - green, good cond., $150; recliner, brown, $50; dining room table & chairs, maple, large, $150; all good cond. Paul, 727-4859.

COUCH - Ethan Allen, 7', excel. cond. 325-0447.

DINING ROOM SET - walnut, lighted breakfront, 6 chairs & table pads, good cond. Debbie, 467-2422 after 6 p.m.

DINING ROOM - dark wood, large china closet, table w/3 leaves, 6 chairs, will split, $500. Janet, Ext. 2345 or 929-3910.

DISHWASHER - portable, w/countertop, like new, $200. Alan, Ext. 4584.

DRAPES - 2, tweed, 96"x84", w/ties, 1 insul., $25; 1 open, $15; cream priscillas, rod pockets, 184"x84", $15. Henry, Ext. 4547 or 727-7227.

DRYER - GE, gas, heavy-duty, brand-new, asking $350. 289-0967.

LAMPS & SHADES - 2, Venetian glass, 47" tall, beautiful, $50/ea; 4 tables, Formica-topped, excel. cond., $50/ea. 475-8658.

LIVING ROOM - couch, 2 chairs, cocktail table, end tables, lamps, like new, $550. Steve, 369-4922.

SCHOOL DESK - old-fashioned, children's, attached seat, $25. 821-1042.

RADIO/RECORD PLAYER - GE, console, fruitwood, 68"l x 30"h x 10"w, good for recreation area. 289-0687.

SOFA - 7', dusty rose, good cond. George, 744-5422.

SERVING DISH - "Rosella" pattern pink w/fluted edge, new, in orig. box, $10. Patricia, Ext. 7288.

WASHER - Whirlpool, white, used 3 yr., good cond., $145. Paul, Ext. 7577 or 286-7127.

Tools, House & Garden

CLAPBOARD SIDING - cedar, 5"x5', 3' lengths, 900' linear, grade A Western red cedar, new, in packs, $260 delivered. Ted, 924-7477.

GARDEN TRACTOR - Wheelhorse, 14 h.p., 48" mower deck, 8-spd. trans., headlights, PTO, used 2½ seasons, $2,350. Paul, Ext. 7577 or 286-7127.

SHREDDER/CHIPPER - Kemp, 8-h.p. Kohler elec.-start engine, like new, $650. Roy, 286-8582.

WINDOW - vinyl, double hung, full screen, 32"x37½". Tony, 698-9274.

VACUUM SYSTEM - carpet shampooer/extractor, like new, w/instructions, leaves carpet almost dry, orig. $2,900, now $1,500. 758-9835.

Sports, Hobbies & Pets

BICYCLE - Huffy, 20", boy's, $25. Ext. 5080 or 751-1884.

BICYCLE - Panasonic, woman's, 10-spd., 2 yr. old, excel. cond. Tom, Ext. 5350.

CAMERA - Canon A1, Canon lens, 50mm/1.4, case, Canon Speedlite flash, filters, excel. cond., $140. Ext. 3589.

GUITAR AMPLIFIER - Crate, model G10, built-in destortion, mint cond., hardly ever used, $65 neg. Mike, 744-8933.

DOG FOOD - Alpo liver chunks, 13 large cans, orig. 97¢, sell for 50¢/ea. 475-8658.

LEG PRESS MACHINE - new, hardly used, excel. cond., orig. $425, asking $200; Ping-Pong table, folds, w/wheels, good cond., $50. 821-1042.

PAINO - Kranich Bach Spinet, walnut finish, w/bench, good cond., $375. Jean, 473-4738.

ROWING MACHINE - DP Bodytone 300, multi-gym, good cond., $50. Charlie, Ext. 2550.

SAILBOARD - Bic Bebop, excel. for beginner or intermediate, good cond., approx. 4 yr. old, $400. Jane, 301-353-7684 daytime.

Audio, Video & Computer

CHESS - Sensory Challenger, Fidelity, difficulty level 9, excel. cond., $40. Ext. 3589.

COMPUTER - Commodore 64, 1541 disk drive, Star SG10" printer & interface, computer table, $250. 821-1042.

COMPUTER - Commodore 128, 1571 disc drive, Thomson monitor, Epson LX-80 printer, w/software, $375. Bill, Ext. 3531 or 473-3171.

COMPUTER - CoCo3 Tandy, 128k, 2 F/D tape-drive cartridge bay, color mon., joysticks, 24 games/programs, table, $150. Hurst, Ext. 3844.

FLASH - Vivitar 2600, auto electronic flash, $15. JGS, Ext. 4379.

MAGAZINES - *Profiles*, for Kaypro users, assorted years, 1985-88, $1/ea. or $6/twelve issues. Susan, Ext. 7647.

MICROFILM READER/PRINTER - 1984, model 3M500, $3,000 value, best offer. 732-6280 after 4 p.m.

PRINTER - 9 pin, 6 mo. old, hardly used, w/cable, orig. $180, sell for $100. Chuck, 821-1525.

RECORDS - 45 rpm, approx. 150 records, some in orig. sleeves, $20/all. Joe, Ext. 5409.

VCR - Panasonic, model PV4750, stereo, 4 head, on-screen programming, quartz tuning, HQ, in excel. cond., $135. Warren, Ext. 4939 or 924-7552.

Miscellaneous

DESIGNER FRAGRANCES - for women & men, Giorgio Red, Fendi & Farenheit, Obsession, more; 3.3 oz., $25. Lou Pergola, Ext. 3499 or 732-1028.

ENGAGEMENT RING - & wedding band, diamond, ¾ carat combined weight, 14k yellow gold, appraised at $1,200. 289-0967.

ENGLISH LEATHER JACKET - woman's, full length, size 12, $30. Pete, Ext. 4581 or 399-2813 after 5 p.m.

PRO HATS - & college hats, $10/ea. or $19/two. Adam, 924-0361.

STEREO - $20; electric heater, $20; red night table w/drawer, $20; large white ducks cookie jar, $20. Kathy, 744-2203.

STROLLER - Luv Buggy, double, side-by-side, like new, orig. $135, asking $65; Strollee car seat, $25. 929-5642.

WEDDING GOWN - cleaned, pressed, preserved, 1 yr. old, orig. $1,100, now $200. Barbara, 471-7189.

Free

BLACK LAB - 1 yr. old, loves kids, needs yard, moving, cannot keep. 732-9324.

MOTORCYCLE - '73 Yamaha 350, not running, hubs frozen, no battery, you pick up. Ext. 2168.

SKI RACK - for Oldsmobile Cutlass Supreme or similar car. Ken, Ext. 7311.

Yard & Garage Sales

SHOREHAM - Sat.-Sun., 11/9-10, 9 a.m.-4 p.m., 31 Miller Ave.

Car Pools

NEW HYDE PARK TO SEARINGTON - Ext. 7772 or 775-3625.

Lost & Found

LOST - on 9/13, Golden retriever, female, 1½ yrs. old, blue collar, E. Moriches, brokenhearted 4 yr. old misses her. Ext. 7192 or 874-2614.

FOUND - key on badge holder, 10/28, S. Technology. Ext. 2548.

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

BELLPORT VILLAGE - 3-bdrm. house, 5 yr. old, 2½ baths, l/r, d/r w/fp, oak floors, ig sprinklers, next to everything, $1,200/mo. neg. + util & sec. Claudio, Ext. 2731 or 286-5579.

BROOKHAVEN HAMLET -large, sunny studio apt., 2nd floor, sep. ent., eik, new appl., full bath, w/w, 1 block to water, next to wildlife preserve, $500/mo. includes util. 286-8689.

NORTH SHIRLEY - 1-bdrm. apt., full bath, large l/r, large kit., priv. ent., 1st floor in new hi-ranch, $650/mo. includes all. 399-3950.

RIDGE - furnished studio apt., private, fenced-in yard, kitchen, bath, 5 min. from Lab., avail. end of Oct. $500/mo. 744-8632.

ROCKY POINT - new, sunny, 1-bdrm. apt., l/r, kit., full bath, priv. ent., no pets, single preferred, avail. Nov. 1, $550/all. 744-6386, leave message.

SHIRLEY - 2½-rm. apt. for employed nonsmoker, priv. driveway & ent., quiet surroundings, 1 block off Wm. Floyd Pkwy, $450/all. 281-6263.

SHOREHAM - 1-bdrm. apt., on LI Sound, full bath, l/r-kit. combo, priv. ent., $600/mo. includes all. 744-0248.

SOUND BEACH - 2-bdrm. contemporary on wooded lot, great rm., cathedral ceilings, renov. kit., d/r, full bath, close to Sound, ½ way bet. S.B. & Lab, $775/mo. + util. Erik, Ext. 4603.

WADING RIVER - 3-bdrm. hi-ranch, 2 baths, 2-car gar., 1 acre, wooded property, 10 min. to Lab, appliances incl., country living, move-in cond. 751-4098 eves.

HILTON HEAD, SC - 2-bdrm. condo, sleeps 6, fully furn., 2 baths, tennis, beach, golf nearby, Oct.-Dec., $350/wk. Guy, Ext. 3147 or 689-5378.

For Sale

BROOKHAVEN HAMLET - 3-bdrm. cedar shake Cape, large l/r, d/r, eik, spa rm., full unfin. bsmt. w/shop, 2-car gar. w/shed, docking rights, low taxes, $195,000. 286-0549.

CORAM - Strathmore East, 4-bdrm. ranch, 2 baths, cathedral l/r, 2-car gar., gas heat, fenced corner lot, $120,000. Ext. 3791 or 928-7154.

EAST MARION - 1-acre bldg. lot adjacent to Greenbelt, walk to Sound. 325-0447.

EASTPORT, SOUTHAMPTON TOWN - seven 1-acre wooded lots, $75,000-$90,000 and 100-yr.-old Victorian; 90% renovated, 4-car heated gar., 1.6 acres, $198,000. 325-1998, leave message.

HOLBROOK - 4-bdrm. ranch, l/r, d/r, eik, full unfin. basement, w/w, deck, fenced yard, ¼ acre, $119,900. Ext. 3809 or 588-9019 eves.

MANORVILLE - 5-bdrm. ranch, eik, l/r, pantry, foyer, laundry, igp, vinyl siding, bsmt., 1½ baths, low taxes, screened patio, wood/coal stove, 1 acre, $140,000. 472-2414.

MIDDLE ISLAND - 3-bdrm. ranch, eik, den, d/r, l/r w/bay window, 1½ baths, screened porch, patio, full bsmt., wooded ½ acre, cul-de-sac, $128,900 neg. 924-6051.

PATCHOGUE - 4-bdrm. Victorian, mint, parlor, l/r, d/r, eik, sunroom, 1½ baths, fp, new roof & cesspools, updated elec., plumbing, heating, woodwork, ½ acre, $189,900. Tom. Ext. 4030.

PORT JEFFERSON STATION - ½ acre, fenced backyard, igs, prof. landscaped, alarm system, all appl., 1-car gar., attic fan, desirable neighborhood, $131,900. 473-5012.

RIDGE - Leisure Knoll Adult Community, 1 bdrm. duplex, a/c, appl., taxes $1,800, clubhouse, pool, etc., $65,000, immed. occupancy, over 55 only. Ted, Ext. 4589 or 475-8581 eves/wkends.

SHOREHAM - 4-bdrm. Cape, attach. 2-car gar., 2 fp, 1½ baths, d/r, 1-acre treed lot, new appl., extras, estate, must sell. Vi, Ext. 5169 or 744-6043.

SHOREHAM - N25A, 4-bdrm. Col., 2½ baths, 2-car gar., bsmt., encl. porch, fenced ⅓ acre, all large rooms, near shops, SWR school, bus, 10 min. to Lab, $165,000. 744-0960.

SOUND BEACH - 3-bdrm. ranch, 2 baths, l/r, eik, d/r, gar., cedar deck, agp, fenced yard, rental income, Miller Place Schools, $130,000. 821-1271.

WADING RIVER - 4-bdrm. contemp., den, 2½ baths, fin. bsmt., 7 skylights, balcony, ¾ acre, 2-car gar., taxes, $2,000, Shoreham schools, fp, Andersen windows, $235,000. John, 929-8142.

SHAWNEE-ON-DELAWARE, PA - timeshare week #40, sleeps 6, dining area, kit., golf, riding, canoe trips. Tom, Ext. 5350.

Wanted

BOAT TRAILER - used, cheap, to move 16' light sailboat on property, not for road use. Ext. 3593.

DOUBLE STROLLER - good, usable cond., reasonable price. 475-3254.

HOUSEMATE - to share house, $425/mo. includes cable & util., kit., laundry, fp, Patchogue area, 752-0294 after 3 p.m.

HOUSEMATE - own room in a 2-bdrm. house, $250/mo. + ½ util., $100 deposit. Ext. 3010.

HOUSEMATE - share house, clean, nice area, close to all, in Miller Place, all appl., very private, male, female, or couples, $425/mo. 924-7477.

MARINE RADAR - Loran in good cond. Paul, 727-4859.

NINTENDO - used w/games. Harry, Ext. 7527.

OUTBOARD MOTOR - 40-140 h.p., running cond., reasonable. 563-6680.

TUBED AUDIO COMPONENTS - including short-wave receivers, working or not, also a good sextant. Jim, Ext. 4584.

WET SAW - for cutting bricks, rent or buy. Tony, 698-9274.

XT COMPUTER - cash for your dead or sick XT or AT, I will use the parts. Cadwell, Ext. 2934.

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