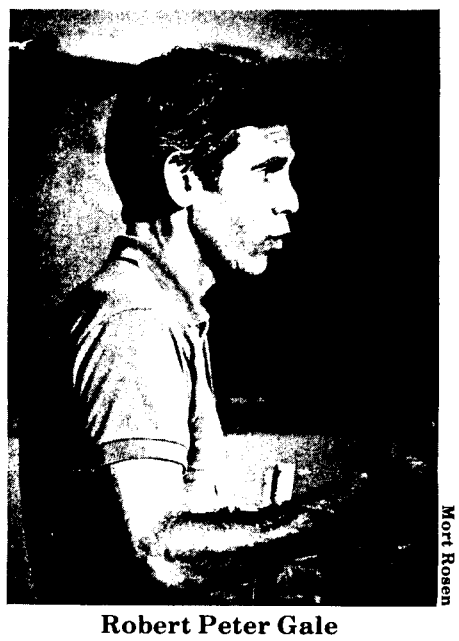
BROOKHAVEN BULLETIN
Vol. 40 - No. 32 August 15, 1986
BROOKHAVEN NATIONAL LABORATORY

Medical Conference Focuses on Chernobyl

"Short-Term Health Effects of Reactor Accidents: Chernobyl" was the subject of an international conference held in the Medical Department last Friday and Saturday, August 8-9, and sponsored by the Office of Health and Environmental Research (OHER), Department of Energy.

BNL Senior Scientist Victor Bond organized the conference, along with Senior Scientist Eugene Cronkite of BNL and William Burr, Oak Ridge Associated Universities. Bond explained that the idea for the meeting arose from an early July conversation with Jacob Thiessen, Deputy Associate Director of OHER. They discussed the extent to which the Chernobyl accident might help fill in serious gaps in the existing body of knowledge about early effects of large doses of external radiation delivered to the whole body and approaches to treatment.


Mort Rosen

Robert Peter Gale

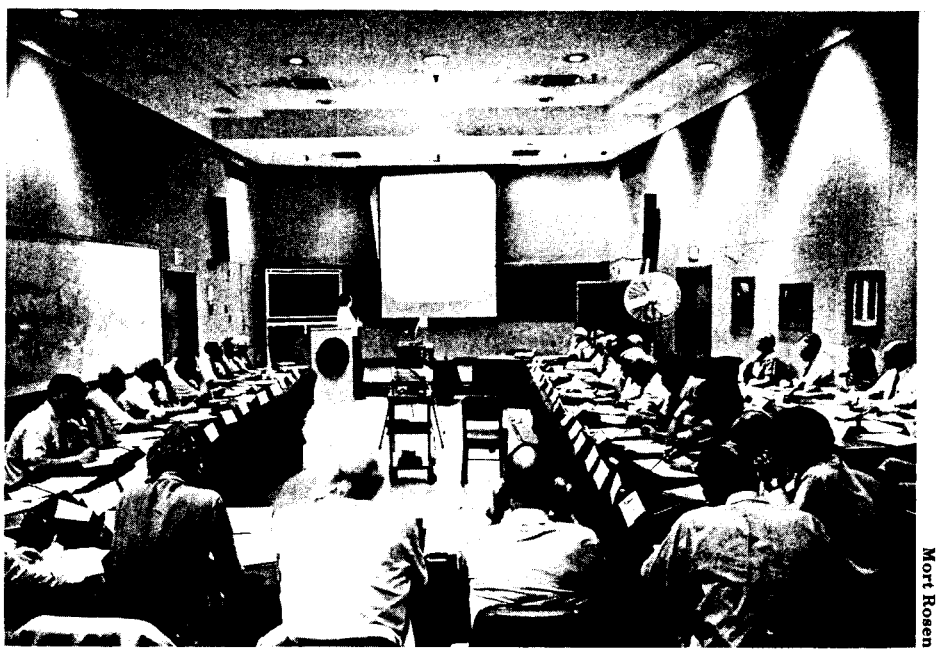
Thus the conference brought together many of the pioneers in the field of human radiation injury. Most of the 45 attendees were physicians who have had experience either with people who have suffered radiation injury, people who were exposed to radiation for treatment purposes or animals that received experimental radiation injuries. Representative of the vast experience of the group was E. Donnall Thomas of the University of Washington, who is acknowledged as one of the fathers of bone marrow transplantation. Providing firsthand experience in using that procedure to combat high radiation exposure from the nuclear power plant accident at Chernobyl was Robert Peter Gale, of the University of California at Los Angeles.

Just seven days after the April 26 explosion and fire at the Soviet Union's number 4 nuclear power plant at Chernobyl, Gale and his associates flew to the U.S.S.R. to treat radiation victims. Since his initial stay, during which he assisted the Soviets in performing 13 bone marrow transplants, Gale has twice returned to the Moscow hospital for follow-up on his patients and to discuss long-range plans to deal with the exposed population of approximately 100,000 individuals. In his conference talk, Gale described the situation he encountered upon his arrival.

"When we arrived," he said, "It was my intention to reconstruct the dosimetry [the radiation doses received]; this was impossible. Their film badges were completely off scale and were not useful."

Dose calculation was further complicated by the fact that the patients had injuries from multiple sources. In addition to burns from radioactivity, they had been burned by fire. They had also inhaled fumes of burning plastic. Though these agents could often cause similar symptoms, Gale and the Soviet doctors had to use the degree of skin involvement and the time of first onset of nausea and vomiting to estimate dose. They also relied on the patients' blood lymphocyte counts (lymphocytes are a type of white blood cell), as well as cytogenetic analyses, to determine the extent of chromosome aberrations.

These data were used to select those patients who probably had lost all bone marrow function and would die without a transplant. Some of the marrow for the 13 transplants came from the patients' parents, but most came from siblings, who were called to Moscow from all corners of the Soviet Union. Gale suggested that data regarding siblings might be included in records for all power plants worldwide.


Mort Rosen

Theodor Fliedner, University of Ulm, West Germany, leads a discussion at the Medical conference on "Short-Term Health Effects of Reactor Accidents: Chernobyl."

Of the 13 transplant patients, Gale expects ultimately only about three to five to survive. Because there are so many complicating factors, he said, "your expectation should not be very high." To date, a total of 30 of the 500 people exposed to substantial doses of radiation have died as a result of the accident. Given the circumstances, Gale feels the Soviets "did a very good job."

While Gale points out that final analyses of the accident and treatment will help in future accident planning, he noted that, overall, "It was much more complex in an actual field situation than is generally conceived."

In addition to answering questions, Gale's recent experience raised some. For instance, what are the respective merits of lymphocytes, granulocytes (another type of white blood cell) and cytogenetics as a measure of received dose? Cronkite pointed out, "With Hiroshima victims, the granulocyte count was predictive of who would live and who would die." And in his discussion of the Bone Marrow Syndrome, Theodor Fliedner, of the University of Ulm in West Germany, suggested that granulocytes, which have a lifespan of less than a day, might be the best indicator when a quick decision must be made regarding transplant therapy. Since it would be known within five days whether the cells are reproducing, he explained, doctors would have a good indication of whether the bone marrow was viable.

Other conference discussions dealt with the effects of radiation on the gastrointestinal system, central nervous system, lungs, skin and thyroid. One discussion concentrated on the combined effects, such as the thermal

(Continued on page 2)

The Trouble With Tanning

The perfect tan has become a modern status symbol that sunbathers seek each summer. Whether at the beach or in the tanning parlor, millions of Americans expose themselves to ultraviolet (UV) radiation as they develop and maintain their tans. According to Betsy Sutherland, scientist in the Biology Department, UV light can cause considerable damage to DNA, the molecule that carries our genetic information.

Anthony Blackett, Steven Freeman and Sutherland have been investigating the molecular effects of UV radiation from the sun and tanning lamps on the DNA in human skin. They have been collaborating with Richard Grange M.D., Department of Dermatology at Harvard Medical School. He exposes skin of volunteers to UV radiation for a specified amount of time. He then sends the skin samples to BNL for molecular analysis.

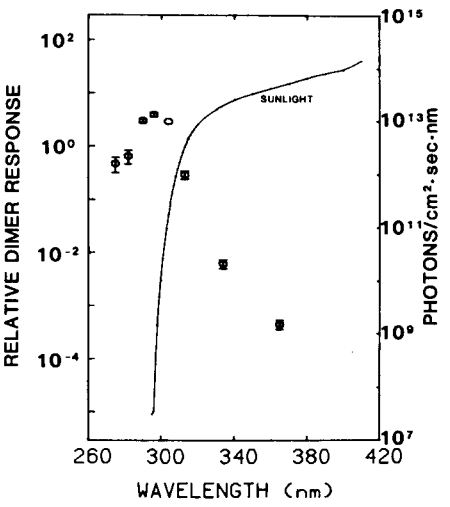
As the tans start to fade in the waning days of summer, many people run to tanning parlors. What they do not realize is that the rays from "safe" UV A lamps are not as safe as people claim. The difference between exposure to the sun and a tanning lamp is that sunburn is a painfully obvious warning that your body has been overexposed. The danger of going to tanning parlors is that you don't burn. In tanning parlors, your tan becomes deeper, and there's no way to know when to stop exposure. Although tans can offer some protection against further exposure to the sun, a tan from a tanning parlor may not protect you against burns from the sun.

To detect DNA damage, Sutherland and her group have exploited a very sensitive technique. UV light can cause the creation of pyrimidine dimers, resulting from abnormal bonds between DNA bases that can ultimately prevent the production of proteins, cause mutations and induce cancers.

Sutherland and her group have isolated an enzyme, the UV endonuclease, which makes a cut in DNA adjacent to each dimer. When they treat the DNA from their skin samples with the enzyme, it breaks the strands into a number of pieces. They can then calculate how many dimers are in the DNA by examining the distribution and density of the pieces on a "gel," which separates molecules by their size. Currently, they can identify one site of damage per million DNA base pairs.

A direct correlation exists between DNA damage and the intensity of UV rays. The sun emits a wide range of ultraviolet radiation from the more energetic UV B light to the less energetic UV A light. Previously, researchers had thought that only UV B radiation could damage DNA. With their "UV endonuclease technique," they have shown that UV A radiation causes the same type of molecular damage, but at a slower rate than the more energetic UV B radiation.

Tanners, beware! The "pale look" may make a comeback as people who are health conscious start staying out of the sun. — Howard Rubin



The graph shows which wavelengths of light are the most efficient in damaging human skin. The points show the yields of dimers (abnormal bonds between DNA bases) in human skin exposed to equal numbers of photons of light of one wavelength. The curve shows the amount of light (photons/cm² sec nm) reaching the surface of the earth. The overlap of the data points and the curve indicates which wavelengths in sunlight are most efficient for damaging the DNA of human skin.

Inside Info

Michael Weinert, Assistant Physicist in the Physics Department, has been awarded a Research Fellowship from the Alexander von Humboldt Foundation. He will leave the first week in September for a year at KFA - Julich, West Germany, where his research will involve looking at defects in surfaces. Weinert is a theoretical solid state physicist who came to the Lab in September 1982 after receiving his Ph.D. from Northwestern University.

The Alexander von Humboldt Foundation has been in existence since 1860. It was dissolved in 1945, and re-established in 1953 by the Federal Republic of Germany. It aims to promote scientific cooperation between scholars in Germany and other countries.

In the Midst of Science — Nature

Throughout the summer, I have mused upon the changing face of nature at Brookhaven, watched torrential rains and suffered through hazy, humid weather. I have spied deer wandering around the Lab and rabbits hopping along the road. As a native of New York City working at the Lab for the summer, I have grown accustomed to the rhythms of nature here, its pleasant surprises and unwelcome visitors.

Hardly a Thoreau, I have not camped out in the woods, but observed nature before signaling a quick retreat to the office. To record what I have seen, I do not use pencil and paper, but compose on the nearest word processor.

Many of the Brookhaven scientists I have interviewed in the past three months are exploring the world of the microscopic, what the poet William Blake described as the "world in a grain of sand." To describe that world, they have built larger and more sophisticated equipment to look at smaller segments of it. Encounters with nature's macroscopic world, however, can still have a powerful effect upon all of us.

Unexpected contacts with nature have galvanized my perception and appreciation of it. Jogging on the field behind the firehouse, I noticed from a distance the Lab's huge antenna which pierces the sky in an elegant slender line. As I got closer I saw the metal cables anchoring it to the ground. Looking up at the antenna, I was startled. Out of the corner of my eye, I noticed something moving in front of me. A creature, which looked like a groundhog, must have been as startled as I was; he began running away from me with unexpected agility.

One friend of mine experienced a similar meeting one misty evening down by the playing fields. Out for his after-dinner stroll, he suddenly noticed three deer grazing. He was close enough to touch them but did not dare. One fawn kept on eating, but the other two deer raised their heads and stared. Neither animals nor man moved.

In the guise of a chipmunk, with white markings down his brown back, nature often greets me in front of Berkner Hall. I have seen him stand on his haunches to watch what is going on around him. He is an example of the adaptability of nature.

Far from the bright lights of the Big City, the sky over Brookhaven's natural landscape liberates me. On a clear night, the sea of stars speaks as eloquently to the heart and soul as the physicist trying to explain what he sees up there. While the scientist takes his place at the computer console or on his beam line, I sit at the Brookhaven Center, looking west. After the sun has dipped below the horizon, the red-tinged clouds herald the darker tones of evening. The stars, inspiration for the astrophysicist, welcome the poet and the writer too.

Toward the beginning of the summer, a friend and I sat on the patio of Berkner discussing science and society, and gazing at the drama of the nighttime sky. Suddenly, I saw a falling star— a meteor burning through the atmosphere. It appeared as a trace of white light arcing downward, visible for only a moment before it vanished. If I hadn't been looking directly at it, I would have missed it.

Watching a falling star is like "observing" the short-lived particles produced in collisions of particles in accelerators. From studying computer printouts of their interactions, a scientist can tell something about a particle. He looks at it indirectly, just as I could only see the fiery descent of the meteor, not the rock itself. The particle and the falling star are gone almost as soon as they are detected. You have to be ready to catch their evanescent tails of light.

Upon my return from stargazing, I am impressed and discomfited by the number of insects that invade Compton House. They are nature claiming its stake, moving in on the house we dared to build in their domain. Their entry into this house is usually their death. The protective coloration of the moths, which served them so well outside, offers no protection upon the white tiles of the bathroom. After my initial uneasiness, I have begun to acquire an entomologist's eye. Each "swiggly crawly" creature has elaborate structures that make it uniquely fit to occupy a niche in its natural environment.

Three baby woodchucks emerge from their underground tunnel system on site to check out our current research.

Settling deeper into a comfortable chair in my room, temporarily undisturbed by the crawling multitudes outside my door, I mull over the name of the laboratory. We are neither Upton, nor Yaphank, nor Middle Island Laboratory, but Brookhaven National Laboratory. Norman Ramsey, a former trustee of AUI, chose the Lab's name precisely because it "had a misleading association with quite shady streams which might make the laboratory site sound more attractive than it actually was." But seeing a deer while gazing out your office window is always a possibility here. Brookhaven may not be a sanctuary for babbling streams and fields of wildflowers, but it is a haven for many animals. Brookhaven is more than just a place to work or a place to look for rabbits and deer. It is a *national* laboratory. Like our parks and undisturbed wild places, it is a natural resource. We must care for it and protect our scientific heritage, just as we preserve a Yellowstone or a Yosemite National Park.

— Howard Rubin

Chernobyl (Cont'd)

and radiation burns Gale had noted at Chernobyl. And the final talk focused on the effects on fetuses in early stages of gestation. Jack Schull of the University of Texas at Houston has conducted a long-term study of people born following the bombings of Hiroshima and Nagasaki. He has found cases of severe mental retardation in some exposed between the eighth and fifteenth weeks of pregnancy — a loss of about 25 points of I.Q. following a dose of 100 roentgens (rads). Since no data on these victims was compiled until three years after the exposure, Schull said, "We don't know what transpires in this very early period of time immediately following exposure." He suggested that at Chernobyl, or in a similar situation, modern techniques such as ultrasound may be able to provide such information.

The conference summary was conducted by Stuart Finch, of Rutgers University. He reiterated Thiessen's opening charge to the group, saying, "If we are to accept the nuclear option, we must be prepared for the inevitable outcome of future accidents." This, he stressed, requires concern for the lessons learned at Chernobyl, planning, education and research. Of great importance to the field, he added, is an infusion of both new funding and "new blood," people interested in continuing the important work that those attending this conference started and brought to maturity. — Anita Cohen

Further Comments . . .

Following last week's meeting at BNL, Robert Gale and Victor Bond appeared at a press conference on Saturday. Highlights follow.

Reporters focused on Gale's feelings about nuclear power. Stressing that he is neither for nor against it, Gale said, "The question is not whether we want nuclear energy; it exists. Even if there were no nuclear station here . . . five hundred will be in operation [in the world] by 1990. We are living in a nuclear age. It's inevitable that accidents will occur. The most important issue is that these accidents know no international boundaries. . . .

"We must convince the public that we can deal with these accidents. Nuclear energy will expand, but the rate will depend upon the public's confidence that we can prevent accidents and deal with them when they occur. . . .

"Every form of energy has its cost, and society, by and large has accepted this price. Except for an unprecedented change in civilization's attitude, nuclear energy is going forward."

To deal with accidents, both Gale and Bond stressed the need for new people to enter the field of radiation biology. Bond said those now in the field are "an aging population that is well acquainted with these problems. There are not many people interested in going into this." But Gale expressed the idea that this would begin to change, particularly as the nuclear power industry becomes more open about plans to deal with accidents.

Gale did not start out dealing with radiation injury. As an immunologist, however, he has done many bone marrow transplants and sees the connection. "About 1,500 people receive bone marrow transplants each year for leukemia," he said. "We cure approximately one-half of these individuals because scientists in the past asked, what could we do if we had a radiation accident? . . . We don't always understand the full impact of a course of research." —A.C.

Patents Awarded

Because of potential danger to the environment, particularly from acid rain, much attention has been devoted to the control of emissions from fossil fuel combustion. **Meyer Steinberg**, DAS, was recently issued U.S. Patent #4,555,392 for inventing a way to use Portland cement to remove oxides of sulfur from the emissions of fossil fuel combustion.

Portland cement, the common name for calcium silicate cement, can be injected into the boiler with the fuel, the combustion air, or downstream in the combustion gases. In any event, it reacts with the sulfur dioxide formed from the fossil fuel being combusted to form calcium sulfite silicate. In the presence of sufficient oxygen, it will form calcium sulfate silicate. Both of these products can be removed easily and efficiently with the fly ash using existing collection equipment. The process of the invention, therefore, is readily adaptable to retrofit engineering.

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Alfred W. Maschke, a former BNL employee, was issued U.S. Patent #4,560,905 for inventing a charged particle accelerating assembly that uses a plurality of linearly spaced electrostatic quadropoles to focus and accelerate charged particles in a beam. More particularly, the invention relates to an assembly with structural and operating parameters that effectively maintain an essentially laminar flow of a beam of particles as it traverses the electrostatic fields of the quadrupoles in the assembly.

U.S. Patent #4,572,285 was awarded to **Thomas E. Botts**, a former BNL employee, **James R. Powell**, DNE; and **Roger Lenard**, a collaborator, for inventing a heat radiating apparatus that is useful in spacecraft for ejecting heat energy from such craft into space.

In the past, many different types of energy radiating devices have been designed in an attempt to overcome the dilemma between the need for a large energy radiating surface and the need to minimize the overall weight of an energy radiating system. The present invention uses a magnetic focusing means for directing and accelerating liquid droplets into a relatively small, lightweight droplet collector within the radiator system. The magnetic focusing means is also effective in suppressing splashing of liquid when the droplets impinge on the collector.

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Former BNL employee **William G. Wilhelm** was awarded U.S. Patent #4,559,924 for inventing a thin film absorber for a solar collector.

There are myriad solar energy absorbers and collectors available. Generally, these have tended to be complicated and labor intensive. Wilhelm's absorber departs from standard practice in that it uses high performance, low cost, thin films for the window of the collector and for the absorber. The thin films are bonded to the collector in a stressed state, thus adding to the overall strength of the panel.

Reports Available

The following reports are now available to the Laboratory staff and to affiliates of the DOE, AUI and NRC. Others may purchase the reports from the National Technical Information Service, U.S. Dept. of Commerce, 5285 Port Royal Rd., Springfield, VA 22161. Staff members should call the designated contact at the extension listed.

NUREG/CR-2331
BNL-NUREG-51454
Vol. 5 #3
Contact: J. Wilson, Ext. 2922
Safety Research Programs Sponsored by Office of Nuclear Regulatory Research. Quarterly Progress Report July 1-Sept. 30, 1985. Compiled by A.J. Weiss.

NUREG/CR-3137
BNL-NUREG-51643
Contact: J. Murray, Ext. 2446
Seismic and Dynamic Qualification of Safety Related Electrical and Mechanical Equipment. Prepared by M. Subudhi, et al.

BNL-51870
Contact: C. Baum, Ext. 4835
A Technical and Economic Assessment of Condensing Space Heating Systems. J.W. Andrews, et al.

NUREG/CR-4207
BNL-NUREG-51872
Contact: C. Conrad, Ext. 2272
Fault Tree Application to the Study of Systems Interactions at Indian Point 3. Prepared by R. Youngblood, et al.

NUREG/CR-4319
BNL-NUREG-51904
Contact: L. Marascia, Ext. 4904
NUCRAC: A Code for the Estimation of Adversary-Action Consequences in the Nuclear Power Fuel Cycle. Prepared by Science Applications, Inc, D.C. Kaul, et al.

NUREG/CR-4374
BNL-NUREG-51917
Vols. 1 & 2
Contact: C. Conrad, Ext. 2272
A Review of the Oconee-3 Probabilistic Risk Assessment. Vol. 1 - Internal Events, Core Damage Frequency. N.A. Hanan, et al. Vol. 2 - External Events, Core Damage Frequency. N.A. Hanan, et al.

NUREG/CR-4493
BNL-NUREG-51951
Contact: K. Becker, Ext. 3652
An Experimental and Analytical Investigation of Quenching of Superheated Debris Beds Under Top-Reflood Conditions. Final Report. T. Ginsberg, et al.

NUREG/CR-3957
BNL-NUREG-51956
Contact: D. Votruba, Ext. 2746
Reliability Assessment and Probability Based Design of Reinforced Concrete Containments and Shear Walls. Summary Report. H. Hwang, et al.

NUREG/CR-4545
BNL-NUREG-51965
Contact: A. Donegain, Ext. 4425
Pipe Crack Evaluation in Operating Boiling Water Reactors. Prepared by C. Auerbach, et al.

NUREG/CR-4547
BNL-NUREG-51966
Contact: S. Flippen, Ext. 2507
CONTEMPT4/MOD6: A Multichannel Containment System Analysis Program. Prepared by C.C. Lin, et al.

NUREG/CR-4557
BNL-NUREG-51969
Contact: A. Fort, Ext. 2114
A Review of Issues Related to Improving Nuclear Power Plant Diesel Generator Reliability. Prepared by J.C. Higgins, et al.

BNL-51978
Contact: B. Ivero, Ext. 2208
Technical Assessment of a Direct Contact Heat Exchanger as an Energy Conservation Retrofit Option, R.J. McDonald, et al.

BNL-51954
Contact: K. Hauser, Ext. 2223
Waste Form Evaluation Program. Final Report. Prepared by: E.M. Franz, et al.

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Nursery School Needs Substitutes

The Upton Nursery School needs two certified teachers for the school year beginning September 8, to act as substitutes for its regular teaching staff. Those wishing to apply should do so in writing, before August 25. Send resume to: Upton Nursery School, P.O. Box 324, Upton, New York 11973. For more information, call Susan McCafferty, 878-1255.

Registration Open

The Upton Nursery School is now registering children for September. Enrollment is open to three- and four-year-old children whose parent or relative is an employee of BNL.

Classes are held on site in the Recreation Building. The three-year-olds attend twice a week, while the four-year-olds meet three times a week.

The program provides an excellent opportunity for children to experience learning in a creative atmosphere under the supervision of qualified teachers.

There are still openings for September enrollment. For more information and enrollment forms, call Marietta Veligdan, 924-4074, or Susan McCafferty, 878-1255.

Wasp Alert

The fabled killer bees have not reached Long Island, but wasps are here to stay. Party goers, be on your guard! Wasps, particularly, yellow jackets, are most numerous during August and September. And they love the same food we do, including hot dogs, hamburgers, soda, beer and cookies. And they sting people.

What can you do to thwart the invasion of the wasps at your next outing? Cooperative Extension of Suffolk County advises that proper sanitation around picnic areas can reduce the number of foraging insects. Eliminating flowering plants will have the same effect.

People who are afraid of being stung should wear light-colored, smooth-finished clothing. Bathe frequently and avoid using perfumes or colognes which may attract stinging insects in search of food.

Arrivals & Departures

Arrivals

Elbio R. Rotela . . . . . NSLS

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

Departures

James M. LeMaire . . . . . Budget

Archery Club

Joseph Bauernfeind took top honors at the New York State Field Archery Championships held in Watkins Glen, N.Y., last Sunday, August 10. Bauernfeind also won the state championship in 1978.

WIS Meeting

A lunch meeting of Brookhaven Women in Science will be held at noon, Tuesday, August 19, Room A, Berkner Hall. The purpose is to nominate candidates for WIS officers for the next fiscal year. The nominating committee of Harriet Martin, Mary Kinsley and Ellen Gannon-Weider is considering nominations for a group coordinator, secretary, treasurer, program coordinator, publicity coordinator and seminar-lecture coordinator. Bring your lunch.

Safety Shoes

The on-site safety shoe representative will be on vacation the week of August 18. Normal operations will resume the week of August 25.

Cafeteria Menu

Week of August 18

Monday, August 18

Old-fashioned Dutch green bean soup	(cup)	.65
	(bowl)	.85
Broiled flank steak w/1 veg.		2.65
Ham & potato au gratin w/1 veg.		2.50
Hot vegetable plate (lite weight)		2.25
Hot Deli: Turkey	(bread)	2.35
	(roll)	2.50

Tuesday, August 19

Turkey noodle soup	(cup)	.65
	(bowl)	.85
Chicken burrito/hot sauce w/1 veg.		2.45
Seafood Newburg over rice		2.55
Yogurt & melon plate (lite weight)		2.25
Hot Deli: Chicken patty on onion roll		2.35

Wednesday, August 20

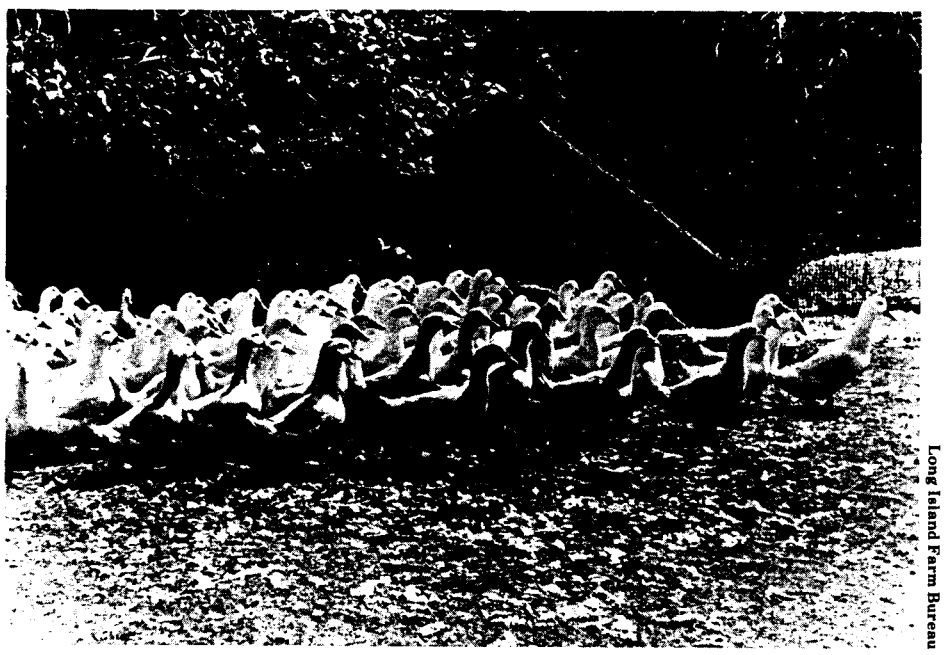
Cream of cauliflower soup	(cup)	.65
	(bowl)	.85
Polish-style stuffed peppers w/1 veg.		2.45
Liver & onions w/1 veg. (lite weight)		2.45
Hot Deli: Roast beef	(bread)	2.35
	(roll)	2.50

Thursday, August 21

Chicken gumbo soup	(cup)	.65
	(bowl)	.85
Veal Parmesan w/spaghetti or 1 veg.		2.65
Shrimp Oriental over rice (lite weight)		2.65
Hot Deli: Meatball hero		2.45
Top your own baked potato		1.50

Friday, August 22

Cream of mushroom soup	(cup)	.65
	(bowl)	.85
Beef stroganoff over noodles		2.45
Baked pork chop w/1 veg.		2.55
Seafood quiche (lite weight)		2.45
Hot Deli: Knockwurst w/German potato salad	(bread)	2.45
	(roll)	2.55



Long Island Farm Bureau

There are 4 million quacks on Long Island, but everything is just ducky. They are residents of Suffolk County's 19 duck farms. Duck raising is a $20 million industry, which provides delectable Long Island duckling and down feathers for winter clothes and fluffy quilts. Historians have traced the ancestry of the Long Island duck back to the Pekin duck, which nineteenth-century sea captains brought back with them from China.

Afro-American Club

Who: The Afro-American Culture Club.

What: is sponsoring a family gathering and invites everyone to attend.

When: Saturday, August 16, from noon until 6 p.m. (rain date — Sunday, August 17)

Where: at the Recreation Park.

The gathering will feature contests, games, prizes, good food and drink, J.J. the Clown, a magic show, face painting, dancing and music by our own "E.T.," as well as Reggae music by D.J. "Raz Marvin" from WUSB. Lunch will be served at 1:30 p.m.

Tickets are $5 for adults, $2 for children under 12. It is preferred that tickets be purchased in advance, but no one will be turned away "at the door."

For information and tickets call April Donegain, Ext. 4425; Sandra Dozier, Ext. 4933; Frances Ligon, Ext. 3709; Bruce Penn, Ext. 7213; or Barbara Simpson, Ext. 7009.

Swim Club

At the New York City Parks Department Astoria Pool Masters Swim Meet on Sunday, August 3, Toshi Sugama placed first among men 35-39 and third overall in the 100-meter breaststroke with a time of 1:23.88, and second in his age group in the 100-meter individual medley, with a 3:27.65.

Softball

Standings as of 8/8
League I

Team	Won	Lost
Division I:		
Cool 'n Gang	5	4
Ravens	5	5
Moles	3	6
SMF	3	7
Division II:		
Blue Jays	7	2
Phoubars	7	3
Six Pax	7	3
A-Team	3	6
Dirty Sox	3	7
League II		
Magnuts	9	2
Scram	8	3
AMD	8	3
Titans	7	4
Binary Bombers	7	5
Phase II	5	7
Medical	3	8
Lights Out	3	9
Cutting Edge	1	10
League III		
Snakebites	10	1
Survivors	8	2
Farm Team	7	4
Kidz-R-Us	7	4
Septembers	6	4
Mole-Esters	6	6
Source	3	8
Turkeys	3	9
Who Cares	0	12
League IV		
Foul-Ups	11	0
No Feedback	6	5
Sandboxers	6	5
Hit 'N Run	6	6
Who's on First	6	6
Simply Awesome	5	6
Underalls	4	7
Spacekadets	4	8
Mudville Sluggers	3	8

Games for week of 8/4
League I
Cool N' Gang 13 - SMF 4
Moles 12 - Ravens 11
Phoubars 23 - A-Team 13
Six Pax 16 - Dirty Sox 7
League II
Magnuts 11 - Cutting Edge 5
Phase II 14 - Binary Bombers 3
AMD 3 - Medical 2
Games of 7/28 and week of 8/4
League III
Septembers 15 - Source 6
Kidz-R-Us 11 - Who Cares 3
League IV
Simply Awesome 15 - Underalls 6
Hit N' Run 13 - Who's on First 1
No Feedback 9 - Sandboxers 7
Spacekadets 15 - Mudville Sluggers 9
Makeup Game from June 12
Spacekadets 21 - No Feedback 5

Classified Advertisements

Placement Notices

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

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

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

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

THE VACANCY LISTED BELOW HAS BEEN EXEMPTED BY THE DIRECTOR'S OFFICE FROM THE CURRENT FREEZE ON OPEN REQUISITIONS.

LABORATORY RECRUITMENT - Opportunities for Laboratory employees only.

2474. SECRETARIAL POSITION - Requires AAS degree in secretarial science or equivalent experience and a broad-based knowledge of laboratory policies and procedures. Excellent secretarial and communication skills essential. Under general supervision, will be responsible for technical manuscipts, correspondence and travel arrangements. NBI word processing experience desired. Safety and Environmental Protection Division.

Autos & Auto Supplies

76 DATSUN 510 - $700., Ext. 3790 or 3032 eves.

72 FORD F100 - 6 cyl., $200. 399-3712.

77 PINTO WAGON - 4 cyl., many new parts, needs minor work, $300. Dave, Ext. 4428.

75 CHEVY MALIBU - new brakes and tune-up, needs rubber. $100. 399-6367.

CARRIER ROOF RACK - for Volk, $10. Ken, Ext. 2705.

69 MUSTANG - good running cond. 878-6074.

65 JEEP PICKUP - w/Chevy 350 cu. in. V-8, '79 axles, bucket seats, roll-bar, cb, cap. 467-4222.

73 HONDA - 750 cc, windshield, sissybar, trunk, custom seat, dependable, $595; 78 HONDA, CX500 cc, shaft drive, dependable, stock, $325. Frank, 399-4480.

78 YAMAHA X5400 - 14k mi., good cond., $650. 473-9223 after 5 p.m.

70 PLYMOUTH BELVEDERE - station wagon, V-8, 318 c.i.d., running cond., as is, asking $175. 732-8853.

80 MERCURY MONARCH - 6 cyl., am/fm radio cass., very clean, new tires, 64k mi., good cond., $4,000. 727-5912.

79 FORD WAGON - 6 cyl., am/fm, 70k mi., p/s, p/b, w/tow pkg., a/t, very good cond., $1,700 neg. Mike, Ext. 4605 or 281-5456 eves.

78 CADILLAC FLEETWOOD BROUGHAM - a classic, like new, $3,500; 2 tires, 8.75 16-5LT Goodyear tracker 11, 6 plys, (1) $40; (1) free. 475-4596.

75 LINCOLN TOWN COUPE - powder blue, good cond., $1,195. 732-7186 after 6:00 p.m.

83 TOYOTA STARLET - 53k mi., 4 spd., good cond., $2,800. 589-9160 after 7 p.m.

80 CHAMP - high mi., excel. shape, $1,200. 765-2953.

OIL FILTER - dual, for Ford products, $2. Morris, Ext. 4192.

72 MERCURY MONTEGO - very good cond., sacrifice, $500. Dan, Ext. 4987 or 698-7322.

80 CITATION SPORTS COUPE II - new eng., tires, batt., a/c, m/t, p/s, p/b, stereo, 4 spkrs., good car, good deal, $2,000. Marv., Ext. 3440.

79 CHEVY MONZA - body, minor damage, make offer; engine, 4 cyl., runs, $400 firm; trans., $250 firm. 751-0747.

77 PLYMOUTH TRAILDUSTER - 4x4, a/t, a/c, p/s, p/b, many new parts, 76k mi., $1,600. Ken, Ext. 2350 or 698-4254.

72 BUICK - p/s, p/b, a/c, new exhaust & distrib., asking $300. Danny, Ext. 4446 or 924-0930 after 5 p.m.

CYLINDER HEADS - for Hemi 382 CI, just redone, $200. 928-7734.

AUTO PARTS - for Duster & Demon, engine, fenders, drs., hood, glass, etc., low prices. 727-3608 after 5 p.m.

70 NOVA - 8 cyl., new tires, blue, '79 engine, runs well, $700. JoAnn, Ext. 4311.

79 TOYOTA CELICA GT - 5 spd., a/c, am/fm stereo cass., rack, $2,200. Ext. 5185.

73 CHEV. PICKUP - 4x4, V-8, auto, a/c, stereo, good, $2,000. Tony, 269-9510 eves.

82 PLYMOUTH HORIZON - hatchback, good engine, 35 mpg, 90k mi., new starter, $2,500. Carol, Ext. 2907 or 928-8379.

77 PINTO WAGON - 36k mi., orig. owner, V-6, p/s, p/b, auto., new tires, $2,000. Ext. 3509.

79 DIESEL RABBIT - sunroof, am/fm cass., new brakes, muffler, high mi., very good cond., $1,200. 698-8173.

77 MERCURY STATION WAGON - p/s, p/b, a/t, a/c, p/w, cruise, & more, excel. cond., $1,500. Ext. 5161 or 924-1460.

72 CHEVY NOVA - 6 cyl., a/t, has rust, used daily, $250. Dick, Ext. 3499 or 589-9103.

80 DATSUN - 200SX hatch, 5 spd., p/s, p/b, am/fm, 64k mi., recent tires, good cond., $2,400. Ext. 7960 or 289-6049.

STEP BUMPER - fits '80-'85 Ford pickup, asking $65. Ext. 7713.

77 HONDA CIVIC - hatchback, 4 spd., new brakes, trans., $460. John, Ext. 3164.

TIRE CHAINS - lug reinforced 7.50-15, 3-bar type luggage racks w/bkts. & ties. 395-1903.

74 DODGE DART - slant 6, new exhaust, new clutch, for parts, Jurg, Ext. 3422 or 821-3243.

75 HONDA CB400 - red w/chrome trim, only 3,300 orig. mi., $475. Steve, 277-4302.

77 LINCOLN - no rust, clean, luxury, 93k mi., mech. perfect, $1,499 neg. Ext. 2735 or 475-4690.

79 DODGE CHALLENGER - 4 cyl., 5 spd., a/c, am/fm stereo, good cond., $800. Steve, Ext. 3822 or 929-6527.

82 PLYMOUTH CHAMP - low mi., sunroof, excel. in & out. 363-7032.

79 TOYOTA CORROLLA - 5 spd., new batt., recently tuned-up, good, highway mi., new head gasket, asking $1,800. Wajid. Ext. 3405.

66 FORD TOW TRUCK - w/elec. hydr. plow, clean, good working order. $3,000. Ext. 5294.

73 VW SQUAREBACK - std., new muffler, alt. & batt., reliable, $525. Ext. 4463 or 751-2422.

TIRES - (1) 5.00/5.20/15, (2, unmatched) 5.60-15, (1 snow) 6.85-15, all 4-ply, tubeless, no wheels, $8 ea.; 5-HOLE WHEELS, 1 ea.: 6.13, 700-13, G-78-15, C-78-13, $8 ea. Ext. 3239.

77 PINTO - 77k mi., runs well, new exhaust, brakes, asking $600. James, Ext. 3382 or 744-5422.

SUZUKI GS250T - excel. cond., $499. Jack, Ext. 4411 or 929-8282.

75 BMW R-90 MOTORCYCLE - very good cond., $2,500. Roger, Ext. 4677 or 878-8847.

82 HONDA - Civic 4 dr., like new, one owner, am/fm 8 track stereo, $4,500. Ext. 2384, 878-0074.

Boats & Marine Supplies

16' PENN YAN - w/trailer, $75. 399-3712.

19' RENKEN BOWRIDER - 120 h.p. Volvo I/O, full canvas, trailer, Ron., Ext. 7533 or 286-0353 eves.

19' SEA RAY - outdrive, mint, needs exhaust manifold, good fishing, skiing boat, $1,000. Roger, Ext. 2384.

85 WINDSURFER - sailboard, 355 m.c. w/ 6 meter raf sail, good cond., $650. Tom, 878-8919.

16' BOAT TRAILER - w/spare wheel, $200; 7.5 h.p. outboard motor Eska, $200. Ext. 4669 or 744-9429.

Miscellaneous

DINING ROOM SET - Jacobean crafted oak, 10 pieces, $2,700; burled oak mirrored dresser, $200. Harriet, Ext. 4926 or 821-2932 after 6 p.m.

CHANGING TABLE - organ w/books, desk, toys, 3-wheel bike, coffee table, artificial tree, rocking horse. Chris, 732-5047.

PIONEER STEREO - rec., model #SX5335, w/BIC #912C, turntable, both $75. 924-3236.

COUCH - & loveseat, Contemporary, beige & brown, $150. 399-6367.

BUNK BED SET - Sears, sleeps 2 w/3 drawer chest under bunk area, very good cond., $120. Yako, Ext. 5091.

SHORT SLEEVE SHIRTS - men's, brand-new, size 15, $7 ea.; 18"x24" screen, $5. Susan, Ext. 4267.

DISK DRIVES - in cabinet, (2) 8" w/supply aligned & checked w/manual, $175. Rich, Ext. 4172.

COAL STOVE - Surdiac Southport MC/C 512, 44,000 Btu, auto feed, heats 13,700 cu. ft.; wood front door, weatherstrip w/weatherstrip jams, 1¾x36x6'8". 475-0509.

STEREO - Early American maple, Curtis Mathers, 5' long, $100. Ext. 3304 or 929-4489 after 5:15 p.m.

DINING TABLE - & 4 chairs, fine quality, warm brown mahoghany, Duncan Phyfe, 40"x60", (3) 12" leaves, compl. set of pads, $800 286-0379.

REFRIGERATOR - GE's top line, like new, $700; red sofa bed, excel. cond., $175; dining set, 10 chairs, $100. 751-2469 eves/wknds.

SOFA - w/matching loveseat, Colonial, $125; recliner, $50; triple dresser w/mirror, twin bed, boxspring & matt., $100. Janice, Ext. 3711.

CURTAINS - for large (7'x8') window area, very good cond., $20. Morris, Ext. 4192.

SANSUI STEREO RACK SYSTEM - w/extras, excel., $375. Mark, Ext. 5350.

VIOLIN - full size, 1912 German Imperial Amatestyle, carved scroll, very good cond., bow & case, $650; women's bike, 24", 10 spd., excel. cond. $60, 751-5868.

PING PONG TABLE - folding, each side folds separately, $40. 286-2282.

LAWN MOWER - 17", Honda, almost new w/leaf bag, $250. Ext. 4144 days.

DISHWASHER - Wasteking, steam model, built-in, needs electronic timer. $50. John, Ext. 5152 or 281-2471.

KITCHEN SET - solid maple table w/extra leaf, 4 chairs, excel. cond., $100. 734-5556.

GAS RANGE - Hotpoint, avocado, good cond., $225, Ext. 3260 or 878-6074.

COMPUTER - Leading Edge Model D, 640k, 2 floppies, mono. monitor, 6 mos. old, $1,000. Alan, Ext. 2928.

MOVING SALE - Colonial walnut shelf, $125; 13" color TV, $125; sofa, $60; coffee table, dining table w/6 chairs, blankets. Ext. 5161 or 924-1460.

SEWING MACHINE - Sears Kenmore, hardly used, w/portable case, $50 or reas. offer. Marilyn, Ext. 2969.

CHAINSAW - 14" elec., like new, $25. Ext. 4312.

MOVING SALE - furn., drafting table, vacuum cleaner, shells, decorating items, books, etc., some items free, Ext. 2907 or 928-8379.

REFRIGERATOR/FREEZER - Westinghouse, 17.2 cu. ft., frost-free, excel. cond., $160. 751-3666.

KITCHEN UNIT - for studio or office, 48"lx 25"wx42"h, incl. 2 burner elec. stove, sink, refrig. & storage, walnut finish, excel. cond., hardly used, asking $550. 286-1681.

YELLOW LABRADOR RETRIEVERS - AKC, registered championship lines, all shots, home raised. 929-3620.

MAPLE BABY CRIB - & matt., $50; ping pong table, $40; (4) 15" tires, $25. 744-4594.

COLOR TV - Samsung, 13", like new, $120; iron, $5; humidifier, $8; new baby pot, $8. Ext. 3032, Apt. 11B.

MODERN BEDROOM SET - 4 pieces, incl. full size platform bed, white finish, asking $450. 689-8685.

CARBONATED WATER MAKER - use CO_2 cartridge. 395-1903.

TV - 12" b&w, 1 yr. old, hardly used. Herb, Ext. 3611 or 692-9521 eves.

SEWING MACHINE - w/cabinet, $50; white Flokati rug, 10'x14', $50. Bea, Ext. 3642 or 732-2472.

COLOR TV - Shears, 13", 10 mos., $180; VCR, Sharp, 8 mos., $180. Ext. 2183 or 3192.

BIKE - 10 spd., Dynamex Tour de France, 27", $50. Ed., 924-3528.

OAK HEADBOARD - king, $80; exerciser, $80; steel rack, $6; book shelves, $4; 72"x18" movie screen, $15; Atari 2000, 7 cartridges, $40; typewriter, $20. 744-1750.

GOLF CLUBS - left-handed set, $35. Vince, Ext. 4660.

EXERCISE EQUIPMENT - portable bicycle w/rowing option, $15; bench w/leglift & incline option, $30. Christine, 698-5298.

WINDOWS - picture & dble. hung, suspended ceiling grid for 18'x12' rm. Les, Ext. 5180 or 751-7746.

ELECTRONIC TYPEWRITER - Smith Corona, new. 363-7032.

SLIDING GLASS DOORS - 2x36", insulated dble. glass, $150. Ext. 4240 or 286-0295.

COSTUMES - theatrical and dance, hardly used, top quality, large selection for children & women, 475-4690.

Free

PERSIAN CAT - gray, spayed, declawed, needs 1-2 person home, shy. Lois, Ext. 2959 or 751-0023.

OIL TANK - 275 gals., good cond., you pick up, Setauket area. Ann, Ext. 3382.

Yard Sale

MANORVILLE - 215 South St., 8/15-16, 10 a.m.-4p.m., rain/shine, books, records, tools, low prices.

Lost & Found

LOST - gold watch, AGS area, 911B, sentimental value. Ext. 4756.

LOST - glasses, in parking lot of Farmers' Market, Wednesday at noontime. Barbara Franz, Ext. 2886.

Car Pools

NW NASSAU - new employee wants car pool. John, Ext. 3733.

PATCHOGUE - van pool, seat open, leave name & number. Ext. 4669.

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

HILTON HEAD, S.C. - 2 bdrm. condo, sleeps 6, many extras, beach, pool, tennis, golf, fall special, $300/wk. 585-9149.

SHOREHAM VILLAGE - mint secluded cottage on landscaped acre, close to beach & tennis, has f/p & piano, seasonal, Oct.-May, $750/mo. 744-2836.

VERMONT - 3 bdrm. house, f/p, fully equip., beautiful view, apple picking, foliage, woodland trails, family oriented, fall vacation, reas., avail. weekly or wknds. 732-6499 after 6 p.m.

SHIRLEY - 2 rm. apt. w/full bath, walk to beach, $385 incl. util. 744-2821.

MT. POCONO - chalet, summer/winter, 3 bdrm., sleeps 10, furn., lake, pool, tennis, horseback riding, weekly, mid-week, wknd. rates. Ext. 3164.

CORAM - spacious 2 bdrm. apt. on 1st floor of new hi-ranch, completely priv. unit w/full bath, kit., l/r, new appli., w/w, laundry, 10 min. from Lab, avail. immed., $550/mo + util. 732-4016.

ORLANDO, FLORIDA - studio efficiency apt., sleeps 4, 1 week, Sept. 6-13, Orange Lake Country Club, 4 mi. from Walt Disney World, golf, tennis, Olympic pool, 80 acre lake, & more, $450. Bea, Ext. 3642 or 732-2472.

NORTH SHIRLEY - basement apt., 1 bdrm., single working person or working couple, no children or pets, $500/mo. pays all. 924-7971.

PATCHOGUE - 4 bdrm., 9 rm. house, w/w, more, quiet neighborhood,off Rt. 112, $860+. James, 981-9037.

BELLPORT VILLAGE - 3 bdrm. house w/garden, furn., for 1 yr. avail. Sept., close to schools & shops. Ext. 3784 or 286-0925.

PT. JEFFERSON VILLAGE - 1 bdrm. apt., kit, full bath, l/r, non-smoker, no pets or children, 42 Hillcrest Ave., $600/mo. + elec., avail. 9/1/86. Ext. 4792 or 473-3987.

YAPHANK - priv., spacious, 3 bdrm. ranch, den, f/p, deck, 1½ acres., avail. 9/15, $900. 924-4872.

For Sale

RIDGE - Leisure Knoll, adult community, 1 yr. old house & appl., 2 bdrm., 1 bath, eik, l/r, d/r, w/w, attached gar., city water, security patrol, recreational facilities, $119,000. Ext. 3379.

CALVERTON - 2 bdrm. townhouse, f/p, new appl., new carpet, fenced patio, upper deck, mint cond. 727-6287.

RIDGE - No. of Rte. 25, 1.12 acre plot, 100+x400+, level, 80% cleared, 20% wooded, in estb. quiet locale, $47,900. 924-3236.

PORT JEFF. STATION NORTH - 3 bdrm. ranch, full bsmt., att. gar., maintenance free exterior, Anderson windows incl. bay, bi-level deck, coal stove, energy effic., conv. loc. 928-6944.

STONY BROOK - 3 bdrm. ranch, 2 bath, inground sprinkler, fam. rm., l/r, d/r, eik, oversized 1-car gar., cul-de-sac, just painted, asking $163,000. 751-2469 eves./wknds.

SHOREHAM NORTH - 4 bdrm., Colonial, 2½ baths, den, f/p, bsmt, fenced, patio, formal dining rm., $179,000. 744-1750.

EAST PATCHOGUE - cul-de-sac, 4 bdrm. Colonial, 1½ baths, all appl., w/w, compl. fenced & landscaped, coal stove, all housefan, above ground decked pool, below ground serv., sewage & city water, $129,000. 286-3870 after 5:30 p.m.

SHOREHAM - spacious 4 bdrm., 2½ baths, Colonial, eik, l/r, d/r, fam. rm. w/fp, 2 car gar., bsmt., ¾ acre, garden, S/WR school dist., $185,000. 744-4594.

MASTIC BEACH - frame house w/2 bdrm., l/r, eik, full bath, 80x100 plot, $63,500. 744-2821.

Wanted

TOASTER - utility trailer, small air conditioner (for window), in good cond., reas. Walt, Ext. 2907 or 698-0576 after 6 p.m.

POOL PUMP - w/filter, 14,000 gal. cap., good working cond., reas.. Ext. 2168 or 744-7679.

WOOD BOOKCASE - & metal file cabinet. Dan, Ext. 2319.

WINTER POOL COVER - for 18' round pool, reas. Bob, Ext. 2964.

HOME FOR KITTENS - males & female, adorable, healthy, ready to love. Lois, Ext. 2959 or 751-0023.

HOUSE TO SIT - free, experienced, reliable, caring, any period after Sept. 2. Jack Allentuck, Ext. 2412.

TRAILER FRAME - upon which to build a backyd. shed, I can take with me, Cheap! Bill, Ext. 2378.

GM TURBO 350 - auto. trans., any cond. & free for needy student. Ray, 727-3608.

TRAINS - Lionel, American Flyer, accessories, any cond., brings good price. Carole, Ext. 3362 or 924-4097 eves.

ITEMS - for Boy Scout yard sale, Labor Day wknd. John, Ext. 4243.

HOUSE - to rent, Bellport or nearby, min. 2 bdrm., fantastic tenant. Bill, Ext. 2378.

BICYCLE - full size, 10/12 spd., good cond. Bill, Ext. 2103 or 331-4768.

RIM - 14" for GM wheel w/disc brake. Morris, Ext. 4192.

HOUSEMATE - Coram, Sept. 1, $250/mo. + 1/3 util., non-smoking, w/d, dish., long term pref., 20 min. from Lab. 928-8379 or 736-5093.

FURNISHED HOUSE - or apt., Sept. 1, BNL couple. Arnold, Ext. 2423.

CAR RADIO VIBRATOR - 6 volt. Ext. 5294.

In Appreciation

The family of Donald Schuette wishes to thank everyone for their kind expressions of sympathy.

— Charlotte & George Schuette

Classified Ad Policy

Deadline is 4:30 p.m. Friday for publication Friday of the following week.

1. The Brookhaven Bulletin's classified section may be used only by active and retired Laboratory employees.
2. All items for sale or rent must be the advertiser's property.
3. Ads for material acquired for resale in association with a full or part-time business cannot be accepted.
4. Ads for the sale or trade of firearms will not be accepted.
5. Ads not carried because of space restrictions will be held for publication in the next issue.
6. Ads are run only once and must be resubmitted if they are to be repeated. One ad per person per week.
7. **Property for sale and rent cannot be accepted on this form. Special Real Estate Ad Forms are available at the office of the Brookhaven Bulletin, Building 134.**

☐ For Sale: Autos & Auto Supplies ☐ For Sale: Miscellaneous ☐ Lost & Found ☐ Free
☐ For Sale: Boats & Marine Supplies ☐ Car Pools ☐ Wanted ☐ _____

Please print your ad below in 15 words or less using one word per block. Include name and phone number to call.

Note: The following must be completed for your ad to appear.

NAME (Please Print) .....

Employee's Signature ..... Life No. ..... Ext. .....

Send to: Brookhaven Bulletin, Building 134 (Ext. 2345).