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BROOKHAVEN NATIONAL LABORATORY

Beware of the Sun — BNL Research Shows All Ultraviolet Rays Induce Skin Cancer

In the 1930s, the song "Mad Dogs and Englishmen," by Noel Coward, cautioned:

. . . the sun is much too sultry, and one must avoid its ultry-violet ray.

Now, six decades later, in the July 1993 *Proceedings of the National Academy of Sciences, USA*, come results of BNL research that confirm Coward's lighthearted warning.

This research — done by Richard Setlow, BNL's Associate Director of Life Sciences, together with Eleanor Grist, Keith Thompson and Avril Woodhead of BNL's Biology Department — shows that malignant melanoma, a deadly skin cancer, is induced by all wavelengths of ultraviolet (UV) rays from the sun, and that at least two visible-light wavelengths — violet and blue — may act similarly.

Previously, it was thought that only UV-B rays — the shorter UV wavelengths of 280 to 320 nanometers (nm) or millionths of a meter — were harmful.

Said Setlow, "Our experiments, using tropical fish that are especially susceptible to melanoma, show that melanomas also result from exposure to the longer UV-A rays extending from 320 to 400 nm. Sunbathing with protection from only UV-B wavelengths is therefore dangerous, especially since there are effectively nine times more UV-A rays than UV-B rays."

Richard Setlow and Eleanor Grist, with the type of fish used in the BNL study showing that malignant melanoma is induced by all wavelengths of ultraviolet rays from the sun.

Photos on this page by Roger Stoutenburgh

Melanin, the Middleman

Because UV-B acts directly on DNA, the genetic material inside cells, it causes most skin cancers — the generally curable basal cell or squamous cell types, as well as the usually fatal melanoma.

"However," Setlow explained, "melanin, a pigment made by the melanocyte cells in the deeper layers of the skin, absorbs not only UV-B light, but also UV-A light and visible violet and blue light. Our hypothesis is that melanin may then pass on this energy to DNA and induce melanoma. There is so much more UV-A and visible light than UV-B light that UV-B is only a minor player — the others are much more damaging."

The BNL research was spurred by the rising number of cases of malignant melanoma reported by the American Cancer Society.

About 32,000 cases were reported in 1992, resulting in about 6,800 deaths. Also, there were about 700,000 basal and squamous cancers.

"Looking back to 1980 figures, one sees a rise of about five percent a year," commented Setlow.

This rise might have been linked to the steady erosion of the Earth's protective ozone layer by air pollutants in the high stratosphere. In the past two

(continued on page 2)

Lab Releases Avianca Air Disaster Study: Age and Delays Discussed As Fatality Factors

Most Long Islanders recall the ill-fated Avianca Flight 52, which, on January 25, 1990, ran out of fuel and crashed in the village of Cove Neck in Nassau County, while traveling from Colombia, South America, to Kennedy Airport.

Of the 158 passengers and crew aboard the Boeing 707, 85 survived the crash, including one of the nine crew members. Most of the survivors, however, sustained serious injuries.

The air disaster was the subject of an epidemiological study performed by Brookhaven's Injury Prevention and Analysis Group (IPAG) in BNL's Department of Applied Science at the request of the Nassau County Emergency Medical Services Committee (NCEMSC). This airplane crash provided a unique opportunity to conduct an extensive epidemiological analysis of injuries incurred without the confounding problems of burns and toxic fume inhalation associated with fire.

Lab researchers found that many of the injured did not get hospital treatment until two to six hours after the crash. In their recently released final report, the researchers concluded that these long delays to hospital care may have increased the death toll by up to 20 percent, if all other factors were the same.

On the TV screen is a scene from the rescue effort that followed the 1990 Avianca air disaster, which is the subject of an epidemiological study by a BNL team that included: (from left) Henry Thode Jr., Jerome Barancik and Caroline Kramer of the Department of Applied Science's Injury Prevention and Analysis Group.

Heroic Efforts, Adverse Conditions

"This was only one of the report's 13 major findings," said Jerome Barancik, leader of IPAG and Principal Investigator in the Avianca Study. "While more lives may have been saved if survivors had been provided with definitive medical care in a hospital within the first post-trauma hour, we are not finding fault with the emergency workers who responded to the scene. In fact, they are to be commended for doing their best under extremely adverse conditions."

In addition to Barancik, the investigation team included Caroline Kramer, Henry Thode Jr. and Joseph Kahn from IPAG, and Joseph Greensher and Shelly Schechter from NCEMSC.

As the report mentions, the delays were due, in part, to traffic congestion caused by the large number of emergency vehicles responding to the disaster, which occurred in the fog on a remote site accessible only by a single, narrow roadway.

As a result, the researchers stated, "Hospitals did not start receiving patients until approximately two hours after the crash. Medically aggressive patient management in the first hour could be critical in saving lives . . . To the extent that excessive internal bleeding could be attributed to delays in receiving definitive treatment, rather than to other factors, an additional 20 percent of the decedents may have survived."

Besides the lack of traffic control, the study also found that patients were not transported to a hospital based on the extent of their injuries or on their age. Some of the occupants, however, had to be extricated from the plane, and transportation may have been based on availability of the injured. Lack of pre-hospital documentation precluded systematic analysis of the post-crash events that took place prior to hospital arrival.

Barancik said the Avianca Study was undertaken to examine the nature, extent and severity of injuries to passengers and crew members, and the relationship of injuries to other factors related to the crash. The study provides a scientific baseline for improving emergency medical services and disaster planning.

To complete the investigation, the research team examined available pre-hospital and hospital data, and re-

(continued on page 2)

Avianca (cont'd)

viewed voluminous hospital and medical examiner records to obtain information on injuries. Once all abstracting and coding were completed, the data were entered into IPAG computers, subjected to internal quality control checks and analyzed.

Fatalities and Fractures

The data revealed that, in the Avianca crash, none of the 15 people 60 years or older survived, while 37 percent (17/46) of people in the 40-59 age group survived. In sharp contrast, 64 percent (46/72) of those 16 to 39 years old survived; 85 percent (11/13) of children age 5-15 survived; as did 92 percent (11/12) of children under 5 years old.

One or more fractures were sustained by 87 percent of survivors, and 32 percent sustained head injuries. Among survivors, 72 percent incurred lower extremity fractures. While survivors had more lumbar spine fractures, those passengers who died had significantly higher cervical and thoracic spine fractures. Nearly all fatalities were the result of head or chest trauma.

Official reports indicate that passengers were not told to assume a brace position in readiness for a crash — usually head down to the knees with arms protecting the head. The large number of lower extremity injuries were consistent with lack of assuming a brace position. Seat-belt use was difficult to determine without full crash reconstruction.

Several Recommendations

"Based on the data obtained, we included several recommendations in our report," said Barancik. "For example, we need to reexamine strategies to protect passengers across all ages because of higher survivability rates among children and the lower rates among adults."

Among the report's other recommendations were:

- Identifying occupants and their seating locations or site of extrication at the wreckage and documenting on-scene treatment by using pre-numbered tags, bracelets or slips that are also affixed to seating location and/or site extrication.
- Stocking specialized vehicles that respond to mass-casualty events with splinting and other materials for field treatment of mass casualties.
- Improving hospital coordination and communications to assure hospital readiness to deal with mass casualties.
- Conducting further research using crash reconstruction and modeling to examine the relationship of injury and death to such factors as age, delayed response, mode of transportation, time to definitive treatment, seating location, seat type and restraint, and bracing positions.
- Reexamining the use of helicopters for emergency transportation under poor weather conditions.

Some of these issues have been addressed in a new NCEMSC Disaster Control Plan.

"The information obtained from our study of the tragic Avianca crash provides us with a better understanding of factors that can contribute to reducing injuries and deaths in airplane crashes," Barancik explained. "As a result, we hope this work will help save lives in the future."

— Diane Greenberg

Catch a glimpse of
GLANCE
playing in Berkner Hall
weekdays, 11:30 a.m. to 2:00 p.m.
Show changes every Tuesday.

CCD Now Offers All Computer Training

While some computer users on site can begin using new systems or software without assistance, others prefer some instruction. Now, the latter group only has to look to the Computing & Communications Division (CCD) for training in the use of computer operating systems and applications software.

Until recently, CCD had only offered training in how to use the computer operating system known as UNIX and its associated software. Since May, however, CCD has provided instruction in the use of the personal computer operating system DOS, as well as other PC-based software. It took over the provision of this service from the Management Information Systems (MIS) Division, which, for the past five years, had offered PC training to BNL's computer community.

However, in an effort to bring all PC support activities under one division, MIS Manager Edward Gallagher and CCD Head Mark Wiesenberg had proposed that the PC training effort be taken over by CCD. The joint CCD-MIS Steering Committee agreed.

"Mark and I both felt that it would be more appropriate if CCD also provided training, in addition to its other PC-support activities," explains Gallagher, who thanked Michelle Cummings for successfully handling the PC training offered by MIS in the past.

About the transition, says CCD Head Mark Wiesenberg, "I envision CCD's becoming a total service and support organization for all computer users on site. While we have always served the UNIX community, now, with MIS's cooperation, we are moving toward fulfilling our commitment to the Lab's PC users."

Pamela Mansfield of CCD's Distributed Computing Services has been appointed the division's computer-training coordinator, while Patricia O'Connor of the Personal Computer Resource Center has just joined the CCD staff to perform, among other tasks, PC training. UNIX training continues to be provided by outside consultants.

At present, training is available to all BNLers at no charge for the following PC-based programs: DOS, WordPerfect, Harvard Graphics, Lotus1-2-3, dBase and Rbase. Instruction on the use of Windows and Windows applications will be available starting in November.

Held in the PC training room in Bldg. 475, each PC class meets for one full day and is organized based upon demand. Also held by request, UNIX classes take place over two to five days, depending upon the subject.

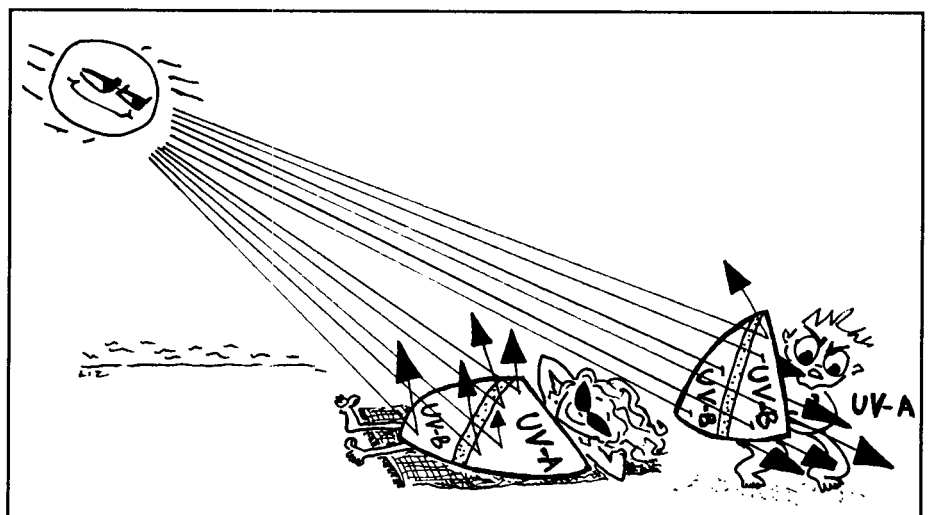
The following UNIX training is available: introduction to UNIX, the C programming language, and C-Shell script programming; RS-6000 system administration; C and Fortran applications programming; migration from SUN OS to Solaris; Silicon Graphics system administration; and using the X-terminal.

Pamela Mansfield, computer-training coordinator in the Computing & Communications Division (CCD), is seen at a SUN SPARCstation in CCD's UNIX training room. UNIX courses are now forming for August and September, so contact Mansfield, Ext. 7286, to arrange for training.

UNIX courses are now forming for August and September, so Mansfield recommends that those interested contact her as soon as possible. Tuition is charged just to cover the cost of the consultants teaching the UNIX-based courses.

"Of course, if enough employees request training in other applications or platforms such as the Macintosh, we'd be glad to organize classes for them," explains Mansfield. "Just let us know what your computer-training needs are, and we will see what we can do."

To request a computer class, call Mansfield, Ext. 7286, for further information. –Marsha Belford



Shield yourself from all the sun's harmful rays.

Skin Cancer (cont'd)

decades, the ozone layer over North America has thinned by 1.7 to 3 percent.

Ozone allows slow-tanning radiation and visible light to pass through, but absorbs the shorter, burning waves of ultraviolet rays from the sun. Had the BNL research shown that these shorter wavelengths were the main cause of melanoma, the rise in fatal cancers could have been explained by the ozone's progressive depletion.

But, in zeroing in on longer wavelengths, the new research rules out depleted ozone as a major contributory factor. Said Setlow, "The rise is probably linked to changes in lifestyle that emphasize more sun exposure and scanty bathing suits."

Fishing for Answers

The fish used for this research were chosen mainly because, like humans, they develop melanoma from exposure to light alone, and, also, the melanomas are similar to those developed by humans. Fish and humans have somewhat similar genes, melanin and melanocytes. In addition, being hairless and continually changing position as they swim, fish in a small aquarium can be evenly irradiated by light quickly and easily.

Early in the project, about 1987, the BNL team discovered that a cross between swordtails and platyfish produces a hardy hybrid with tumor-producing genes and apparently only one gene that suppresses tumor development. On being exposed to an appropriate wavelength of light for between one and ten minutes, the cells of the hybrid can develop melanoma within four months, presumably by inactivation of the suppressor gene. This enabled the researchers to get repeatable results without waiting decades.

Said Setlow, "The procedure was made easier by the skill of Richard Schultz [Biology Department], who bred and maintained the stocks of fish. We started in 1985 and we're still fishing, as there is more work to be done."

Waves Ahead — Take Cover

The BNL team's most recent experiments strongly indicate that melanomas may be induced by wavelengths even longer than UV-A and UV-B — those from the visible violet, blue, and, possibly, the green parts of the spectrum.

"We are repeating our tests," said Setlow. "If they are reproducible, it means that sunbathers are endangering their health more than they may realize — even those using sunshield lotion against UV-A and UV-B. The most effective protection against skin cancer in this case would be clothes."

— Liz Seubert

Corrections

- In the Brookhaven Bulletin of July 16, 1993, the wrong phone number was listed for Sue Ellen Gerchman, the contact for people who want information about the Upton Nursery School or who want to register children for the fall term. The correct number is 929-3732.
- In describing how Raman scattering was used with some success in the early 1970s to detect chemical patterns, the story "Fingerprinting Chemicals From Afar — DAT Researchers Develop Remote Sensor Technique", which appeared in last week's Bulletin, should have read: " . . . for example, sulfur dioxide at concentrations of 30 parts per million·meter was detected leaving a factory stack 200 meters away."

Inside Info

When an innovation really works, people take notice. If that's true, then a device invented by **Peter Takacs**, Instrumentation Division, must really, really work: It's gotten yet another award, its third, and will soon be put to more industrial uses than ever before.

Takacs recently shared a Circle of Excellence Award from the trade magazine *Photonic Spectra* for developing the Long Trace Profiler (LTP), a laser-based device that can detect nanometer-sized defects on high-techmirrors. The award, presented May 4 at the meeting of the Congress of Laser and Electro-Optics, honors new products in optics and photonics.

Also sharing the crystal trophy were Manfred Grindel and Cynthia Bresloff of Continental Optical Corp. in Hauppague, collaborators in a Cooperative Research and Development Agreement for the LTP.

Takacs and Continental are working together to spread the word to industry about the LTP's usefulness in spotting tiny aberrations in the structure of long, narrow cylindrical mirrors such as those used in the National Synchrotron Light Source. As well, Takacs said, efforts are under way to expand the LTP's uses to include quality control on symmetrical, spherical mirrors used in large telescopes, and on large pieces of glass made for laser fusion programs.

"This shows what can be done by cooperation between the government and industry," Takacs said. "The fact that the LTP was originally developed at BNL and is now transferred to the private sector shows the taxpayers' dollars at work."

For his work in developing the LTP, Takacs also received a Special Award for Excellence in Technology Transfer from the Federal Laboratory Consortium in 1989, and a Brookhaven Research and Development Award last December.

Splish Splash Tickets Going

There are only 50 tickets left for the BNL Swim Club's group trip on Saturday, August 7, to Splish Splash, Long Island's coolest water park, located off LIE Exit 72 in Riverhead. Tickets cost $11 each, but children under 2 are admitted free. Parking is $3 per car, payable to the lot attendant.

Paid reservations are being taken, first-come, first-served, by Marsha Belford, club president, Bldg. 134, Ext. 5053. Tickets will be distributed in the Splish Splash parking lot at 9:30 a.m. sharp the day of the trip. The rain date is Sunday, August 8.

Trips Canceled

Two bus trips that BERA had scheduled have been canceled due to lack of interest: to New York City, to see the Broadway show *Crazy For You* in September, and to Mystic and New London, Connecticut, in October. For information, call Kay Dellimore, Ext. 2873.

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Bluegrass On the Grass

Get ready for bluegrass on the grass: A BERA-sponsored performance by Buddy Merriam & Back Roads will be held on the lawn behind Berkner Hall on Friday, August 20, at 7 p.m. Bring your own lawn chairs, blankets and snacks. In the event of rain, the concert will move indoors to Berkner Hall.

Long Island resident Buddy Merriam, who has played the mandolin and guitar professionally for almost 20 years, formed the Back Roads acoustic bluegrass band in 1980. Since then, Buddy Merriam and Back Roads have performed numerous concerts at locales as diverse as The Grand Ole Opry, the Berkshire Mountains Bluegrass Festival, the Metropolitan Museum of Art and the Lone Star Cafe in Manhattan.

The band will play songs from its latest album, as well as traditional, bluegrass and country music by such well-known performers as Bill Monroe, The Stanley Brothers and Hank Williams.

Ticket prices for the event are $7 for adults and $3 for children under 12. Purchase tickets on the evening of the performance, starting at 6 p.m.; or in advance at the BERA sales office in Berkner Hall, 9 a.m. through 1:30 p.m. weekdays; after 1:30 p.m. at the Recreation Office in Personnel, Bldg. 185; or from any of the following:

Buddy Merriam (center) & Back Roads

	Bldg.	Ext.
April Donegain	134	2459
Andrea Epple	750	4424
Skelly Frei	750	7898
Augie Hoffman	510	3884
Pat Manzella	185A	3336
Betty Pergan	179B	2937
Rosalie Piccione	355	3160
Bridget Ramos	197	3452
MaryAnn Reynolds	703	5241

In Memoriam

The following retirees passed away recently:

Walter J. Geisbusch died on July 5, 1993, at the age of 70. He was hired on February 17, 1958, as a technician B in the Biology Department. He left that department on long-term disability 24 years later, on April 18, 1982, as a senior technical associate.

•

George Kuzmack died on July 6, 1993. He was 71 years old. He came to BNL on August 14, 1957, as a technician A at the Alternating Gradient Synchrotron (AGS). After 26 years in the same department, he left the Lab on April 27, 1984, as a principal technician.

•

Joseph M. Scheliga died on July 8, 1993, at the age of 72. He started his 31-year career in the Physics Department on April 12, 1954, as a staff shop technician III. He retired on June 30, 1985, as a technical associate I.

Arrivals & Departures

Arrivals

James D. Kos ..... Dir. Office
Eva Z. Rothman ..... NSLS
Charles J. Yezek ..... Plant Eng.

Departures

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

Shigehiro Hayashi ..... Physics

Hospitality News

The next Hospitality Committee get-together will be Tuesday, August 3, at 9:30 a.m., at the playground in the apartment area. If it is raining, the meeting will be canceled.

This will be a good time for newcomers to the apartment area to meet their neighbors, especially those who have lived there a while.Spouses and children of Lab employees and guests are welcome. Refreshments will not be provided, so bring a beverage and snack for you and your family.

Service Awards

These employees celebrated BNL service anniversaries in July:

Thirty-Five Years

Paul R. Tichler ..... Reactor

Thirty Years

Alfred W. Berretta ..... Sfgrds. & Sec.
Chellis Chasman ..... Physics
Anne M. Flood ..... RHIC
William E. Harrison Jr. ..... RHIC
Frederick Ligon ..... Plant Eng.
George E. Meinken ..... Medical
Laurence Passell ..... Physics
James N. Petro ..... Reactor

Twenty-Five Years

David J. Diamond ..... Advanced Tech.
William H. Kropp ..... Advanced Tech.
Jacqueline Larrie ..... Medical
Otto W. Lazareth Jr ... Advanced Tech.
Robert L. Rowley ..... Cent. Shops
Grace N. Vestal ..... CCD

Twenty Years

Barbara E. Campbell ..... RHIC
Nicholas D. Houvener ..... Reactor
Michael J. Losquadro Jr. ..... CCD
Carl R. McKeever ..... Sup. & Mat'l.
Jacqueline M. Mooney ..... Physics

Ten Years

James M. Meier ..... AGS
Venkatraman R. Ramakrishnan .... Bio.
Robert M. Sweet ..... Bio.

Reports Available

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

BNL-52341
Contact: A. Waltz, Ext. 5834
Proceedings of the 1992 DOE Industry Thermal Distribution Conference. J.W. Andrews.

NUREG/CR-5911
BNL-NUREG-52334
Contact: A. Lopez, Ext. 5768
Source Term Evaluation for Radioactive Low-Level Waste Disposal. M.G. Cowgill and T.M. Sullivan.

NUREG/CR-5923
BNL-NUREG 52338
Contact: A. Fort, Ext. 2114
High Pressure Coolant Injection System Risk-Based Inspection Guide — HOPE CREEK. M. Villaran and W. Shier.

BNL-52348
Contact: Marion Heimerle, Ext. 4776
Radiation From Moving Charged Particles With Spin. A. Luccio.

BNL-52349
Contact: B.Christian, Ext. 7169
Thermal Distribution in Small Buildings: A Review and Analysis of Recent Literature. J.W. Andrews amd M.P. Modera.

BNL-52350
Contact: L. Dittmar, Ext. 4953
Developing Integrated Benchmarks for DOE Performance Measurement. J.I. Barancik, C.K. Kramer, H.C. Thode Jr.

BNL-52360
Contact: Janet Sillas, Ext. 2345
Brookhaven Highlights 1992. Mona S. Rowe, Editor.

BNL-52365
Contact: A. Lopez, Ext. 3807
Polyethylene Encapsulation of Single-Shell Tank Low-Level Waste. P.D. Kalb and M. Furhmann.

BNL-52366
Contact: K. Savino, Ext. 2397/3513
Dissolution of a 316L Stainless Steel Vessel by a Pool of Molten Aluminum. N.K. Tutu, C.C. Finfrock, J.D. Lara, C.E. Schwarz, and G.A. Greene.

Afro-American Culture Club

12th Annual Picnic

For all BNLers and their families

Saturday, August 21,
noon to 6 p.m.
gazebo area of ball fields

Tickets: Adults – $5, Children under 12 – $3

Purchase tickets from:
April Donegain, Ext. 2459; Pauline Dixon, Ext. 2164; Sarah Ebron, Ext. 2232; Barbara Kponou, Ext. 5104.

Cafeteria Menu

Monday, August 2

Soup: Minestrone	.80/1.10
Entree: Flank steak w/mushrooms	3.65
Fitness: Broccoli quiche	3.35
Carvery: Pastrami sandwich	2.95
Grill: Reuben platter	2.95
Fitness Salad: Tuna flake bowl	

Tuesday, August 3

Soup: Chicken rice	.80/1.10
Entree: Omelet display cooking	
Fitness: Baked sole w/onion & tomato	3.75
Carvery: Roast beef sandwich au jus	2.95
Grill: BBQ pork sandwich	2.95
Fitness Salad: Chef's bowl	

Wednesday, August 4

Soup: Tomato bouillon	.80/1.10
Entree: Baked manicotti w/veg.	3.35
Fitness: Chicken Dijon w/mushroom	3.45
Carvery: Baked Virginia ham sandwich	2.95
Grill: Monte Cristo platter	2.95
Fitness Salad: Fresh fruit entree	

Thursday, August 5

Soup: Cream of celery	.80/1.10
Entree: Chicken Kiev w/rice	3.65
Fitness: Baked flounder Florentine	3.75
Carvery: Corned beef sandwich	2.95
Grill: Chicken w/Swiss on croissant	3.15
Fitness Salad: Oriental chicken	

Friday, August 6

Soup: New England clam chowder	.80/1.10
Entree: Chicken piccata w/rice pilaf	3.60
Fitness: Exhibition cooking	
Carvery: Hot turkey sandwich w/gravy	2.95
Grill: Pacific mahimahi	3.85
Fitness Salad: Cantaloupe bowl	

Burger, Deli & Taster's Bar specials daily.

Note to Employees:

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

Classified Advertisements

Motor Vehicles & Supplies

92 HONDA MOTORCYCLE - 250cc Nighthawk, 1.5k mi., $1,500 neg. John, Ext. 4225.

91 MERCURY TRACER LTS - a/t, ac, 4-dr., 1991 *Road & Track* 10-best list, excel. cond., $8,995. Eric, Ext. 5875.

90 TOYOTA CAMRY DX - white, 4-cyl., a/t, ac, am/fm cass., 28.6k mi., excel. cond., $9,200. 751-1126.

90 T-BIRD SC - white/black leather int., 5-spd., cruise, JBL stereo w/CD player ESP, full power, 40k mi., $12,500 neg. Mike,. Ext. 4519 or 744-4288.

88 ISUZU TROOPER - 4wd, 4-dr., ac, low mi., new tires & rims, mint cond., $7,900. 325-8116.

87 CHEVY CHEVETTE - 60k mi., blue, a/t, good cond., $650. James, 281-6334.

87 PORSCHE 924S - white/black, 5-spd., ac, dealer maint., immac., 68k mi., $8,200. Dave, Ext. 4084.

87 TOYOTA PICKUP - red, ac, 4-spd., am/fm, bedliner, 59k mi., mint cond., $4,200. 325-2707, leave message.

87 MAXIMA - white, fully loaded, 75k mi., $5,350. 281-7935 eves.

86 LEBARON GTS - 4-dr. h/b, Sport Turbo Premium, all opt., Clarion audio sys., int. leather, low mi., new brakes & tires,$5,500. Ann, Ext. 5740 or 744-8386.

86 OLDSMOBILE CUTLASS SUPREME - 2-dr., 82k mi., a/t, ps/, p/b, ac, landau roof, good cond., $2,500. Allen, Ext. 4473 or 581-2961 eves.

86 MAZDA 626-LX - ac, a/t, cruise, am/fm cass., 93k mi., good cond., $2,250. Persky, Ext. 4369/4372 or 758-5209.

86 OLDS CUTLASS CIERA - 6-cyl., 82k mi., a/t, ac, p/s, p/b, cruise, excel. cond., asking $3,100. Alex, Ext. 3723/4407 or 341-1018.

86 MAZDA B2000 SE5 - white, 4-cyl., 5-spd., bed liner, sliding rear window, 113k mi., runs well, excel. in/out, $1,700. Pat, 399-3211.

84 BUICK SKYHAWK - 5-spd., m/t, good cond., $1,000. 727-0547.

84 DODGE DAYTONA - 5-spd. turbo, ask. $1,500; '78 Corvette, silver anniv., T-top, loaded, $9,000. Bob, Ext. 2309 or 473-9180 eves., or Ellsa, 821-3306 eves.

84 OLDSMOBILE CUTLASS CIERA BROUGHAM - burgundy, 95k mi., ac, a/t, velour seats, new brakes, am/fm, runs well, $2,500 neg. Joann, 472-6742.

83 Audi 5000S - a/t, ac, p/w, sunroof, silver/blue, runs well, $2,800. Kitty, 286-1354.

83 HONDA MOTORCYCLE - custom, 1000 cc, many extras, 5.9k mi., high & low range gears, windshield, air shocks, excel. cond., $2,000. Mary, 924-8843.

83 CADILLAC CIMMARON - blue, runs, needs work, $200. Craig, Ext. 4028.

83 MERCURY COUGAR - runs well, $500 or best offer. Bill, Ext. 2043 or 563-1940.

82 PROWLER - 23', $7,000; '77 Dodge Maxivan, camper equipped, $4,000; many extras, mint , must see, both for $10,000. John, Ext. 5813 or 667-1407.

81 CADILLAC SEDAN DEVILLE - new tires, recent tune-up, clean in/out, runs well, $1,550. 475-8242.

81 DODGE VAN - custom, new tires, paint, good cond., asking $1,250. Lois, Ext. 3315, or Brett, 929-4753 eves.

80 DATSUN 200 SX - ac, good cond., $600. Elise Vestal. Ext. 5923 or 736-4833.

79 COUPE DEVILLE - looks & runs well, $1,200. Ext. 7627.

79 FORD LTD - high mi., new muffler, brakes, battery, trans., starter, am/fm cass., ac, v.g. cond., $1,200 neg. Marty, 277-1817.

78 DODGE DIPLOMAT - 318 V-8, 4-dr., a/t, 100+k mi., reblt. trans., new rad., needs rear end work, $150. Don, Ext. 7237 or 744-2921 after 5:30 p.m.

75 MG MIDGET - for project or parts, many extras, new parts, will sell whole car only, $600. 981-3468.

62 TRIMLINE POP-UP CAMPER - good for utility trailer conv., best offer. Craig, Ext. 4028.

RACKS - for 8'-bed truck, custom-made of heavy guage steel by professional welder, freshly painted, excel. cond., $400. 589-2338.

TRAILER HITCH - 2, $50 ea. Harvey, 281-7568.

TRANSMISSION - 350 turbo, fits '77-'79 GM, $275; '79 Caprice front bumper, $25. Rex, 929-4904.

T-TOPS - for '82-'92 Camaro Z28, Iroc, $150 neg. Ryan, Ext. 3541.

Boats & Marine Supplies

36' HUNTER SLOOP - 1980, very clean, specs. available, in Mt. Sinai, ask. $38,000. Bill, Ext. 2434.

26' SEARAY - 1979, 260 i/o, all access., possible docking for remainder of season in Blue Pt. $8,500. Richard, 363-6845.

24' SPORTCRAFT - 1968, cuddy, 235 Johnson, needs work, Loran, VHF, D/F, rod holders, modified to fish, must see, $2,000. Joe, Ext. 4986.

23' VENTURE - Newport cutter rig, 7.5-h.p., trailer, $3,200 neg. Richard, 924-4895.

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

22' BOAT TRAILER - Loadrite, 24 roller, 3500 GVWR, bearing buddies, 14" tires, submersible lights, rolling tongue, jack. Vinny, 582-6241.

21' THOMPSON SPORTCRUISER - 1986, 190-h.p. Merc i/o, full canvas, cuddy cabin, in water, asking $6,000. Sue, Ext. 7235 or 395-3529 after 6 p.m.

DEPTH/FISH FINDER - Si-Tex Chromoscope CVS-106 with 3½x5 color monitor, speed, water temp., Loran conn.; 2 large compasses. Harvey, 281-7568.

GALVANIZED TRAILER - for Waverunner jet ski, 1988, new tires, bearings, lights, excel. cond., $200. George, Ext. 4769.

15'6" NATIONAL BOWRIDER - 1972, needs engine, good cond., $500 or best offer. Ext. 4028.

8' DINGHY - plastic, excel. cond., $150; door, wood, 6 panel, 30"x80", great shape, ext., $60. 929-5742.

FOUR WINNS 196 HORIZON - 1986, w/trailer, loaded, like new, will trade for car plus cash or $7,300. Artie, 981-3468.

Furnishings & Appliances

ARMOIRE - antique, good cond., 6'H, 3'W, $135. Bryce, Ext. 3668.

BEDROOM SET - 4-piece, 2 dressers, night table, mirror, excel. cond. Cathy, Ext. 2790 or 744-0388.

BEDROOM - girl's, white w/blue trim, 7-piece, good cond., $200. Ext. 2277 or 744-4277.

CHINA - Christmas, holly pattern, 2 boxes of 45 pieces ea., never used, $150/ea. box. Ginny, 727-5194 after 5 p.m.

CRIBS - 2, maple, w/mattresses, $100/ea.; carriage, Italian Perego, wicker, $50. Maureen, 589-7157.

DESK - student's, good cond., $20. Alex, Ext. 3723/4407 or 341-1018.

DOUBLE BED - $100; 42" square, 17" high coffee table; art deco 1920's bureau, $200; more. Bob, 261-3890.

DRESSER - Bassett, oak, 5-drawer, carved 1st drawer, excel. cond., orig. $279, asking $120; twin boxspring, like new, $50. Bill, Ext. 2043 or 563-1940.

FANS - through wall, 2, $15/ea. Judy, Ext. 2590.

FAN - ceiling w/lights, 52"; kerosene heater, Sears, $25; air conditioners, Admiral, 8,000 Btu, $40; Westinghouse, 7,500 Btu, $30. Kitty, 286-1354.

FREEZER - Whirlpool, upright, moving, must sell, white, $150 neg.; Sharp Carousel II microwave/convection oven, $150 neg. Joe, 395-5813.

FREEZER - GE, upright, w/built-in lock, white, 18 cu. ft., excel. in/out, $350. Ann, Ext. 5740 or 744-8386.

LOVE SEAT - sofa bed, $75; sofa bed, like new, $200; twin bed, boxspring, mattress, $45. Joe, 281-8943.

REFRIGERATOR - dorm size, good cond., $50. Kevin, 744-5553.

REFRIGERATOR - w/freezer, 19.1 cu. ft., Kenmore, almond, good cond., $75. 473-7667.

REFRIGERATOR - apt. size, fits in dorm room, $150. James, Ext. 3112.

SOFA BED - queen size, excel. cond., $250 or best offer. Penny, Ext. 2625 or 467-8297.

SOFA - early American, $100; love seat, $75; chair & ottoman, $75; 2 end tables, $30/ea.; 2 lamps, $25/ea.; $325/all. Joan, Ext. 2910 or 698-6259.

SOFA - $60; armchairs, $25/ea.; queen boxspring, mattress, frame, $85; coffee table, $40; bathroom sink, $15; more. Klaus, Ext. 3677 or 924-2062.

SOFA - 84", upholstery like new, red/green/white, best offer; rocker, upholstered, green, best offer. Sharon, Ext. 3995.

TABLE - 26½" high, 52"Lx17"D, 2 upholstered benches fit underneath, dark wood. Mike, 929-4716.

TABLE - 3 chairs, love seat, white wrought iron, blue upholstery, Formica tabletop, $75. sofa, $50. Joe, 281-8943.

VACUUM CLEANER - Kingston, canister, w/all attachments, old, but works well, $10. Ext. 2733 or 878-8491.

WATER BED - king size, semi-waveless, $100; wood stove, Big Moe, airtight, will run all night, w/fan, 30" logs, $200. Mike, Ext. 7410.

Tools, House & Garden

CHAISE - alum., w/cushions. Sharon, Ext. 3995.

DRILL - Index, 33/64" to 3/4", 16 pieces, $35; reamers, carbon steel, straight flute, 22 pieces, ¼" - 1¼", custom-made wooden case, $45. Steve, Ext. 4555.

HEDGE TRIMMER - B&D, $25; toaster oven, $20; Kodak carousel, $10; metal umbrella table, $20; liquor cabinet, $25; radio, $25. Kathy, 744-2203.

IRRIGATION PIPE - alum., eight 20' lengths, 2" dia., $175. Pat, Ext. 2452 or 722-4706 eves.

LAWN TRACTOR - 11 h.p., 36" cut, riding, elec. start, headlights, manual, $500. 878-1617 after 6 p.m.

STAIR-O-LATOR - chair lift, 1/3 h.p., 115 Vac, fits on side of existing stairs, best offer. Ray, Ext. 3695.

Sports, Hobbies & Pets

BICYCLE - 16", w/training wheels, good cond. Peter, Ext. 5634.

BICYCLES - 10-spd., man's & woman's, $20/ea. Joan, Ext. 2910 or 698-6259.

BIKES - 2, boy's 16", $25/ea. Maureen, 589-7157.

BIKE - child's, good cond., $20; exercise bike, Sears, dual action, $40. Alex, Ext. 3723/4407 or 341-1018.

BINOCULARS - Jason, model 195, 6x-12x, w/case, $20. Steve, Ext. 4555.

EXERCISE BIKE - BH Ejercicio model 727, like new. Sharon, Ext. 3995.

FERRET - female, 1 yr. old, descented, fixed, w/cage, all extras, $60; 10-gallon tank w/iron stand, filter, heater, gravel, top, $50. Graham, 821-1726.

DP GYM - 65 exercises, 200 lbs. of weights, all attachments, excel. cond., orig. $450, asking $150. Bob, Ext. 4260 or 821-5263 eves.

HOCKEY EQUIPMENT - new, ice, deck roller, many brands & models, helmets, skates, like wholesale prices, CCM helmets, $64/ea. John, Ext. 2957.

PHOTOGRAPHY LIGHT EQUIPMENT - assorted plastic lifting weights, best offer. Bob, Ext. 4672 or Louis Ext. 3315, 929-4753 eves.

PIANO - Yamaha, upright, console, excel. cond., asking $1,150. Jim, 447-1381.

PIANO - upright, antique; table w/6 chairs. Linda, 722-4821.

VIOLIN - child's, ½ size, case, bow, European style, $250. Ext. 7785.

Audio, Video & Computer

COMPUTER - 286 PC, coprocessor, extended memory, high-resolution color display, mouse, $500. Ext. 3922.

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

Summer Student Group Photo

All summer students and teachers participating in programs on site this summer are invited to come on down to Berkner Hall on Monday, August 2, for a group photo to be included in the August 6 issue of the Brookhaven Bulletin. Students should be in Berkner Auditorium at noon — if everyone is on time the photo won't take too much time out of lunch. Gather your friends to make sure your faces will be in this issue, for a great souvenir of a summer at BNL!

CAMCORDER - 8mm, Sharp, like new, some extras, orig. $1,500, asking $900. Ruth, Ext. 3305.

COMPUTERS - 486-33 170 MB HD, 1.44/1.2 floppies, 4 MB, .28 super VGA mini tower, new, 1 yr. warr., 10 avail., $1,350. Vinny, 582-6241.

COPIER - Minolta 350Z, zoom 61%-141%, small office or home, 15 cpm, A4, letter or legal paper, $600. Leland, Ext. 3328.

MINI PA - Holmes Fender, 12", 2 horns, 3 channel mixer, spring reverb, 100 watts, RMS, mike w/stand, never used. $350. 589-2338.

TVs - 19", Panasonic, remote, cable ready, $150; 13" Sharp, remote, cable ready, 4 mo. old, warranty, $150. Alex, Ext. 3723/4407 or 341-1018.

TV - Quasar, color, 25", contemp. console, stereo, cable ready, excel. cond., $200. Mary, 399-4857.

TV - 19" color, $50. 331-0945.

VIDEO GAME - Nintendo, Turtles IV, Turtles in Time, $25. 472-3254.

VIDEO SYSTEM - Nintendo, w/games, holder, N.E.S. max, gun, must sell, $50. Graham, 821-1726.

Miscellaneous

AIRLINE TICKET - 1 way to Denver, from LaGuardia, 8/13. James, Ext. 3112.

CHILD'S KITCHEN SET - Little Tykes, many access., $40; Big Foot battery truck, $50; talking rocking horse, $30; more. Bill, Ext. 2043 or 563-1940.

INFANT'S CAR SEAT - Evenflo Joy-Ride, $25; Fisher Price infant's bathtub, $8; Sesame Street play gym, excel. cond., $8. Chris, 744-6874.

KID'S POOL - $3; girl's bike, $7; leather hassock, $5; glass chandelier, $10. Ext. 3078.

RING - 14k gold, 2 carat total diamond weight cocktail ring, size 10, w/$3,195 appraisal, asking $895. Ruth, Ext. 3305.

Free

CONCRETE BLOCKS - for your pickup. 473-5376.

Yard & Garage Sales

CENTERPORT - 7/31-8/1, 9-5 p.m., 22 Mallard Cove, furn., books, records and player, ceramics, glassware, bicycle, household items. Bob & Nancy, 261-3890.

EASTPORT - Sat., 7/31, 34 East Pond Lane, 9-5 p.m.

FLANDERS - 7/30-8/1, 10 a.m.-5:30 p.m., 86 Priscilla Ave., LIE Exit 71, furn., knick-knacks, antiques, etc. 727-1978.

SELDEN - multifamily, 7/31-8/1, 10 a.m.-4 p.m., 77 Hemlock St., antique refrig., tub, old tractors, tools, golf clubs. Lou/Jen, 588-7260.

Lost & Found

LOST - 2,500 lb.-capacity cart, hardwood top, blue steel frame, 12" tires, steerable, 24x48x17, Hercules, call or return, TVDG, Bldg. 901A. Ext. 4584.

Car Pools

ELWOOD-E. NORTHPORT-COMMACK - on-time 4-person pool seeks one more driver. Paul, Ext. 4156.

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

BAITING HOLLOW - beach cottage, private beach, playground, fishing, sleeps 4, fully furn., kit., close to Splish Splash, Hamptons, golf, BNL, $400/wk. through Oct. Mike, Ext. 7861 or 331-7812 eves.

CALVERTON - 3-bdrm. condo, 1½ baths, cac, master bdrm., cathedral ceiling, airtight stove, fp, backyard, 5 appl., $950/mo. 722-3996, leave message.

CORAM - furn. room, avail. immed., kit. and igp privileges, immaculate, 10 min. from BNL, $325/mo. incl. all. Kathi, Ext. 7462 or 698-1971 after 3 p.m.

HOLBROOK - 3 bdrm., kit., bath, l/r, d/r, walk to stores, 15 min. from Lab, $850/mo. incl. all. Armand, Ext. 3562.

LAKE RONKONKOMA - 3-rm. second-floor apt. w/lake view, easy commute to Lab, perfect for single, $525/mo. all. Dom, Ext. 3089 or 567-8842.

MANORVILLE - rooms to rent in a house, country setting, 5 min. from Lab, kit. and laundry privileges, $350/mo. 924-2951 eves. & weekends.

RIDGE - private 1-bdrm. cottage, kit., w/w, semi-furn., cable-ready, parking, on William Floyd Parkway, no pets, nonsmoker, $500/mo. + security. 385-0970.

RIDGE - 3-bdrm. ranch, 1½ baths, country kit., w/w, all appl., fenced yard, 3 mi. from Lab, $950/mo. w/additional M/D space $1,250, option to buy. Carol, Ext. 2673 or 744-8632.

ROCKY POINT - large, new 2-bdrm. apt., city water, priv. ent., cable, $490/mo. + util. Ext. 7597 or 744-5895.

SELDEN - studio, pvt. ent., kit. & bath, quiet area, conv. to shops & Lab, $475/mo., incl. cable & util. 689-1539.

SHIRLEY - waterfront, 1 bdrm., eik, l/r, full bath, fp, priv. ent. & parking, 1 mo. sec., $650/mo., furn. Matthew, 399-2989.

SHIRLEY - house to share, own bdrm. and l/r, $350/single, $450/double, incl. all. Bob, Ext. 4661 or 395-4521.

SOUND BEACH - 1-bdrm. apt., full bath, eik, l/r, cable, priv. ent./parking, no pets, single, nonsmoker preferred. $500/all. Ext. 7918 or 744-7007.

SOUND BEACH - 1 bdrm., full bath, kit.-l/r combo, cable, priv. ent., $650/mo. incl. all, full furn., Jutta, Ext. 2671 or 744-3284.

LAKE GEORGE - lakefront cottage, swimming 15' from door, fishing, boat docking, fully equipped kit., sleeps 4-5, 4 hrs. from NYC. (518) 747-7821 or (518) 499-2581.

HILTON HEAD ISLAND, SC - 2-bdrm. condo, sleeps 6, fully furn., 2 baths, pool, beach, golf nearby, through Sept. $450/wk. Guy, Ext. 3147 or 689-5378.

For Sale

AQUEBOGUE - 3-bdrm. ranch, eik, fd/r, l/r w/fp, skylights, cathedral ceilings, Jacuzzi bath, rec. room, 8' ceilings in bsmt., ¾ acre lot, $159,900. Sharon, Ext. 5919 or 722-3010

BAYPORT - 2-story, 3-bdrm. Colonial on 1.2 acres, OHW, d/r, 2 baths, lg. country kit., BBPSD, near schools, $125,000. 472-3332.

BELLPORT - 3-bdrm one-story, full bsmt., near 2 schools, fp, new oil burner & ac, partly fenced, quiet street. 286-1770.

BROOKHAVEN HAMLET - 4-bdrm. Col., 2½ bath, l/r, d/r, fam. rm. w/fp, eik, laundry rm., 2-car gar., full bsmt., lg. screen porch, priv. setting on cul-de-sac, $229,000. Ext. 2881 or 286-3372.

CALVERTON - 2-bdrm. townhouse, 5 appl., carpeted, cac, fp, patio, upper deck. Ext. 3558.

CALVERTON - 3-bdrm. condo, 1½ baths, cac, master bdrm., cathedral ceiling, airtight stove + fp, backyard, 5 appl., $90,000. 722-3996, leave message.

CORAM - Bretton Woods 3-bdrm. townhouse, 2½ baths, upgraded, tiptop cond., cac, 3 skylights, pools, tennis, golf, orig. owner, $140,000 neg. 732-0257.

EAST SETAUKET - 3-bdrm. ranch, full bsmt., full bath, kit., l/r-d/r, lg. encl. deck, quiet area, near shopping, $200,000 neg. Sam, 689-9204.

EAST SETAUKET - 4 bdrm., 2½ baths, split, 3VSD, igp, igs, den., fin. bsmt., fully landscaped, $172,000. 473-5376.

MANORVILLE - 3-4 bdrm. Col. w/contemp. flair, 2½ baths, master suite whirlpool, fam. rm., d/r, fp, oak kit., gar., bsmt., igp, igs, satellite system, landscaped acre, $169,900. 878-9239.

MANORVILLE - 2¼ wooded acres w/pond, good investment, $45,000. 345-3490 after 6 p.m.

MIDDLE ISLAND - Fairview at Artist Lake, 2-bdrm. condo, 1½ baths, cac, G.E. appl., French doors, pool, clubhouse, 5 min. from Lab, mint, ask. $70,000, low common charges. Mark, 924-1561.

MIDDLE ISLAND - 1 lg. bdrm. condo, 1 bath, excel. cond., 6 appl., cac/gas heat, pool, clubhouse, tennis upper, heat included in condo charges, some furn. avail., 5 mi. to Lab. Liz, 924-0138 after 5 p.m.

PORT JEFFERSON STATION - 3-bdrm. ranch, 3 baths, gar., new appl., new roof, ideal mother-daughter, fenced yard, quiet corner, low taxes, $130,000. 473-1456.

RIDGE - 3-bdrm. townhouse, 1½ baths, lg. l/r, cac, 5 min. to Lab, $79,900. 924-4734.

RIDGE - 3-bdrm. townhouse, 1½ baths, cac, w/w, appl., new w/d, hot water heater, attic, redwood patio, storage rm., low taxes, 5 min., to BNL, move-in cond., $70,000, neg. Mary, 924-4328.

RIDGE - 4-bdrm. Cape, lg. corner property, residential neighborhood, move-in cond. but needs work, $79,999, or rent $850/mo. 744-4611 after 6 p.m.

RIDGE - 2-bdrm. townhouse, 1½ baths, 5 min. from Lab, $57,500. Elaine, Ext. 3866.

RIDGE - 3-4-bdrm. L-ranch, eik, great rm. w/cathedral & skylight, hardwood floors, Andersens, full bsmt., 20'x24' deck, shed, 1 wooded acre. Gerri, 924-0287.

ROCKY POINT - 4-bdrm. Col., 2½ baths, gas heat, cac, l/r, d/r, eik, den, fin. bsmt., gar., low taxes, ask. $131,990. Don, Ext. 7237 or 744-2921 after 5:30 p.m.

ROCKY POINT - 2-bdrm. house, lg. fenced yard, income apt. included, $122,500. 821-4174.

SHIRLEY - low taxes, residential. 567-8645 after 6.

WESTHAMPTON BEACH - 3-bdrm. ranch. 1½ bath, eik, fp, hardwood floors, gar., full bsmt., igp, cedar deck, more, $157,500. Marie, 728-2319.

YAPHANK - two ¾-acre bldg. lots, level, wooded, all permits, $59,000 ea. 924-6019.

PINE ISLAND, FL - 1,700 sq. ft. ranch on water, 9 yrs. old, too much to list, $137,000. Richie, Ext. 2175 or 734-7342.

Wanted

BEDROOM SET - and/or l/r set; also would like to lease Ford Explorer for weekends. Kevin, Ext. 2350.

BIRD CAGE - large, Joan, 265-4811 after 4 p.m.

CHILD CARE - for first grader in Remsenberg-Speonk School District. 325-5546.

GUITAR - acoustic steel string, any model, in good cond. Al, Ext. 2688.

JUNK CARS - trucks, machinery, alum. boats, will remove. Rich, 589-9103.

SAILBOAT - used Laser or Sunfish. Ben, Ext. 4299.

WET SUIT - male 180, 5'8", also tanks, good cond. 289-8105.

In Appreciation

My deepest appreciation to all my co-workers & friends on the loss of my mother. God bless you all.
– Lyn & Tracey Fountaine & family

I thank all my friends for their best wishes and for braving the heat at a very memorable retirement party. – Lloyd Schairer

To the "Aerobie hero" – Although we never had the opportunity to discover your identify, we'd like to express our sincere appreciation for your heroic act. In these days, it is extremely rare for a stranger to help others by climbing a prickly tree, in front of Berkner Hall, to retrieve an Aerobie rested on top. We thank you for your immense kindness.
– 4 Community Summer Science Program Students

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