BROOKHAVEN BULLETIN
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BROOKHAVEN NATIONAL LABORATORY

BNL Arm of ARM Project Looks to the Sky For Answers to Climate Questions

Everybody talks about the weather, but nobody does anything about it.
— **Charles Dudley Warner**
editorial, Hartford Courant
August 24, 1897

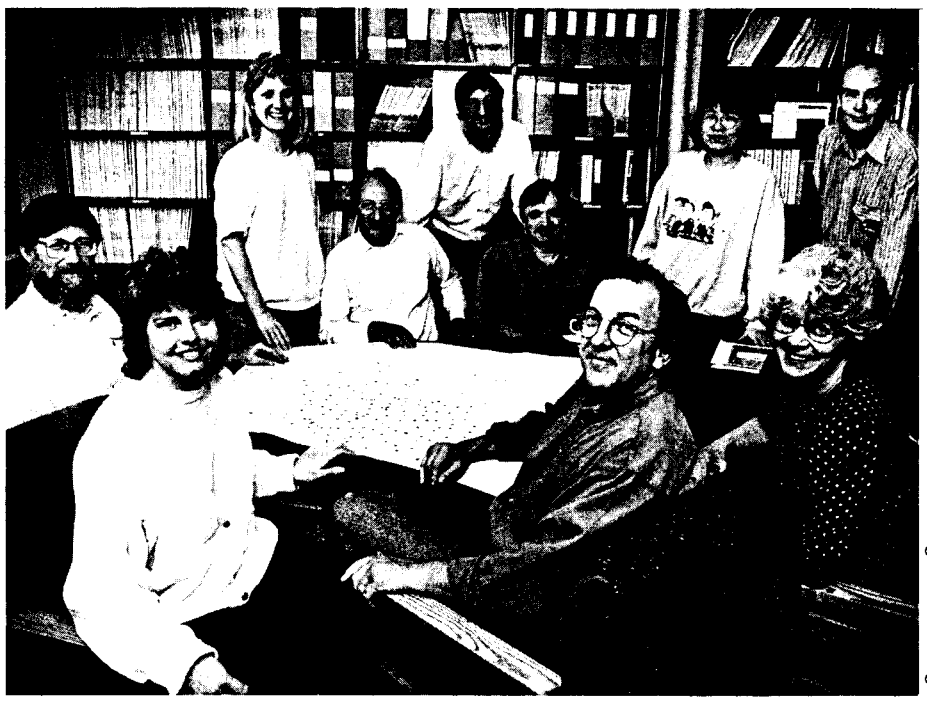
Is the weather getting warmer, or are we experiencing a normal upward fluctuation in the temperature? After several years of warm winters and hot, hot summers, many Long Islanders would swear that global warming is real — that is, until this year's cold, cold winter.

To do something, if not about the weather, then about the scientific questions surrounding global change, the Atmospheric Radiation Measurement (ARM) program was established by the U.S. Department of Energy's (DOE) Environmental Science Division in 1990.

In addition to BNL, ARM involves seven DOE labs: Argonne, Lawrence Berkeley, Lawrence Livermore, Los Alamos, Oak Ridge, Pacific Northwest (PNL) and Sandia.

Also involved are: The National Aeronautics & Space Administration, the National Center for Atmospheric Research, the National Oceanic & Atmospheric Administration, over a dozen universities, several private corporations, and an agency of the Australian government.

The ARM collaboration is making what will be the most comprehensive set of atmospheric radiation and meteorological data ever assembled, from initially one and eventually a total of three geographically distinct regions of the world. These data are being obtained to improve what are called General Circulation Models (GCMs) and other computer programs that describe and predict climate — and climate change.



Roger Stoutenburgh

The BNL arm of the ARM project includes: (foreground, seated, from left) Stephen Schwartz, Kathy Doty, Michael Reynolds, Joyce Tichler; (background, from left) Sharon Baxter, Leonard Newman, Peter Minnett, Peter Daum, Tammy Kwan and Graham Campbell.

Specifically, ARM is investigating the amount of sunlight and reflected light that reaches the earth as short-wave radiation, and the amount of long-wave radiation emitted from the earth in the form of infrared. ARM is also looking into the role that clouds versus clear sky play in climate.

To make these measurements, ARM established its first instrumented site in 1992. Located in north central Oklahoma, the Lamont site will have its instruments up and running every day of the year through 2002. To augment these day-to-day readings, the Lamont site is also the setting of month-long, intensive field studies, the most recent of which was this April.

Among many others, it involved Peter Daum of the Environmental Chemistry Division (ECD) of BNL's Department of Applied Science (DAS), who participated in the first scientific flights of unmanned aerospace vehicles, which are used to obtain radiation profiles in the atmosphere.

Also on the ARM project within DAS are: Peter Minnett, who analyzes geostationary and polar orbiter satellite data; Michael Reynolds, who de

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HFBR to Start Up Today

As the Bulletin went to press yesterday, the High Flux Beam Reactor (HFBR) was scheduled to resume operations today, May 27.

The HFBR was shut down during a fire on March 31 at an experiment known as TRISTAN. The reactor itself was not involved in the fire. (See the April 8 issue of the Bulletin for a story on the fire.)

A week after the incident, the U.S. Department of Energy (DOE) began an investigation. According to the DOE report on this investigation, which was released this past Wednesday, the origin of the fire appears to have been electrical — most probably a faulty connection in electrical feeds that power an ion source in the experiment. The root cause of the accident was cited as a lack of a comprehensive safety review of the experiment commensurate with the level of hazard.

TRISTAN will not be restarted until a thorough safety review is done, which is expected to take from six to 12 months. The other 14 experiments at the reactor have been reviewed for safety, and they will resume when the reactor goes back on-line.

Pegram Lecture Series

Author of the *Los Alamos Primer* to Speak on Peace and War

In 1939, two events occurred that would forever change the world: In January, the discovery of nuclear fission was announced, making most physicists immediately aware of the possibilities for an atomic bomb; and, in August, Hitler invaded Poland, immediately prompting Britain and France to declare war on Germany, which officially began World War II.

It seemed likely that the first nation to produce an atomic bomb would win the war, and Robert Serber was an eyewitness to and a participant in the American physicists' quest to ensure this victory for the Allies.

Now an emeritus professor of physics at Columbia University, Serber will deliver the next Pegram Lecture Series, three talks collectively entitled "Peace and War." The individual talks will be given at 8 p.m., as follows:

Robert Serber

- **War: Berkeley and Los Alamos,** *Tuesday, June 7* — The U.S. entered the war after the Japanese attacked Pearl Harbor on December 7, 1941. A week later, Serber, then a physics professor at the University of Illinois at Urbana, was contacted by his old friend and mentor, J. Robert Oppenheimer. He asked Serber to return to the University of California, Berkeley, to work with him on the federal government's bomb-development effort, known as the Manhattan Project. After groundwork in Berkeley, the project moved to Los Alamos, New Mexico, in April 1943.

At Los Alamos, to get the project started, Serber gave a series of five lectures, summarizing everything then known about how to make an atomic bomb. The lectures were declassified in 1965, then published collectively as the *Los Alamos Primer*. For more than three years at Los Alamos, Serber was a group leader in the Theoretical Division, which was responsible for the design of the Hiroshima bomb.

- **War: Tinian and Japan,** *Wednesday, June 8* — In July 1945, Serber joined the mission to the Pacific island of Tinian, where the bombs were assembled for delivery. In August 1945, single atomic bombs were dropped on the Japanese cities of Hiroshima and Nagasaki, ending the war. Then, in September and October, Serber went to Japan to study the damage to those two cities as Director of Physics Measurements for the Atomic Bomb Mission to Japan.
- **Peace: Early Days at Berkeley, Cal Tech and Brookhaven,** *Thursday, June 9* — Long before his involvement in the Manhattan Project, Serber had explored the ever-changing frontiers of physics, first working with Oppenheimer at Berkeley and at the California Institute of Technology, then moving to Illinois. After the war, Serber returned to peacetime high-energy physics, first at Berkeley, then at Columbia, also serving as a BNL consultant from 1952 to 1975.

When Robert Serber began his long and distinguished career in physics, he did not know that it would turn on such world-changing events.

After graduating from Lehigh University in 1930 with a degree in engineering physics, Serber got a teaching assistantship at the University of Wisconsin, earning his Ph.D. in physics in 1934. Then, as the recipient of a National Research Council Fellowship, he chose to work with Oppenheimer.

It was a fateful and formative choice: As one of "Oppy's" students at Berkeley and Cal Tech, Serber stayed in the forefront of advances in the larger world of physics, particularly the developing field of nuclear physics.

In 1936, Serber became Oppenheimer's research assistant, but their close collaboration ended temporarily in 1938, when Serber accepted an assistant professorship at Illinois. Their communication continued unabated, however.

It was natural, then, that, in 1941, when Oppenheimer was tapped to lead the Manhattan Project, he asked Serber to work with him. At Berkeley, Serber led a small group of young physicists in a study of the atomic bomb.

When the project moved to Los Alamos in March 1943, Serber's impact was immediate, as described by historian Richard Rhodes in the introduction to the *Los Alamos Primer*:

> An Oppenheimer protégé, Robert Serber, a slim young Berkeley theoretician, quiet and shy, but very much in command of his subject, began the work of the new secret laboratory with a series of lectures . . . with chalk in hand and a blackboard set up behind him, Serber proceeded to open the door to a whole new world.
>
> . . . Crew-cut Edward Condon, the associate director of the secret laboratory, kept notes. From day to day Condon and Serber worked up the notes into twenty-four mimeographed pages dense with formulas, graphs, and crude drawings — the essence of what anyone in the world knew at that point about a secret new technology that would change forever the way nations

(continued on page 3)

Leaving the Lab — After 35 Years or More

Roger Stoutenburgh

Thomas Prach

When Tom Prach graduated from Adelphi University in 1953 and accepted a job at Brookhaven National Laboratory, he left one campus atmosphere for another: a community of young scientists and technicians who lived, worked and played together on the Lab site during BNL's early years.

Four men or women to an apartment, they wintered in the apartment area, then made way for summer visitors and moved to the dormitories. Along the way, many became good friends, and some married, including Prach and a Health Physics employee named Naomi Schroeder.

Now, after more than three decades in the Hot Lab, then several years in the Reactor Division, Project Engineer Prach will join many of his BNL friends in retirement, as of May 31.

With a B.A. in chemistry, Prach started his BNL career on April 27, 1953, as a technician.

"I was raised in Queens and liked the idea of staying on the Island, and BNL just fascinated me because it was at the forefront of science," he remembers now, adding that coming to BNL "sure beat analyzing toothpaste and such for a living," which at the time was how many analytical chemists began their careers.

He began in the Nuclear Engineering Department (NED), in the newly built Hot Lab, performing analytical chemistry on radioactive and nonradioactive samples for scientists in many departments.

By September of 1954, he was promoted to a junior technical specialist. At that time, BNL began producing radioisotopes for shipment off site — iodine-132 was one of the earliest — setting the stage for an entire medical discipline based on radiotracers.

Meanwhile, the young on-site residents found plenty of activities to fill their off-hours — sledding down "Pile Hill" below the Brookhaven Graphite Research Reactor on trays "borrowed" from the Medical Department's hospital kitchen; learning dance steps from an Arthur Murray instructor-turned-engineer; and constructing bandstands for well-attended dances sponsored by the Laboratory Residents Association.

At the Hot Lab, Prach was promoted to Chemistry Assistant and then Chemistry Associate in the Analytical Group. By then married to Naomi and raising three daughters in Port Jefferson, he no longer lived on site, but was still involved in BNL life.

After persuading the Lab's recreation director that modified rules would cut injuries, he organized a touch-football league and was its first president. Prach also played softball, serving as the league's president for several years. Along the way, he shifted to the Radioactive Materials Handling Group after NED became the Department of Applied Science in 1969.

In 1971, the Brookhaven Linac Isotope Producer (BLIP) began generating medically useful isotopes at much higher rates than ever before possible, and the Hot Lab's work developing isotopes, a process which required the use of hot cells and manipulators, became more important than ever. In 1973, Prach helped prepare the first shipment of BLIP-produced iron-52 citrate for delivery to an outside facility — the National Institutes of Health — where it was used for bone-marrow distribution studies.

Prach remembers reading a newspaper article about a little boy who was treated using an isotope made here. "I really felt that we were truly contributing to society," he said.

Throughout the 1970s and early 1980s, Prach assisted in the Radionuclide and Radiopharmaceutical Research Group, which by then had come under the direction of the Medical Department. In 1989, along with Powell Richards and Leonard Mausner, he shared a patent for a method of developing carbon labeled with beryllium-7 for use as a radiotracer in medical studies.

Prach decided in 1987 on a position change, joining the Reactor Division as Head of the Water Chemistry Group and becoming responsible for overseeing the monitoring of the water systems, among other chemistry-related duties, for the High Flux Beam Reactor. Since then, he has been "the only chemist in a sea of engineers" even though a 1988 promotion changed his official title from Chemistry Associate to Project Engineer.

Retirement may mean leisurely train travel across the U.S. for the Prachs, as well as more time to go camping, take advantage of activities in Port Jefferson, and, for Tom, to continue to serve as a village Parks & Recreation Commissioner.

Looking back, Prach calls his time at the Lab enjoyable and fulfilling. Says he, "I was very fortunate to be associated with some very good scientists and engineers. All the activities we had and all the people I worked with and participated in sports with were great."

—Kara Villamil

New Emergency Stickers Available

With summer visitors arriving soon, a handy little item is now available to remind them — and BNL employees — of the all-purpose Lab emergency number, Ext. 2222.

Stickers bearing this number, along with symbols for fire, medical, chemical spill and police emergencies, are now available through each department or division's Environment, Safety and Health Coordinator, or by calling the Safety and Environmental Protection (SEP) Division's Fire Protection Engineering Group at Ext. 4259, or the Emergency Planning Group at Ext. 3144.

The stickers are to be placed on every telephone, replacing the older orange stickers, which do not mention Ext. 2222 as the number to call in case of a chemical spill. The stickers are the result of cooperation between SEP and the Plant Engineering Division's Safety, Training and Quality Group.

ARM (cont'd)

velops and deploys ocean instrumentation that records meteorological and atmospheric radiation variables, and that can be left unattended; Stephen Schwartz, who performs aerosol research and is a member of the ARM management team; and Joyce Tichler, who serves on the ARM data-management team and as its liaison with the site operations team.

Leader of the Scientific Information Systems Group in the Analytical Sciences Division, Tichler is in charge of maintaining a computerized database of the operations of the instruments located in and around the ARM site.

In addition, she and her group are identifying and obtaining information from a variety of sources engaged in independent research and monitoring of the weather and related phenomena in the vicinity of the ARM site. These data will then be used in conjunction with ARM data to analyze the processes governing atmospheric radiation and climate.

Greenhouse Effect

The earth's climate is as old as the earth itself — but, from the beginning, the climate has been changing.

Since the Industrial Revolution, the global climate has seemed to be getting warmer, perhaps because of an increase in carbon dioxide in the atmosphere, which may be the cause of an incremental change in what is called the greenhouse effect.

By trapping heat between it and the earth, the earth's atmosphere naturally acts like a greenhouse and is responsible for the earth's temperate climate. This natural effect is due to, among other factors, the presence in the atmosphere of carbon dioxide and other infrared-absorbing greenhouse gases. So, the magnitude of the greenhouse effect — and its effect on the earth's temperature — is related to the atmospheric concentration of these gases.

Over the past 150 years or so, the combined result of the burning of fossil fuels and deforestation has resulted in an increase in the carbon dioxide concentration — which may be correlated with global warming.

Two of the other factors involved in the greenhouse effect are water vapor and clouds. While the discharge of greenhouse gases in the air from human activity may be controllable, the formation and existence of clouds are not — so they are factors to be reckoned with.

As a result, ARM is particularly interested in the role of clouds versus clear sky in the atmospheric feedback of radiation to the earth and its consequence on global temperature.

ARM Sites

To quantify the interaction of clouds and atmospheric radiation, ARM has so far established its first site in the southern Great Plains and has two more planned: one in the tropical western Pacific, and another on the north slope of Alaska. These sites have been selected to allow the observation of a sufficiently wide range of climatological situations, permitting models to be tested under virtually all climatically relevant conditions.

Each site will be operated continuously for up to ten years and, on occasion, will serve as the base for intensive field studies, such as the one just completed. Toward this end, each site and its surroundings will be instrumented to measure long- and short-wave radiation, and the distribution of clouds and water vapor, as well as temperature, wind velocity, precipitation and other meteorological variables that influence the transfer of radiation within the atmosphere.

At each site, the area being observed is approximately 200 by 200 kilometers — roughly equal to the size of a single grid cell, the smallest region of space represented in any GCM.

Because of the large size of a single grid cell, many meteorological phenomena and radiative processes — such as clouds and cloud-radiative feedback — happen within that region, so are too small to be individually represented by the GCMs. But, for GCMs to be accurate, all subgrid phenomena and processes must be accurately represented.

ARM is attempting to accomplish this by providing computer modelers with more observational data than they have ever had with which to develop and test their understanding of the climate.

Data on the Data

Because instruments and the weather do not always cooperate, gathering data is not always that straightforward.

If the goal is to improve the parameterization within GCMs, then "In looking at what energy goes into and out of one grid cell, we have to know how that information was collected so that it can be interpreted accurately," explains Tichler. "Hence, we collect data on the data."

Working with Tichler to develop the site-operations logging system was Herbert Bernstein, now of the Chemistry Department. Kathy Doty has implemented the log as a database, to track the workings, malfunctions and repairs of the instruments and other parts of the ARM data system.

As part of the effort to collect complementary data, Sharon Baxter is compiling information from the U.S. Geological Information Service and other sources about the land characteristics of Kansas and Oklahoma.

Meanwhile, Tammy Kwan is compiling data from the National Weather Service's local surface sites, upper air soundings and wind profilers, and from the local weather and geographical information networks of the University of Oklahoma and Kansas State University, and she is reworking data from these external sources into a single format.

Also working with the group is Graham Campbell of BNL's Computing & Communications Division, who advises on information-technology issues.

Along with the data from the Lamont site, the information compiled by Tichler's group is sent first to PNL, then to members of the ARM science team, as well as to the ARM data archive at Oak Ridge National Laboratory. There, it will be available free to interested scientists.

"Because it relies on the Internet and hardware and software that weren't available or affordable just a few years ago, the ARM project would not have been possible without many of the recent advances in computer technology," concludes Tichler.

— Marsha Belford

Tennis Anyone?

Two tennis-court reservation systems will be in effect weekdays from May 31 through September 30, 11:30 a.m. to 2 p.m., and 4:30 to 7 p.m. The rules for court use are posted courtside and in the BERA Sales Office, Berkner Hall.

Under the advance reservation **system A**, three of the courts may be reserved for weekday play the day before play. If two players are not on court within 10 minutes of the reserved time, the court reservation is forfeited. For this system, lunchtime play is limited to one hour for both singles and doubles.

For system A, reservations must be made on sign-up sheets, kept at the BERA Sales Office, from noon to 1:30 p.m. on the day before play; Monday play must be reserved on the Friday before. The person who signs up must be one of the intended players.

The on-court scheduling **system B** offers the three remaining courts to players who sign the blackboard at courtside at the time of play, first-come, first-served. Under this system, lunchtime play is limited to 1½ hours for both singles and doubles.

For system B, reservation sheets will be posted courtside each morning, where players may reserve any open courts.

System A can be used only by group 1 of the priority players listed below. System B may be used only by groups 1 and 2. Groups 3 and 4 may play during non-reservation times only:

Group 1 - Lab employees, including those with visiting and guest appointments, and BNL retirees.

Group 2 - Lab employees playing with family members or personal guests.

Group 3 - Immediate family members of Lab employees.

Group 4 - Personal guests of Lab employees.

For more information, call the BERA Sales Office, Ext. 3347, or Ken Perkins, Ext. 2147.

Service Awards

The following employees celebrated BNL service anniversaries during the month of May:

45 Years

Irving L. Feigenbaum ..... Physics

35 Years

Emil J. Caiazza ..... Photo. & G. Arts
Paul J. Klotz ..... App. Science
Robert B. Marr ..... App. Science

30 Years

Oscar E. Blevins ..... Plant Eng.
Victor J. Emery ..... Physics
Sol Pearlstein ..... Adv. Tech.

25 Years

Louis J. Addessi ..... AGS
George E. Malcolm ..... MIS

20 Years

Hsiang-Shou Cheng ..... Adv. Tech.
William H. Dieffenbach ..... Physics
William C. Fritz ..... RHIC
John F. Gannon ..... Instrum.
Frank Garcia ..... Plant Eng.

10 Years

Kevin D. Hester ..... Photo. & G. Arts
Kari W. Johannesen ..... Medical
Cyril J. Pinto ..... Saf. & Env. Prot.
Joyce Vail ..... Medical

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Captains of Our Hearts

Now's the time to scan the list of Blood Captains (below) and find out whom to call if you have questions about donating blood at the upcoming BNL Summer Blood Drive, to be held June 15-17 in the Brookhaven Center.

By now, employees should have received blood-drive information packets containing a letter, an informative brochure and two pledge cards — one for you and one for a friend or relative! BNL retirees living in Suffolk County have also been sent letters and pledge cards, and they too are encouraged to return to the Lab to give the gift of life.

For more information, contact Blood Drive Chair Susan Foster, Ext. 2888, or your department or division's Blood Captain:

Dept.	Captain	Bldg.	Ext.
AGS	June Herbert	911B	4692
AUI	Elliot Levitt	134A	2495
Bio.	Richard Sautkulis	463	3386
CCD	Ronald Yuhas	515	4144
Chem.	Nancy Sautkulis	555A	4304
CSD	Christine King	462U	5033
	Carol Bell	462U	7725
	Lou Pergola	479	3499
	Al Campbell	903	2047
DAS	Pat Taylor	179A	2452
	Claire Lamberti	318	3051
	Arlean Vanslyke	475	2387
	Maryann Larese	480	3508
	Eileen Morello	815	4519
DAT	Kathy Nasta	130	2267
	Kara Roman	475B	3643
	Maryann Reynolds	197C	2352
	Barbara Crothamel	197C	5896
	Linda Hanlon	475B	7517
	Marjorie Chaloupka	475C	2746
	Grace Webster	703M	3227
	Laura Ayres	830	3807
DCP	Rosalie Piccione	355	3160
DO	Janet Sillas	134	2345
DOE	Clare Appleton	464	7812
Fiscal	Doreen Hallinan	134A	2457
Instr.	Joseph Mead	535B	2148
Med.	Marta Nawrocky	490	3592
MIS	Mike Seidman	459	2242
NSLS	Pat Powers	510E	4828
	Kathy Loverro	725C	7188
OMC	Mickey Sacker	490	3670
PE	Marilyn Johnson	134C	2546
	Marilyn Zane	134C	5075
	Tirre Farmer	452	3288
	Ron Mulderig	326	3084
Pers.	Marsha Kipperman	185	2871
P&GA	Rick Backoffen	197B	2973
Phys.	Sandy Asselta	901A	4550
	Liz Mogavero	510A	3940
Reac.	Randi Vogt	120	4043
	Julie Tueber	703	2513
	Nick Houvener	750	4436
RHIC	James Licari	830	7146
	Pamela Meehan	902A	4082
	Tom Smith	1005	4729
	Lisa Willi	902A	5908
SEP	Sheila Bubka	51	3144
	Mike Carroll	599	2351
	Don Dains	535A	7494
SMD	Liz Dittmar	211	4401
SSD	Joan Perullo	179B	2549
S&SD	Sharon Jones	30	2493
	Nate Foster	703	5233
	Mindy O'Sullivan	50	2280
	Tom Gilbert	50	2235
	George Misson	50	2235
	James Goode	50	2235
TID	Maria Apelskog	477	3138

Archery Club

The Archery Club will hold its monthly meeting on Thursday, June 2, at noon in the Large Seminar Room, Physics, Bldg. 510. New members are always welcome. For more information, contact Bill Schoenig, Ext. 2377.

Two members of the BNL Archery Club attended an International Bowhunters Organization (IBO) Archery Tournament, held on April 30 & May 1 at the Keystone Fish & Game Club in Stonington, Pennsylvania. Bill Schoenig took first place in the traditional class, qualifying for the World IBO Championship to be held in August in West Virginia, and Kathy Greene took first place in the female compound aided class, also qualifying for the world championship.

Cafeteria Menu

Monday, May 30	
Snack bar service 9 a.m. to 2 p.m.	
Tuesday, May 31	
Soup: Cream of mushroom	.80/1.10
A la Carte: Vincenza cod	3.45
Fitness: Pasta w/marinara sauce	3.35
Deli: Hot Virginia ham sandwich	2.95
Grill: Western omelet w/fries	2.35
Wednesday, June 1	
Soup: Bavarian lentil	.80/1.10
A la Carte: Herb-crusted pork loin	3.85
Fitness: Vegetable lasagna	3.35
Deli: Hot roast beef sandwich	2.95
Grill: Italian cheesesteak	2.95
Thursday, June 2	
Soup: Cream of spinach	.80/1.10
A la Carte: Deviled hen	4.00
Fitness: Spinach & feta quiche	3.45
Deli: Corned beef sandwich	2.95
Grill: Ham & cheese	2.75
Friday, June 3	
Soup: Seafood chowder	.80/1.10
Display cooking: Oriental entree	4.25
Baked flounder duxelles	3.75
Deli: Roast turkey sandwich w/gravy	2.95
Grill: Fried shrimp boat	3.25

Note to Diners

The Brookhaven Center will close on Sunday, May 29, and remain closed through the Memorial Day holiday, Monday, May 30. It will reopen the evening of Tuesday, May 31. The Cafeteria will remain open over the holiday weekend, May 28-30, from 9 a.m. to 2 p.m. The vended food service in Bldg. 912 will be in operation throughout the holiday weekend.

Pool & Gym Closings

The pool will be closed for the Memorial Day holiday weekend, Saturday, May 28 through Monday, May 30. The usual hours will resume on Tuesday, May 31.

The gymnasium will also close for the Memorial Day holiday weekend, but will remain closed weekends for the summer months. The usual gymnasium schedule will resume on Saturday, September 10.

Microcomputer Club

The Thursday, June 2, meeting of the Microcomputer Club will be held at noon in the AGS building, Bldg. 911, room A202, and will feature a presentation by John Demko of Madge Networks, which is an industry leader in networking technology. The talk will focus on networking PCs, adapter cards, and network management.

All are welcome; bring your lunch. For further details, call Irving Montanez, Ext. 2540.

Pegram Lecture (cont'd)

thought about war. Puckishly, the two physicists titled the document the *Los Alamos Primer*. New recruits would be handed a copy as they arrived on the Hill . . .

In discovering and applying nuclear fission and nuclear fusion, science demonstrated that it has become the most influential institutional force for change — including, pointedly, political change — now operating in the world. The *Los Alamos Primer* is an historic marker of that transformation.

Turning to peacetime high-energy physics after the war, Serber returned to Berkeley as a physics professor, from 1945-51, when he became a professor of physics at Columbia. Named Chairman of the Department of Physics in 1975, he became an emeritus professor of physics in 1977.

He also served as a BNL consultant, 1952-75, and a trustee of Associated Universities, Inc. (AUI), 1974-81.

A member of the National Academy of Sciences and a Fellow of the American Physical Society (APS), Serber served as APS President and was awarded the J. Robert Oppenheimer Memorial Prize, both in 1972.

The Trustees of AUI established the Pegram Lecture Series in 1959 to provide an opportunity for distinguished scholars to examine the interaction between science and other aspects of culture and society. Robert Serber will be the 23rd lecturer in this series, named in memory of the late George Braxton Pegram, who played a key role in the founding of BNL. Pegram became one of the incorporating trustees for AUI in 1946 and remained an active trustee for a decade.

Rumor Hotline

Dial ASK1
(Ext. 2751)
verification with confidentiality

Arrivals & Departures

Arrivals

Shelby W. Bowers ..... Saf. & Env. Prot.
David S. Hawkins ..... Plant Eng.
Richard C. Pinnavaia ... Saf. & Env. Prot.

Departures

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

Anthony Santaniello ..... Adv. Tech.
Christopher J. Saxen ... Sfgrds. & Sec.
Bernard J. Siepmann ..... Plant Eng.

Runners Corner — Results & Races

Long Island Half and Full Marathon Results

For finishing among the top three in their age groups, three BNL Roadrunners earned age-group awards following the 1994 Long Island Half Marathon on Sunday, May 1. They are: Mel Cowgill, who won his age group; Marilyn McKeown, who placed second in her age group; and John Brodowski, who finished third. While only one BNLer reported a full marathon time — Mike Fulkerson ran 26 miles 385 yards in 3:50:05 — a total of 29 Roadrunners participated in the 13.1-mile half marathon. They are:

Women	Time	Men	Time	Men	Time
Sharon Zuhoski	1:40:25	Don MacKay	1:21:06	Mike Seidman	1:43:56
Sharon Wang	2:04:41	Paul Geiger	1:23:11	Matt Harrington	1:47:05
Pat Rogers	2:19:08	Mel Cowgill	1:24:24	John Dabrowski	1:47:21
Swapna Mukherji	2:19:11	John Brodowski	1:26:11	Ray Duffield	1:48:17
Ann Hassig	2:41:30	Rich Thorp	1:33:19	Tom Clifford	1:51:16
Marilyn McKeown	2:42:30	Mike Brennan	1:33:41	John Pagano	1:53:19
Michele Rabatin	2:47:42	Dennis Nordstrom	1:39:57	Jim Yeck	1:57:00
Sharon Spark	2:50:18	Helmut Thiel	1:40:39	Fred Rodriguez	2:07:29
Donna Rodriguez	2:50:43	Mick O'Connor	1:41:14	Ken Baumeister	2:16:32
		Dan Wilkins	1:42:58	Chris Saxen	2:20:50

Upcoming Races

The BNL Roadrunners will participate in two corporate races in the next few months: the 3.5-mile Corporate Challenge in early August and the 50-mile Cross Island Team Relay in early September. Anyone interested in joining the BNL Roadrunners in these events may contact Skip Medeiros, Bldg. 51, Ext. 3806.

The Roadrunners are again organizing the second annual 5k Healthfest race around BNL, which will be on Thursday, October 13, and open to all BNLers.

Classified Advertisements

Placement Notices

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

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

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

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

SCIENTIFIC RECRUITMENT - Doctorate normally required. Candidates may apply directly to the department representative named.

POSTDOCTORAL RESEARCH ASSOCIATE - trained in thin film and surface magnetism. Experience in spin polarization and synchrotron radiation is required. Research involves magnetic properties of thin films using spin-polarized photoemission, and implementing a new, high-resolution, high-transmission electron spectrometer at the National Synchrotron Light Source. Contact: Peter Johnson, Physics Department.

OPEN RECRUITMENT - Opportunities for Laboratory employees and outside candidates.

DD 2770. HEAVY EQUIPMENT MECHANIC OPERATOR - Will maintain, operate and repair all material-handling, earth-moving, road and ground-maintenance and similar equipment, including complete repair and maintenance of gasoline and diesel engines and the use of required machine tools. Experience in crane operation desirable. Must have or be able to obtain a class 1 license. Plant Engineering Division.

LS 2567. ENGINEERING POSITION - Requires a BS in environmental, civil or chemical engineering or equivalent, MS and/or professional engineering license desirable, and a minimum of five years' experience managing environmental restoration projects, including coordination of regulatory agencies and remedial action contractors. Excellent verbal and written communication skills are also required. Working knowledge of remedial investigation and clean-up technologies, federal and state CERCLA/RCRA regulations, QA requirements and personal computer skills are highly desirable. Office of Environmental Restoration.

LS 2568. HYDROGEOLOGIST POSITION - Requires a BS, MS preferred, in geology, hydrogeology or equivalent and several years' experience conducting CERCLA/RCRA groundwater field investigations. Familiarity with groundwater data-acquisition technologies and computerized data management, as well as excellent verbal and written communication skills are also required. Hands-on experience with groundwater computer modeling is highly desirable. Office of Environmental Restoration.

LS 2569. ENGINEERING POSITION - Requires a BS in civil or environmental engineering or equivalent, strong project-management skills and excellent verbal and written communication skills. Hands-on experience overseeing, coordinating and monitoring contractor field activities for remedial investigation, clean-up and related construction activities for CERCLA/RCRA environmental projects is highly desirable. Office of Environmental Restoration.

Motor Vehicles & Supplies

93 HYUNDAI SONATA - black, V-6, anti-lock brakes, p/sunroof, anti-theft stereo, tinted windows, 4 yrs. left on ext. warr. Ext. 2459 or 287-3262 after 5 p.m.

92 ACURA INTEGRA - mint, p/w, sunroof, am/fm cass., 5-spd., alarm., ext. warr., 26k mi, red, $13,500. Lora, 758-5957.

91 VW JETTA GL - excel. cond., Calypso green, 5-spd., extras, best offer. 874-2953, leave message.

91 FORD CAPRI - convertible, loaded, $6,000. Jan, 751-6734.

89 VW CONVERTIBLE CABRIOLET - a/c, a/t, Blaupaunkt, 58k hwy. mi., excel., $9,500. 821-0686.

88 ISUZU TROOPER - 4wd, 4 dr., a/c, am/fm cass., low mi., tinted windows, excel., $6,500. 722-3905.

88 TOYOTA 4-RUNNER - 4wd, black, 5-spd., convertible, running boards, pushbar, a/c, am/fm cass., excel. cond., asking $13,500. 472-2414.

88 PLYMOUTH RELIANT - 60k hwy. mi., a/t, 14" wheels, mint cond., $3,800 or best offer. 345-5783.

87 TOYOTA SUPRA- loaded, excel. cond., best offer. Ext. 3695, leave message.

86 RENAULT ENCORE - 3-dr., a/t, a/c, radio cass., 65k mi., $1,000. John, 286-0918.

86 CHEVY SUBURBAN - white, deep tint, 2wd, clean, $4,800. Anthony, 744-1706.

85 SUBARU WAGON - 5-spd., a/c, cruise, am/fm cass., 120k mi., good tires, $1,200. John, Ext. 7726.

85 HONDA PRELUDE - 5-spd., dependable, sunroof, blue, $2,600. Sue, Ext. 2888 or 286-1474 after 6 p.m.

84 HONDA ACCORD - 5-spd., high mi., runs well, well maintained, sunroof, am/fm cass., asking $1,800. Tom, Ext. 4563.

83 TOYOTA COROLLA - s/w, 5-spd., a/c, am/fm cass., new exhaust, ask. $1,650. Ext. 7014 or 281-8274.

83 DODGE - 4-dr., a/t, p/s, p/b, a/c, stereo cass., no rust, asking $1,000. Harry, Ext. 5976.

83 VW JETTA - body good, engine strong, $1,000. Bob, Ext. 4630 or 874-4184.

82 MALIBU - s/w, body & interior v.g. cond., engine needs work, 90k mi., $400. Ext. 7707.

82 TOYOTA COROLLA SRS - a/t, a/c, stereo cass., p/b, p/s, new starter, needs brakes, $1,000. 744-4185.

79 PONTIAC CATALINA - p/s, tilt, am/fm cass., 4.9 liter, runs well, many extras, asking $500. 475-5374.

69 MUSTANG - convertible, 6-cyl., 3-spd., recent top, interior, am/fm cass., tires, brakes, carb., clutch, 84k mi., $6,500. Tirre, Ext. 3288 or 281-0360.

MOTORCYCLE - 750 Honda Interceptor, excel. cond., must sell, asking $2,000. David, 423-9678.

91 TOYOTA NOSE BRA - never used, $10. Sue, 929-3732.

TIRES - P225x75R14, 2, excel., $35 ea. 698-9274.

Boats & Marine Supplies

30' CUTTER - gaff rig, double end, built in 1962, very solid, diesel, ask. $18,000. Harry, Ext. 3783.

29' THOMPSON DAYTONA - 1987, sleeps 6, radar, Loran, head, galley, excel. cond., must sell, $25,900. Dan, 878-6007.

25' CRUISER CAMPER - 82, sleeps 6, fully loaded, 260 Merc. i/o, low hours, excel., $9,800. 363-9527.

23' THUNDERBIRD - f.g. hull in excel. cond., cuddy cabin, no motor, no trailer, you haul. 281-1832 eves.

23' PUMA SAILBOAT - all f.g., sleeps 4, galley, fixed keel, mooring, dinghy, motor, sails, good shape, extra sail, $2,500. Mike, Ext. 7861 or 698-3967.

23' KELLS SAILBOAT - f.g., slooped rigged w/3-hp motor. 878-2912.

19½' SEASPRITE - 1989, cuddy cabin, low hr., 130 h.p. Merc. i/o, Shoreline trailer, d.f., ss radio, excel. cond., $8,000. Phil, Ext. 4030 or 732-8124.

19' CHAPARRAL - 198XL, 1988, 165 h.p., i/o Mercruiser, 1993 EZ Loadrite trailer w/powerwinch, am/fm stereo, mint cond. Ext. 3376.

16' STARCRAFT - w/35-h.p. Evinrude, Cox galvanized trailer. 325-0447 after 6 p.m.

ANCHOR - mushroom, 100 lbs., 50', 5/16" galv. chain, buoy, line, hardware, used one season, $100. Joe, Ext. 2975.

KAYAK - Klepper f/g, 2-seater w/rudder, mast, sail, $400. Ext. 7657 or 298-9560.

Furnishings & Appliances

AIR CONDITIONER - Amana Super-thrust, 13,300 Btu, 9.5 EER, slide-in chassis, excel. cond., $325. 473-6546.

AIR CONDITIONER - Friedlich Quietmaster, 8,000 Btu, window unit, excel. cond., $225 neg. Ellie, Ext. 3395 or Ken, 325-1537.

AIR CONDITIONER - 11,500 Btu, 110V, used very little, excel. cond., $135. Harry, Ext. 3783.

BASSINET - for newborn, brand-new, in box, $30. 341-1020.

BED - twin, opens to full metal frame, excel. cond., $30. 821-6856.

BEDS - queen futon, $65; queen teak, Scand. design, platform, w/10' headboard, attached night stands, $250 or best offer. 474-8715.

BEDROOM SET - girl's, white desk w/hutch, chair, dresser w/mirror, headboard, $150. Doug, Ext. 4661.

BEDROOM SET - end tables, living room; baby items; household items; clothes. 331-7620.

BEDROOM SET - oak, queen, w/headboard, armoire, dresser w/mirror, 2 night stands, like new, $600. Pam, 698-0596.

CRIB - infant, v.g. cond., $40. Mike, Ext. 2558.

DINING ROOM - fruitwood table, w/3 leaves, breakfront, 6 chairs, $600; 2 end tables, Weiman, marble coffee table, $200. 265-3848.

DESK - solid wood, 50"x32"x30⅓", 4 drawers, 1 file drawer, $100. Ext. 2683.

KITCHEN SET - 4 leather director's chairs, Formica table, $100; Wayside bedroom set, includes desk & chair, $75. Carol, 929-8411.

LOVESEAT - black leather, 2 yrs. old, like new, must sell, $400 or best offer. Doris, Ext. 3488.

MICROWAVE - w/turntable, good cond., $40. Laszlo, Ext. 5634 or 689-5374.

REFRIGERATOR - 20"x20"58"H, will deliver locally, $50. Bill, 878-6016.

SEWING MACHINE - factory type, 3-phase, w/table, good cond., orig. $500, best offer. Nina, Ext. 3541.

SOFA & CHAIR - velvet, v.g. cond., $150 or best offer. 821-6856.

TABLE - dining room, white Formica with drop-in leaf, 6 swivel arm chairs, $250 neg. Don, Ext. 7237 or 744-2921 after 5:30 p.m.

TUB - white, antique, claw feet. Jean, 821-2714.

WASHING MACHINE - Whirlpool, apt.-size, new. Sheryl, Ext. 7716.

WASHING MACHINE - Whirlpool, almond, v.g. cond., $100. Ext. 4433 or 473-9678.

WASHING MACHINE - & dryer, apt.-size, $100/both. 289-1755.

Tools, House & Garden

LAWNMOWER - Rally, 22", self-drive, rear bag, v.g. cond., $85. Dan, 698-7322.

LAWNMOWER - Honda, 5-h.p., rear bag, mulch, good cond., $100. Craig, Ext. 4028.

PLANT SALE - house plants, garden plants, herbs, vegetables. Ext. 2769 or 864-1798.

PIPE BENDER - cutter, kitchen tables & chairs, dog supplies, furniture, baby items, clothes, coats. 473-6432.

SOLAR PANEL - Arco, 12V, 36 watts, 12"x48", $150. Frank, 345-5834.

TOOL CASE - new, attache-type, Xcelite TC-100, orig. $170, now $75. 727-3608 any time.

TREES - Japanese maples, $10-$45+. Mauro, 265-6542.

WINDOWS - 2, alum., storms, w/screens, 30"x42", best offer. Connie, 727-1483.

Sports, Hobbies & Pets

BIKE - women's, Atalia, 10-spd., 27", $30. Ray, Ext. 4561.

BIKE - 10-spd., Raleigh, red, $85. Jan, 751-6734.

BOW - PSE SR500 target, 27"-29", R.H. draw, 6-70 lbs., new, $325. Bill, Ext. 2377 or 821-6523.

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

BOWS - 45-pound compound w/detachable quiver, 7 arrows each, $30. Chris, Ext. 4030.

EXERCISE MACHINE - Weslo body shop #360, excel. cond., $35. Tom, Ext. 4507 or 878-1060.

FISH TANK - 55-gal., stand, light, filter system, coral, etc., fresh or salt water, $225. 584-5972.

FLY FISHING SET-UP - complete, rod, reel, extra line, assorted flies, new hip waders, $40. Chris, Ext. 4030.

GOLF CLUBS - Austads, metal woods 1,3,5, closed face, anti-slice, R.H., v.g. cond., $75. Mike, Ext. 2558.

GOLF CLUBS - matched set, MacGregor Tourney, MTs, 1,2,3,4 woods, 2-9 irons, pitching wedge, $250. Harry, Ext. 3783.

PIANO - Wurlitzer, w/bench, excel. cond., $300. 289-8105.

PING PONG TABLE - $5; exercise bike, $20; coffee table, $5; fondue set, tool boxes, enamel pots, baskets. 821-1726.

ROWING MACHINE - West Bend, like new, $50; cooler, 28 qt., like new, $10. Zhau, 924-5181.

TETHERBALL SET - $8; hockey sticks, $2/ea.; Brine lacrosse stick, $10. 473-6546.

WEIGHT BENCH - heavy-duty, w/leg attachments, bar, weights, $75; 20" Ross racing bike, boy's, $15. 722-3905.

WEIGHTS - 310-lb., Weider Olympic set, multi bench, heavy duty, full access., asking $285. Kate, Ext. 3582.

Audio, Video & Computer

PROJECTOR - for slides, GAF-2680, good cond., $50. Ext. 2683.

RECORDS - 33⅓ LPs, classical, Angel, London, pop, Beatles, etc., best offer. Connie, 727-1483.

TURNTABLE - Gerrard, $20; frequency equalizer, $20; TV table, storage cabinet, $20; 3-spd. men's bike, $5. Kathy, 744-2203.

Miscellaneous

CAR SEAT - Fisher Price, like new, asking $20. Steve, Ext. 2897.

TYPEWRITER - elec., Smith Corona Spellright II Dictionary, extra ribbon, correction tapes, $55; Polaroid instant camera, used once, $25. Zhao, 924-5181.

ENCYCLOPEDIA BRITTANICA - 1967, 23-vol. set, mint cond., $200. Pat, Ex. 2452.

GOWNS - spring/summer, ideal for proms, weddings & parties, size 3 to 12. Ext. 5938.

JACKET - men's spring, leather & wool, brand-new, $30. Ext. 2800.

PENDANT - 14kt., solid gold, big eagle, 18" figaro, $400 firm. Jimmy, Ext. 3541.

PLAYHOUSE - Little Tykes, $45; Sears exercise bike, $60; bicycle child carrier, $15. Rose, 234-7732.

PLAYPEN - $15; toddler bed, $10; bassinet, $10; walker, $5; student school desk, $5. Sue, 929-3732.

PROM DRESS - Gunne Sax, peach, strapless, w/ white lace trim, size 11, perfect cond., $50. 473-6546.

RING - women's 14kt. gold, 2 carat total diamond weight, cocktail, size 10, $3,195 appraisal, $700. Ruth, Ext. 3305.

TICKETS - 2, Gateway Playhouse, 6/28, 8:30 p.m., "The King and I", 3rd row orchestra, $22/ea. Lisa, Ext. 5867 or 467-8185.

TYPEWRITER - IBM, daisy wheel, black, needs work. $25. 281-7844 eves.

Free

WINDSURFER - Mistral Naish, 12', ready to sail. 473-2473.

Yard & Garage Sales

COMMACK - ten-family garage sale, Sat. 5/28, raindate 5/29, take Townline Rd. to Scholar, then north on Coconut Dr.

E. MORICHES - 5/28-29, 8 a.m.-5 p.m., 191 Pine St.

Lost & Found

FOUND - men's watch, describe it and it's yours. Ext. 4997.

FOUND - historical letter about Abraham Mulford Jr. of Southold, 1800's. Public Affairs, Ext. 2345.

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, l/r, eik, deck, priv. beach, laundry, rec. hall, near farms, Splish Splash, wineries, sleeps 4, full bath, $400/wk., multi-week discount. Mike, Ext. 7861 or 331-7812 eves.

CENTER MORICHES - office/studio space, sep. wing of priv. home, orig. built as M.D. office, 460 sq. ft., 2 sep. entrances, owner will decorate to suit, $650/mo. incl. all. 878-6760.

MANORVILLE - luxury 2-bdrm. townhome, 1½ baths w/garden tub, gar., fp, skylights, cathedral ceiling, cac, pond view, $950/mo. + util. Eric, Ext. 5875.

MASTIC BEACH - 1-bdrm. apt., l/r, kit., full bath, all appl. incl. microwave, driveway, fenced yard, nonsmoker, $600/mo. Tony, 281-2513.

MIDDLE ISLAND - Fairview, upper 1-bdrm. condo, unfurn., 4 rms., 1½ baths, all appl., mini blinds, cable, cac, freshly painted, clubhouse, swimming pool, tennis, 10 min. to Lab, $725/mo. + util. Roman, Ext. 4449.

PATCHOGUE - share 2-bdrm. apt., fenced-in back yard, nonsmoker, pets ok, 15 min. to Lab, $250/mo. + util. Chris, 447-6641 after 5 p.m.

PATCHOGUE - 1-bdrm. apt., upstairs, lg. kit., l/r, quiet nonsmoker, $600/mo. incl. all but elect. Carter, Ext. 7599.

PATCHOGUE - 1-bdrm. ground floor, priv. ent., walk to stores, sunny, $550+/mo.. 289-8105.

SHIRLEY - 3-bdrm., l/r, d/r, eik, laundry, new w/w, oil hot water, fenced-in yard, 1 mi. to Smith Point Bridge, $900/mo. + util. 744-5448.

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

SHIRLEY - room, share bath, mature, quiet, neat individual, $75/week, walk to beach. 395-4553.

SHOREHAM - 4-bdrm. summer rental, swimming tennis, boating, avail. July & August by week or month. 744-3480.

SOUND BEACH - 1-bdrm. apt., l/r, lg. bdrm., full bath, eik, priv. parking/ent., $500/all, single nonsmoker preferred. Ext. 7918 or 744-7007.

STONY BROOK - 3-bdrm., walk to University and RR station, 7/29-8/29, $1,100. Laszlo, 689-5374.

KEY WEST, FL - 1-bdrm. oceanfront timeshare, Coconut Beach Resort, sleeps 4, full kit., ac, TV deck, pool, Jacuzzi, fish, swim, nightlife, $1,050/wk. of July 23-30. Pat, Ext. 2539 or 929-3586.

KEY WEST, FL - oceanfront studio timeshare, Coconut Beach Resort, sleeps 2, refrig., microwave, ac, TV, deck, pool, Jacuzzi, fish, swim, nightlife, $700/wk. of July 23-30. Ralph, Ext. 2539 or 929-3586.

MT. DESERT ISLAND, MAINE - lakefront, full furn. 1 rm. cottage w/sleeping loft, kitchenette, bath, fp, deck on Echo Lake, Acadia Nat. Park, 6/25-10/15, $450/wk. Bob, Ext. 2514.

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

For Sale

AQUEBOGUE - 3-bdrm. ranch, eik, fd/r w/hardwood floors, l/r w/fp, cathedral ceilings, skylights, Jacuzzi bath, full bsmt. w/8' ceilings, fenced ¾ acre, $145,000. Sharon, Ext. 5919 or 722-3010.

BROOKHAVEN HAMLET - 3-bdrm. ranch, 2 baths, l/r w/fp, d/r, eik, laundry rm., indoor gas grill, 2-car gar., shy ¾ acre, $197,500. 286-1290.

CALVERTON - 2-bdrm. condo, 5 appliances, patio, upper deck, ac. Ext. 7595.

CENTER MORICHES - 4-bdrm. Colonial, l/r w/fp, d/r, eik, full bsmt., TV/laundry rm., 1.5 baths, oil heat, att. gar., town water, near all, 10 mi. to Lab, $165,000. Marilyn, Ext. 2259 or 878-0939.

MEDFORD - Blue Ridge Country Club, 2-bdrm. condo, 1½ baths, incl. golf, tennis, billiards, in/out pools, whirlpool, sauna, clubhouse, restaurant, 15 min. to Lab, $79,990. 736-8742.

MIDDLE ISLAND - 4-bdrm. Colonial, new kit., hardwood floors, cac, den, eik, 2½ baths, ½ acre, walk to Spring Lake Golf Course, 10 min. to lab, 2-car gar., $154,850. Dick, 345-5090.

MIDDLE ISLAND - 1-bdrm. condo, upper, 5 min. to Lab, new paint, w/w, blinds, pool, tennis, clubhouse, common charges include heat, immed. occup., must sell, $50,000. Frank, 698-5046.

MT. SINAI - 2-bdrm. ranch, ¾ acre + det. oversize gar. w/elect., ½ bsmt., city water, lg. rooms, extras, 20 min. to BNL, $110,000. 473-6432.

NORTH SHIRLEY - brick, 3-4 bdrm. ranch, 1+ acre, 2 kit., 2 baths, 2-car gar., many extras, best offer, $127,900. 345-5783 after 6 p.m.

NORTH SHIRLEY - 9-rm, custom-built Colonial, ½ acre, 1½ baths, fenced, sliding door from kit. to 12'x10' deck, 1-car gar., fp, ask. $132,000. 924-0960.

PORT JEFFERSON VILLAGE - custom-built, quiet, wooded, 3½ baths, 2-car gar., fin. bsmt., outside ent., full windows, beach, country club. 331-4768.

QUOGUE - 3-bdrm. hous, 1½ baths, under $200,000. Tom, 653-4079.

RIDGE - 3-4 bdrm. ranch, 2 full baths, full bsmt., f/p, eik, oak floors, deck, skylights, rental cottage, 2½ acre, etc., 3 mi. to BNL, $178,000. Casper, 345-5325.

RIDGE - 3-bdrm. townhouse, 1½ baths, lg. l/r, 5 min. to Lab, $69,900. 924-4734.

RIDGE - 3-bdrm. townhouse, 1.5 baths, cac, w/w, all appl., new w/d, HW heater, attic, patio, storage rm., 5 min to BNL, move-in cond., $63,000. Mary, 924-4328.

RIDGE - new, 3 bdrm., 2 full baths, full bsmt., vaulted l/r & kit., w/w, lake rights, OHWH, 10 min. from Lab, $109,000. 582-4514, leave message.

RONKONKOMA- 3-bdrm. L-ranch, 2 baths, ⅓ acre, eik, l/r, d/r, fam. rm., fp, bsmt., skylight, igp, gar., deck, $134,000. Ext. 4706 or 588-0874.

SHIRLEY - Tangiers, 3-bdrm. ranch, w/det. gar., full fin. bsmt., $98,000. Sue, Ext. 7235.

SHOREHAM - north of 25A, 4-bdrm. Colonial, 2½ baths, l/r, d/r, lg. kit., fr/fp, w/w, fin. bsmt., igs, well maintained lawn, ½+ acre, a/c, 2-car gar., $190,000. Ext. 5076 or 744-4615.

SHOREHAM N. - 4-bdrm. Cape, wooded setting, cul-de-sac, beach access, 2 new baths, fp, hardwood floors, ask. $170,000. Harvey, 821-1726.

SHOREHAM VILLAGE - 3+ bdrm., l/r w/cath. ceiling, 2½ baths, attic, fin. bsmt., decks, gar., igs, walk to priv. beach, tennis, country club, SWSD. 744-9718.

SPEONK - 2-story, 2-bdrm. condo, 1½ baths, all appl., freshly painted, sunny, pool, Southampton beaches, $74,900. 325-8116 eves.

WADING RIVER - 1,800 sq. ft. Cape, 3-bdrm., cath. ceiling l/r, d/r, eik w/bay, 2 baths, fin. bsmt., 2-car gar., covered porch, 32' deck, ¾ acre, many extras, ask. $168,900. Pete, 929-3847.

WADING RIVER - Clarendon, 4-bdrm. ranch, 2½ baths, eik, Jennair, d/r, l/r, cath. ceiling, f/r w/fp, oak floors, full bsmt., 2½ car gar., igs, igp, patio, deck, SWRSD, 1 acre, $295,000. Ext. 3807 or 929-8935.

WADING RIVER - 3-bdrm. Colonial, 2½ baths, 2-car gar., custom kit., Jennair, gazebo, shed, igs, igp, deck, steam bath, satellite dish, SWRSD, 1.1 acre, $229,000. 929-8323.

PORT CHARLOTTE, FL - ¼-acre bldg. lot, developed neighborhood, ready to build, $10,900. 929-8323.

WASHINGTON, NC - 1.13 wooded acres, waterfront community, pool, clubhouse, 35' boat slip on Pamlico River, $38,000. Ken, 281-5565.

Wanted

ARCHERY EQUIPMENT - old longbows, recurves, magazines, etc. Bill, Ext. 2377 or 821-6523.

BOAT TRAILER - 14-16', decent cond. Ed, Ext. 5529.

CAR - '85 Buick Century, for parts. Artie, Ext. 5029.

HOMES - apt., condos, rooms for rent, houses to share, short-term rentals for BNL guests. Marie, Ext. 4489.

HOUSE TO SIT - free, experienced, caring, any period after June 5. Jack Allentuck, Ext. 2412.

HOUSEKEEPER - ½ day ea. week, Bellport. Gail, Ext. 3338.

MOTORCYCLES - bent or broken, any age or cond. Kevin, 281-8031.

PORCH SWING - bench-like, chain-suspended, for 2 or 3 people. John, Ext. 7671.

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