BROOKHAVEN BULLETIN
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BROOKHAVEN NATIONAL LABORATORY

In Quest of Quark Soup

What happens when two nuclei collide at very high energies? It may be that, for one fleeting instant, each nucleus becomes, in effect, a pot full of quark soup.

Experimental physicist Bill Willis of CERN would like to create quark soup to study the properties of the physical vacuum which, it is hypothesized, confines nuclear quarks to stay together in their customary threesomes. In a lecture at the ISABELLE Summer Workshop, which concludes today, Willis elaborated on this idea.

The kinds of quarks in a trio determine whether a nucleon is a proton or a neutron. But no matter what they form, once three quarks get together, it is very hard to part them. It has been suggested that in a very high energy nucleus-nucleus collision, the quarks are momentarily set loose to roam around freely inside the volume of the nucleus. This is the phenomenon Willis calls quark soup.

Nobel laureate T.D. Lee has emphasized the existence and striking properties of the physical vacuum. Willis calls it the complex vacuum because "it is a mysterious thing that fills all space and has quite complicated properties." One of those properties, Lee suggests, is that at very high energies, the vacuum enters a new state of matter, "melting" and, therefore, momentarily deconfining the quarks. Studying the vacuum at that moment, Willis says, "will involve a whole new kind of physics. It's not nuclear physics or particle physics because we're not studying either the nucleus or particles. We're studying the vacuum that holds it all together."

Still, all this will remain theory until it can be tested. The only nucleus beam available today is in the BEVALAC accelerator at Lawrence Berkeley Laboratory. While the energies reached in experiments there have been relatively low (2 GeV per nucleon), they have indicated that it is technically feasible to produce quark soup at much higher energies. The nucleus beam Willis envisions will carry large nuclei, sometimes called heavy ions, to provide large volumes in which to study the complex vacuum.

Doug Humphrey

Bill Willis at ISABELLE Summer Workshop

Right now, the most likely site for such a beam is the Intersecting Storage Ring (ISR) at CERN, which will cease being used for particle physics in 1983. After that, Willis hopes for approval to use it for nucleus-nucleus collisions at 1000 GeV per nucleon. If the physics there proves interesting, he's thinking in the direction of much higher energies - 100,000 GeV per nucleon - at ISABELLE.

"From our experiments at low energies, we know that ISR energies won't be enough to tell us everything," Willis said. "But they will be enough to help us decide whether other experiments are warranted at ISABELLE."

Looking ahead to that possibility, at the ISABELLE Workshop Willis introduced the idea of building a heavy ion source into the accelerator.

For now, Willis will return to CERN to work on his present experiment and to continue to seek a nucleus source in the ISR. But Willis, whose association with BNL dates back to 1958, hopes to come back here when ISABELLE starts up, to conduct experiments with heavy ion collisions at the highest energies the world can offer.

— Anita Cohen

Sunday Tours
10 a.m. - 3 p.m.
Through August 30

New Magnet Remarkable On First Try

Last Monday, a new magnet underwent a highly successful first test. Known as the Palmer magnet, the five-foot long, superconducting dipole required no training to attain its short sample limit, reaching a field of 5.35 tesla on its first quench. The magnet is one of those under consideration as an alternative for use in ISABELLE.

In ten consecutive attempts, this remarkable behavior was repeated. In addition, the magnet encountered no eddy current problems when the current was increased at rates up to 100 amperes/second, well above the ISABELLE specification of 8 amperes/second.

The magnet is named after BNL physicist Bob Palmer, who heads the group drawn from Project ISABELLE and the Physics Department that designed and built the magnet. The design incorporates many of the components of the standard ISABELLE dipole, with some key differences. Most striking is the substitution of two layers of twisted Rutherford cable for braid. Other innovations include special low-friction slip planes in critical bearing areas; split-core yoke construction for high compression; and special clamping of the coil ends for good longitudinal restraint.

In the July 27th test, the magnet reached 5.35 tesla at a temperature of 4.8° K. Tests at lower temperatures scheduled for today will attempt to reach still higher fields. Another five-foot magnet is now under construction, and a full-size dipole, approximately 15 feet long, will be finished in two to three months.

J.B.H. Kuper (right) was the first person to do business when the new bank opened in the budding BNL community in November of 1947. — photo by R.F. Smith

The Start of the BNL Community

Yesterday marked the 35th anniversary of a significant event in the history of the Laboratory: On July 30, 1946, AUI incorporated in New York State. At the same time, AUI confirmed a request made during its earlier incorporation in New Jersey - to have Camp Upton as the Laboratory site.

Tomorrow marks the 35th anniversary of the next important step in the Lab's evolution: On August 1, 1946, Dr. Phillip M. Morse was confirmed as the Director of the new laboratory, which was officially named on September 9.

About four months later, the small nucleus of the BNL staff which had been housed in Columbia University's Physics Department, moved to the Upton site to begin operations. In an age when red tape is harder than ever to cut, it is interesting to note, as Norman F. Ramsey does in his "Early History of Associated Universities and Brookhaven National Laboratory" (BNL Lecture No. 55, 3/10/66), that "this move took place just three days less than one year after the first conference...met to consider the possibility of some sort of regional laboratory."

The Columbia contract with the Manhattan District for AUI's expenses terminated on January 31, 1947 and 54 employees were transferred to the AUI payroll. During January, 18 other employees had been hired by the laboratory, so by February 1, the BNL staff consisted of 72 people. In addition, the site had been maintained by a staff of over 300 employees of the War Department. When AUI formally took over from the War Department on March 21, 1947, these employees were transferred to the BNL payroll.

Thus, the trustees of AUI and the approximately 400 employees of BNL began the work that would make the laboratory a model for other similar organizations, such as CERN in Switzerland. They also began to form the BNL "community." The first steps in the formation of this community, are illustrated by these events during the balance of the decade:

6/15/47 Isotopics, the original BNL paper, was first published under the name "?" while awaiting the results of a contest to give it a name.

8/1/47 The Upton Post Office opened at 2 p.m. and the first day's mailing processed fifty envelopes.

8/11/47 Ground was broken for the Graphite Research Reactor.

9/47 The first classified ads appeared in Isotopics. Listed were four "lost" ads, seven "found" ads, and one "for sale" ad, offering "one pair lady's riding boots, size 10."

9/14/47 The first large-scale scientific conference at BNL began with 138 visiting scientists meeting to discuss Problems of Short Pulse Techniques and High Speed Counters.

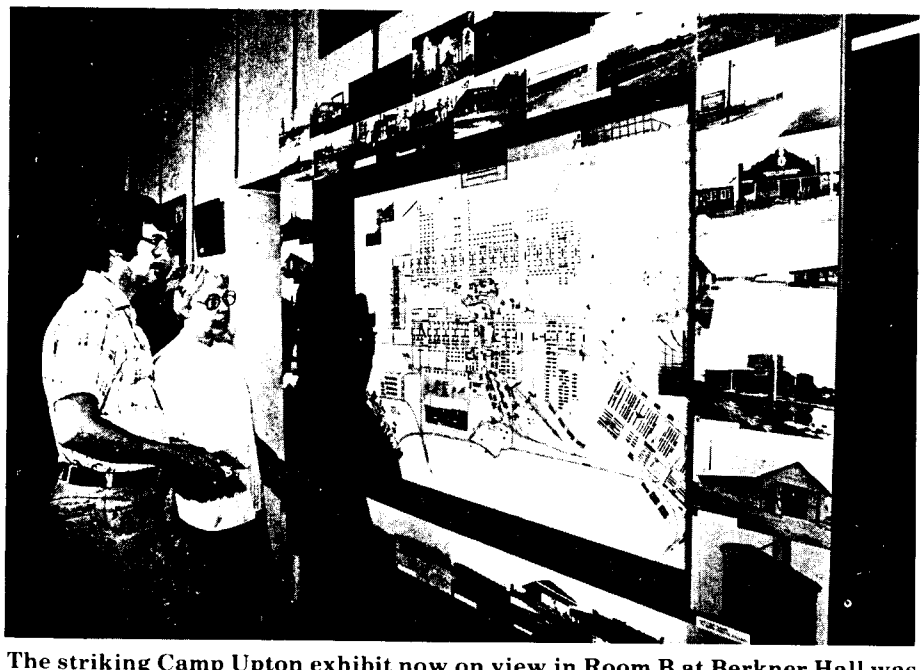
10/11/47 The Fire Department Softball Team won the first Lab softball championship.

10/47 The Association of Brookhaven Scientists was formed.

12/19/47 The group insurance plan became effective.

(Continued on page 2)

A Labor Of Love


Mort Rosen

The striking Camp Upton exhibit now on view in Room B at Berkner Hall was designed and executed by Bobbie Samaritter and Alan Schmidtchen (above) of Photography and Graphic Arts. It was a labor of love, totally aside from their official duties, and to pull it all together they worked at home and at lunch time. This large wall map was drawn by Bobbie Samaritter from a 1919 construction map of the original Camp Upton site. The display was designed for a meeting of the Association of Suffolk County Historical Societies at BNL on July 25. According to Lou Harson, who organized the meeting here, many of the 134 attendees were so impressed with their first visit to the Laboratory that they brought back their families for the regular tour on the following day. Incidentally, over 1000 visitors came through the gates last Sunday, the third tour of an eight-day season.

Preparing For The Future

Trying to find out how things work has been the quest of scientists since the beginning of time. For the past 29 years, the same curiosity has been leading young men and women from universities across the country to study science at BNL.

Of the 71 students enrolled in this year's Summer Student Program (474 applied), most of the eight interviewed for this article became interested in science at an early age. Ben Ovryn, a University of Rochester senior, is one of them. When he was a child, his parents bought him an expensive erector set from Germany with moving parts, motors, and lenses. "They didn't want to buy me a chemistry set," he said "because they were afraid I'd blow myself up."

Some years later, Ben won the Junior section of the New York Academy of Science Competition which led him to speak at Fordham University. "There was no turning back," he said. "I knew science was going to be my career." Ben is now doing thin film research with infrared spectraphotometry in the Physics Department.

Elvira Sears from Hollywood, Florida is a student at Texas College. "When I found out that sickle cell anemia runs in my family," she said, "I wanted to do research to find out what the problem was." Though she hasn't found that answer yet, Elvira is pursuing a career in genetics, hoping it will lead her to work with the Environmental Protection Agency.

Tonyia Samuel majors in math and music at Oberlin College in Ohio. "At Oberlin, the math/music major is fairly common," she said. Her major allows this oboe player to mix pleasure with practicality. Tonyia, who is now building a library of circuits for a computer program, wants to work for IBM.

LeMoyne College senior Adrienne Colavito who works in Nuclear Energy said "I wanted to learn something about what a career in science would be like, not just subject matter because you learn that at school." Adrienne is working on a manual to aid future summer students who will study nuclear waste.

Anne Marie Origlio, Cook College of Rutgers, was also looking for career enrichment and is finding work in Biology helpful. She is conducting cadmium studies with cabbage plants exposed to radioactive sulfur. "This is real research," she said. "It doesn't always work out perfectly in two hours like it does at school."

Scott Schafrank is already prepared for a possible failure. "I'm taking a stab in the dark," said the Tufts University senior. "My experiment could easily show nothing." Scott is studying the effects of pollution on hypertensive rats. Though inspired by his parents, Scott said "I want to be my own person, not just happen to be a doctor because my father is one."

Scott hopes that his summer will help him decide if he wants to go into medicine or research. Now he is looking into Family Medicine. "I get a lot of pleasure out of feeling that I've done something for someone," he said "and as corny as they may think that is on my essay for medical school, that's the reason I'm doing it."

Another place for summer students interested in people is Affirmative Action where Kim Mayo, an English Lit major at Hofstra University, works. This is the second summer at BNL for Kim, who is in charge of student programs, T-shirts, Thursday Night Discos, and the "Summer Bulletin." "Last year was harder because I had no idea what the students would like," she said. Kim has found this year's group to be less dependent on planned activities, and attributes this to a large percentage of local students.

Students describe the BNL atmosphere as "low key." Some are impressed by the pleasant surroundings, good facilities, and willingness of people to help out. "No one refuses to answer any questions, and I ask a lot of questions," Adrienne said. "It's not like most summer jobs where you could end up at a Xerox machine all summer."

In only three weeks, the students will be on their way back to college or graduate school, just one step away from that inevitable void parents call "the real world." If Ben reaches his goal, he will be a professor and direct a lab where he can conduct his own research. Berhane Tadese, a student at Pratt Institute, wants to return home to Ethiopia to teach electrical engineering. Anne Marie, on the other hand, is happy with what she is doing right now. "I just like the technical work," she said. "Most people expect more ambition. I'm a person first," she added. "Not a scientist first."

That attitude is something the summer students have in common — all are preparing to enter a society where it takes more than a college education to survive. "You have to be a well-rounded individual," Ben said as he scanned the New York Times. "You can't be a person who just knows science." — Myra Aronson

Mort Rosen

Eight of 71 participants in the 1981 Summer Student Program pictured from left to right are: Berhane Tadese, Accelerator; Adrienne Colavito, Nuclear Energy; Tonyia Samuel, Applied Mathematics; Kim Mayo, Director's Office; Elvira Sears, Safety and Environmental Protection; Ben Ovryn, Physics; Scott Schafrank, Medical; Anne Marie Origlio, Biology.

Doug Humphrey

Marianne Vitale

At The Post Office

Marianne Vitale was officially sworn in as Postmaster of Upton, New York in a ceremony held at the on-site post office July 10.

While she is new to this position, Mrs. Vitale is a familiar face at the post office where she has served as distribution window clerk for about 2½ years. She succeeds Postmaster Dorothy Abbott who has assumed these duties in Westhampton.

Mrs. Vitale calls the Upton Post Office "unique" because it is a post office without a town. There is no official town of Upton. BNL *is* Upton, New York.

Originally, the Lab's mail was delivered to Patchogue. To end this inconvenient arrangement, the Lab offered to provide space on site for a post office. The U.S. Postal Service accepted the offer and the Upton Post Office opened for business on August 1, 1947.

Award To BNL

The Association of Minority Employers of New York awarded a plaque on July 18 to Lab Director George Vineyard "in appreciation for your contributions in furthering the cause of business for minority entrepreneurs." The plaque, which is inscribed "from the Long Island Minority Business Community," was accepted by Deputy Director Warren Winsche as Dr. Vineyard was in California.

Also attending the presentation dinner were Harvey Thomas, Affirmative Action Assistant to the Director, and representatives from the Contracts & Procurement Division — Al Lewis, Joe Haeg, Mary-Faith Healey and Bill Rogers. This is the third award BNL has received this year for its support of minority businesses.

Arrivals & Departures

Arrivals

None

Departures

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

Thomas P. Feierabend... Nuc. Energy
Bob Kam ..... Accelerator
Kevin P. Kelly ..... Chemistry
Joel D. Magee..... Plant Engrg.
Ronald D. Ruth ..... Accelerator

WIS Meeting

The Women in Science will meet at noon on Tuesday, August 11, in Room A, Berkner Hall. Reports from the various committees and the proposed slate of candidates for next year's officers will be presented. This meeting is a good opportunity to find out about the activities of the group. Summer students and all others who wish to attend are cordially invited. Bring your own lunch.

BNL Community (Cont'd)

12/47 The Camera Club was formed.

12/23/47 The first Lab Christmas Party was held.

12/26/47 The Lab had its first memorable snowfall - 19 inches!

3/48 The AEC Bowling Team was the first champion of the BNL Bowling League. The Administration team led the Women's Bowling League.

5/4/48 George M. Cohan's "Seven Keys to Baldpate" was the Theater Group's first presentation.

8/5/48 Over 700 people attended the BERA-sponsored first annual mid-summer dance.

8/4/48 The first issue of the Bulletin Board was published. Sponsored by BERA, this forerunner to the present Bulletin replaced Isotopics.

8/9/48 The Gulf Gas Station opened for service.

8/30/48 The Bridge Club held its first meeting.

10/13/48 General Dwight D. Eisenhower, then president of Columbia University, visited BNL.

10/14/48 The first change of Lab directorship occurred when Leland J. Haworth succeeded Phillip M. Morse.

12/21/49 The BNL Band began its first series of concerts - a program of Christmas music.

— Anita Cohen

Metamorphosis

The military camp that AUI chose as the site of its new laboratory in 1946 boasted almost 400 buildings. Although most have disappeared since then, Camp Upton's remaining structures have often been remodeled, moved, and reconditioned. Of the 343 structures at BNL today, 115 date from World War II. Some people still preface the numbers of these buildings with a T, for temporary, but it seems only fair to call them permanent at this point.

According to Louis Harson, BNL's principal architect and Camp Upton historian, these older buildings are the ones numbered up to 480. In general, he says, as newer structures have been built, they have been designated by category. For example, Buildings 501-600 are devoted to the physical sciences and those numbered 901-999 denote accelerators.

What were some of our older buildings originally used for? Appropriately, the Administration Building, 460, was Camp Upton's Post Headquarters. Building 459 was home to the Red Cross before housing BNL's Administrative Data Processing. The Chapel serves today as Stage II, Building 184. Building 134 used to be a Mess Hall; now it houses a "mess" of departments, including Fiscal, Plant Engineering, and Public Relations. The Bachelor Officers Quarters is known today as the National Center for Analysis of Energy Systems (Building 475). Biology, Building 463, once served as the Post Exchange.

Harson points out that Building 197, formerly the Non-Commissioned Officers Club, typifies how Lab structures have been remodeled. Over the years, six other Camp Upton buildings have been moved and added onto it, and it has grown from 17,300 to 44,300 square feet.

But these are not the oldest structures on site. Harson says that distinction goes to the only one remaining from World War I — the foundation of the silo in the warehouse area. There are also two other pre-WWII structures. One is Building 51, Meteorology, which was built by the Civilian Conservation Corps (CCC) in 1937 to watch over the Upton National Forest. The other Building 30, was built by the CCC in 1934, then became the Camp Upton Officers Club and is now the Brookhaven Center.

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Child Alert

The BNL summer season is in full swing and that means a lot more people on site. Among this influx of summer visitors are a number of small fry who may be charging around site on foot, and on bicycles.

In the interest of safety, BNL drivers are hereby alerted to the presence of these children, and should drive accordingly. At the same time, parents are asked to see to it that their children stay in the housing area, and not roam around the core of the site.

Service Awards

The following employees received service awards during the month of July.

Thirty Years

David R. Christman ..... Chemistry
Thomas A. Mullany ..... Physics
Harry R. Munkelwitz ..... E. & Env.

Twenty Five Years

Clemens Auerbach .... Nuclear Energy
Jos. C. Balsamo, Jr. ... S. & Env. Prot.
Robert E. Mignerey ..... Physics
George W. Scott .... Plant Engineering

Twenty Years

John Bunicci ..... Accelerator
S. Lewis Commerford ..... Medical
Karl M. Kohler ..... Accelerator
Theodore J. Krieger ..... Nuc. Energy
George J. Leitl ..... Medical
Bernice Petersen .....Director's Office

Ten Years

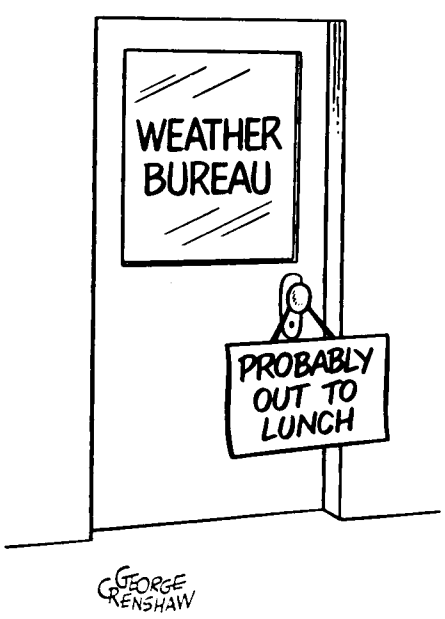
Anand M. Saxena ..... Biology
C. Lewis Snead, Jr. .... Energy & Env.
Juliet Mercer ..... Medical

Golf

Monday, August 10, is the next BGA Golf Tournament. It will be held at Timber Point Golf Course in Great River. To obtain a tee-off time, call John Connelly, Ext. 3284.

Hospitality News

The BNL Hospitality Committee will **not** have a morning coffee get-together during the month of August. The next get-together is scheduled for Tuesday, September 1, at 9:30 a.m. in the Brookhaven Center.



Coming!

"Super razzmatazz knock-em-dead," writes the N.Y. Daily News of the Alvin Ailey Repertory Ensemble. Across the country, from big cities to small towns, the critical acclaim is glowing. By all accounts, the Alvin Ailey Repertory Ensemble is one of America's most exciting young dance companies. This fall, the company will come to Berkner Hall for a one-time-only performance on Thursday, September 24, at 8 p.m.

Established in 1974 as a performing company for talented young professionals, the Repertory Ensemble is part of the American Dance Center, the official school of the Alvin Ailey American Dance Theater. Under the artistic direction of Sylvia Waters, a former Ailey dancer, the group performs works from the standard Ailey repertoire, as well as original works by new, young choreographers. The company's unique and exciting repertoire leaves audiences joyous, exultant and begging for more.

For this special performance, tickets are at the single price of $9. There are no reserved seats. Although the concert is two months away, it's expected to attract a sell-out crowd, so get your tickets early. Tickets will be on sale now through August 31 from the following:

Gerry Bunce	Ext. 4771	Bldg. 911
Julia Larsen	Ext. 7291	Bldg. 902
Blanche Laskee	Ext. 2873	Bldg. 185
Jean Logan	Ext. 4391	Bldg. 555
Pat Manzella	Ext. 3347	BERA Sales Off.
Gail Williams	Ext. 3338	Bldg. 460

Alvin Ailey Dancers

The Alvin Ailey Repertory Ensemble in "I see the moon and the moon sees me," choreographed by Ullyses Dove.

—photo by David Darin

Soul Food Picnic

It's still not too late to sign up for the Soul Food Family Picnic sponsored by the Afro-American Culture Club on Saturday, August 15, from 10 a.m. to 6 p.m. at the BERA Recreation Park. All BNL employees, their families and guests are invited to attend this pot-luck affair.

You may sign up by August 10 by returning the invitation form which was distributed this week, or by calling Renee Flack, Ext. 3316, or Chris Moore, Ext. 7125.

Poison Ivy Pointers

Poison ivy can be recognized by its shiny, sometimes rust colored, leaves growing on a vine or low growing bush. The leaves of the plant grow opposite each other and consist of three leaflets 2-4 inches long. The stems of the plant can trail over ground or climb up walls, fences, and trees.

In people who are sensitive to the plant, even the smoke from burning poison ivy can cause a reaction. Persons who are not sensitive to the plant initially can develop a sensitivity after a few years exposure.

Prevention consists of staying away from the plant and being careful to wear protective clothing when in infested areas. If you do brush against poison ivy change your clothes as soon as possible and take a shower, scrubbing yourself well to remove the plant toxin. Also, contaminated clothing should be laundered to remove any toxic oils remaining on them.

The rash from poison ivy looks like small red bumps, often in linear streaks, which eventually develops into small raised blisters. Treatment for a mild rash consists of applying calamine lotion and trying not to scratch (scratching could cause the rash to become infected). A cool bath with baking soda in the water may help to relieve some of the itching. If the rash is severe, on the face, or becomes infected, a physician should be consulted.

— Caroline Kramer, R.N.
Occupational Medicine Clinic

Softball

Scores for Week Of 7/20

League I

Ravens 4 - Blue Jays 1
Bob Brown and Greg Mack were 3 for 3 for the Ravens; Greg also had a home run.
Phoubars 15 - Source I 7
Denny Klein had a home run.

League II

DEEgenerates 7 - AMD Bombers 6
Big Sticks 10 - Roga 9
Moles 8 - Cardinals 7

League III

Ice Pops vs. Nuke Powers
Game postponed
Magnuts 23 - Electric Company 13
Medical (won) - Binary Bombers (lost)
The Forties 13 - Lights Out 11
Dirty Sox - bye

League IV

Balls & Strikes vs. Survivors
Game postponed
E-Z Riders 18 - Turkeys 15
TNT (won) - Nads (lost)
Thrids (won) - Random Sample (lost)

League V

Source III vs. No Names
Game postponed
Mole-Esters 20 - Mudville Sluggers 12
A 13 run inning; a grand slam by Lee Walcott, a three-run triple by Joe Henderson and a home run by Dave Comstock.
Who's On First 20 - Underalls 16
Great pitching by Billy Rabatin. Home runs by Vinny Lettieri and Jim Rowehl.
Solar Power 19 - No Feedback 15
Makeup game:
Solar Power 16 - No Feedback 8

Standings Through Week of 7/20

League I

	Won	Lost
Blue Jays	6	2
Ravens	6	2
Phoubars	4	4
Six Pax	3	5
Source I	1	7

League II

	Won	Lost	# Games to be made up
Big Sticks	7	2	1
Roga	7	3	
DEEgenerates	6	4	
Cardinals	3	6	1
Moles	3	7	
AMD Bombers	3	7	

League III

	Won	Lost	# Games to be made up
Ice Pops	7	1	1
The Forties	7	2	
Electric Comp.	6	3	
Dirty Sox	5	3	
Magnuts	5	4	
Nuke Powers	4	4	1
Lights Out	2	7	
Medical	2	7	
Binary Bombers	1	8	

League IV

	Won	Lost	# Games to be made up
Survivors	7	0	3
E-Z Riders	7	1	2
TNT	5	3	2
Balls & Strikes	4	4	2
Nads	3	5	2
Thrids	2	5	3
Random Sample	2	7	1
Turkeys	2	7	1

League V

	Won	Lost	# Games to be made up
No Names	6	1	2
Underalls	6	3	
Mole-Esters	5	4	
Who Cares*	4	3	
Source III	4	3	2
Who's On First*	3	4	1
Mudville Sluggers	3	4	2
Solar Power	2	6	1
No Feedback	1	6	2

*Game protested: to be played at end of season if necessary.

This league voted for first half/second half playoffs. Due to the number of postponed games, it was not possible to figure the half-season standings.

NYC Train Trip

The Hospitality Committee is planning a group railroad trip to the city on Wednesday, August 5. Departure will be at 7:55 a.m. from the Patchogue LIRR station. Round-trip fare for adults is $3.50, children under six years ride free.

Reserve a ticket by sending your fare through the U.S. mail to P.O. Box 322, Upton, New York 11973, no later than Thursday, July 30. Make checks payable to "Brookhaven National Laboratory." Your tickets will be given to you on the train. Refunds will be made only if cancellations are received by the Friday preceding the scheduled trip.

Selected Reading

Long Island Forum 44 (7) July 1981
A complete history of Plandome Manor
Beatrice A. Tusiani, Pt. 1, 132-141

Scientific American 245 (2) August 1981
The Forging of Metals
S.L. Semiatin and G.H. Lahoti, 98-106

National Review 33 (13)
Yamani's book of revelations
J.B. Kelly, 777-778

Science 213 (4505) July 17, 1981
Waiting for the Einstein papers
John Walsh 309-311

Classified Advertisements

Placement Notices

The Laboratory's placement policy is to select the best-qualified candidate for an available position, with consideration given to candidates in the following order of priority: (1) present employees within the department, with preference to those within the immediate work group; (2) present employees within the Laboratory as a whole; and (3) outside applicants.

The determination of the best-qualified candidate for available positions will be based upon education, experience and other job-related criteria. Such factors will be evaluated and measured against the demonstrable requirements of the available vacancy, as well as the Laboratory's Affirmative Action objectives.

The Laboratory is committed to a policy of Equal Opportunity in its selection and placement of personnel. Its objective is equality of opportunity in employment, training, and promotion without regard to race, color, religion, national origin, sex or handicap.

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

For further information regarding a placement listing, contact the Personnel Placement Supervisor, Ext. 2882.

LABORATORY RECRUITMENT: Opportunities for present Laboratory Employees.

1599. OFFICE SERVICES CLERK - To work in records holding area. Duties include filing, completion of forms, and retrieval of records. Staff Services Division.

1601. DATA SERVICES CLERK - To assist in Remote Batch Terminal operations including separating output, calling for repairs, maintaining supplies. Limited keypunching. Familiarity with computer programming and willingness to learn operation of Tektronix graphic equipment are desirable. Department of Nuclear Energy.

1602. DATA SERVICES ASSISTANT - Requires AAS degree or equivalent work experience. Will perform computer programming support services including processing computer programs, maintaining files and records, typing and keypunching. Experience in accessing interactive computer systems, text editing, and program execution is desirable. Department of Nuclear Energy.

Autos & Auto Supplies

78 HONDA HAWK II - 400 cc, excel cond, extras, low mileage, must see. Sacrifice. $1,450. Ext. 2926 or 281-0268.

80 TRIUMPH - TR7, white convertible, 17,000 mi, forced to sell. $8,500. J. Klein, Ext. 4018 or 298-8805.

75 FORD F-250 CAMPER - special pick-up truck w/10½' Hornet Camper slide-on. Self contained. Many extras. Will sell camper separately. 929-4840.

68 PONTIAC BONNEVILLE - a/t, p/s, p/b, many new parts, very good mechanical cond. Clean, $300. 732-5829.

CORVAIR ENGINE - complete, runs good, 110 hp, $200; H.D. MCY parts for sale pre 1950 frames, wheels, etc. Lee, Ext. 4447.

71 VW - Sq Bk, new tires, brakes, and front end, needs engine work. Asking $800. 757-5248.

73 PLYMOUTH - Road Runner, excel cond, good mpg. 281-3093 or Ext. 4576.

PARTS - for '62 Chevy body and mech. Reasonable. Joe, Ext. 2556.

75 JAWA C2 - 175cc, low miles, like new. Must sell, 281-8031.

81 POP UP - light weight, sleeps 6, sink, stove, heater, cooler, excel cond. Reasonable. John, 727-7741.

80 VESPA - 200cc engine, low mileage, luggage trunk, silver. Harry, Ext. 3675 or 744-2581.

78 MOTORCYCLE - GL 1000 Gold Wing Honda, 4,000 mi, like new. $2,600. 473-8783.

71 TRIUMPH TR6 - new paint, new top, excel mech cond. $2,500. Ext. 4247 or 928-0297

67 CHEVELLE - conv, excel cond, low mileage, 283 auto, many extras. $3,800. Negotiable. 744-6779.

LARGE TRAILER HITCH - fits Chevy, good cond. $6. Bob, Ext. 5018 or 289-0357.

MOTORCYCLE SEAT - Kawasaki stock, 1000cc, $20; Holley carb, used from 1974 Chrysler 400 cu in., $20. E. Edwards, Ext. 4027 or 286-1121.

SNOW TIRES - A78-13 mounted on Vega rims, pair $45; Vega GT rims 13" (3). $15. Duke, Ext. 4279 or 289-3586.

79 JEEP - Golden Eagle CJ5, 8 cyl, 4 w/d, tilt steering, soft top, am/fm, many extras. 286-8110.

74 NOVA - p/s, a/c, p/b, 6 cyl, in very good cond, a/t. Mike, Ext. 3658.

SNOW TIRE - A78x13, never used. $5. Mike, Ext. 4360 or 698-5861.

77 MERCURY - Monarch Ghia, sm V8, a/t, p/s, p/b, a/c, showroom cond, 54,000 mi. Ext. 3673 or 265-3185 after 6 p.m.

76 PONTIAC - 6 cyl, s/t, 23 mpg, 4 dr, 75,000 mi, radio, excel cond. $1,700. Ext. 3369.

69 VW BUG - 36K mi in rebuilt engine, good mpg. Call Mani at Ext. 7719 or wkdays and wkends at Ext. 3773, 246-9165 before 10 p.m.

80 MAZDA RX7 - 14,500 mi, sun roof, immac, w/extras. Ext. 2408 or 689-9310 eves.

66 BRONCO DRIVETRAIN - and 1973 Vega GT drivetrain, both running cond. Complete engines. 744-3968 after 4 p.m.

73 PLYMOUTH FURY - p/s, p/b, 360 engine, inside/outside good cond, needs carb work. $450. 669-5181.

78 CHEVY NOVA - custom 6 cyl, a/t, a/c, p/s, p/b, new tires, 38,000 mi. $3,900. Terry, 499-8377.

69 BUICK SKYLARK - low mileage, s/t. Best offer. Sharon, Ext. 2835.

72 OPEL - 60,000 mi, good cond, 20 mpg. $1,100. Mark, Ext. 3291 or 751-6880 eves.

72 FORD WAGON - runs well, dependable. Make me an offer I can't refuse. 331-2807.

80 SUZUKI - GS1000L shaft drive, luggage rack, many extras. $2,800. Ext. 7745 or 981-9474.

69 FORD - sta wgn, 8 cyl, needs work. Asking $150. 588-6151.

TRACTOR - wheel horse w/attachments. 929-4681.

69 VW CAMPER - 8,000 mi on new engine, need paint only, $2,000 firm; 1971 TVR Vixen, good cond, $5,000 firm; Buick V6 engine, needs assembly, complete $100. Lee, Ext. 4447.

73 DODGE CORONET - 4 dr sedan, red. Asking $800. Ext. 2534.

61 CHEVY - Impala conv, 40,000 mi on rebuilt 6 cyl, manual 3 spd, new rubber. $1,500. Roger, Ext. 2384.

DELCO AM/FM RADIO - for GM X-car. Howard, 286-1444.

ENGINE - Chevy 350 complete motor, 4 barrel, electronic ignition, 4 bolt main, stock. Lou, Ext. 4087.

78 MERCURY ZEPHYR - purchased new in 1979, excel cond. $3,500. Toni, 928-6562 from 5-7 p.m.

KINGSTON WIDE HORSE TRAILER - $2,500; mini bike, $135; utility trailer, $45; battery, $25. Flo, 722-4625.

74 VW CAMPER - excel cond, rebuilt engine and auto trans, new radial tires. Fred, Ext. 3703 or 298-8173.

69 OLDS CUTLASS - V8, 350, 2 dr, p/s, p/b, a/c, excel cond. $945. Nick, 929-3127.

50 CADILLAC - 4 dr, good cond, orig upholstery and paint. Runs well. $3,500. Ext. 3486 or 744-0986.

PLYMOUTH VOLARE - 4 dr, low mileage, excel cond. Available end of September. $2,700. Sato, Ext. 3927.

79 HONDA - Twinstar, mint cond, $700 worth of extras. Must see. $1,250. 289-2101 during the day.

TRUCK CAP - for 6 ft bed of small pickup, like new, fiber glass. Reasonable. Ralph, Ext. 2368 or 928-6654.

70 OLDS - conv, needs rear window, good engine. $450. Ext. 2417.

72 SUZUKI - 125cc dirt bike, recently rebuilt, excel running cond. $375. Jim, 588-0677

71 BUICK - running cond. Robert, 732-3846.

VW FRONT SEATS - for squareback or fastback, white, good cond. Best offer. Ext. 7110.

70 SUZUKI - motorcycle, 125cc, dirt and road. $275 or best offer. Must sell. 744-4725.

COX CAMPER TRAILER - sleeps 6, including boat rack. $600. Ext. 2429 or 751-7624.

69 FORD LTD WAGON - p/s, p/b, 2 snows on rims. $375. Ext. 2429 or 751-7627.

74 HONDA CL 125S - very clean, fast 26,000 mi. Asking $400. Ext. 2275 or 399-5275.

68 VW POP-UP CAMPER - new engine, clutch, tires, sleeps 4, ice box, sink, table, am/fm, cb. Ext. 3126.

Boats & Marine Supplies

STEERING WHEEL - for inboard/outboard boat. 473-4471.

16' LARSON - 65 hp, trailer, new top, steering, tank, prop, mainly lake used. Asking $2,100. 475-3648.

CANOE - USCA Cruiser, strip plant 18' 2' w/custom mahogany paddles, fast, stable, outrigger oarlocks. $995. Ext. 3639.

SLALOM KAYAK - w/paddle, flotation bags. $100. Paul Jacobsen, Ext. 2275/7108.

4 HP MERCURY - good for parts or rebuilding. Lloyd Davis, Ext. 3952/4803 or 325-0389 after 6 p.m.

15' FIBERGLASS BOAT - hull sound w/galv trailer, $450; 15 hp Evinrude old, runs, $125. Ext. 7653.

1972 MERCURY - 4 hp short shaft outboard motor, excel cond. Jim, 265-5218 eves.

Yard Sales

YARD SALE - August 1st and 2nd, 9 to 4, 24 Glenwood Rd, Sound Beach. Four blocks from P.O. off Bayville.

Miscellaneous

LARGE SIZE CRIB — w/spring, maple stained wood, good cond. 727-0552 after 6 p.m.

STUDENT SIZE VIOLIN - w/bow & case; flute Pourcelle, excel tone, $150; 12 string Spanish guitar, nylon strings, $45. Ext. 2961.

TICKETS - Fundraiser August 2nd. Southampton -Drs. Caldicott & Fines, Music - Tom Paxton also Art Auction, Cheryl Tiegs, etc. Ext. 3636 or 369-2151.

POOL TABLE - 8'x4', 3/4" slate, 3 piece, ball return, new cloth, 15 ball, 4 sticks. $200. 924-3865.

LIVING ROOM SET - green over-stuffed, $185; bedroom set, grey modern, $185; GE dryer, gold. $175. Jim, Ext. 2050 or 744-3792.

GOLF CLUBS - men's, irons 3 thru 9, PW, SW, woods 1,3,4. Wilson. $75. 588-8604 eves.

HOMELITE GENERATOR - 1.5 KW needs carb, $50. Lee, Ext. 4447.

WINDOWS - set Andersen gliding type, ea. section 26"x62¾". $70; Fuju 10 spd bike model SJ-10. $70. 473-4471.

QUALITY BLANK CASSETTES - C-90 fe02, Cr02 & feCr. Reg. $4-$5, $2.50 ea. Min. 10. Ext. 2521 or 928-8379 eves.

FIREWOOD - for stove or fireplace, all hard wood, split & local delivery. 399-4213.

BLACK CAST IRON STOVE - new, $225; dark pine cobbler bench, $75; end table, $75. 744-6063.

VHF - PWR & SWR MTR - Swan WWM-200-$25; Crystal Less Scanner-ACT-W10-10 channel, $60; Electric stove, Magic Chef, $25. Ext. 4576.

THOROUGHBREDS - (2) Medal-Maclay, 16-1, Sound; English riding boots, sizes 6½-8½; halters; treated new fence posts + 2x6's; oak desk, $60; Conn. Organ, $1,700; Bennington Pine Hutch, table/chairs, $2,200. Flo, 722-4625.

DINING ROOM - china closet, buffet, table w/3 leaves & pad (6) chairs. $425. 981-4419.

9 FT. BAR - and (1) 7 ft. bar; 2 bar stools for playroom or den, butcher block tops Naugahyde side; Med. dinette set, 6 chairs, 1 leaf, 6" wrought iron & wood grain top, excel cond. Frank, 289-1085 after 5 p.m.

TV - Sears 19" color, excel cond. $125. Dick, Ext. 4289 or 281-3992 after 5 p.m.

STAGE 400 AMP - w/reverb & master volume, excel cond. $200. 744-5424 after 4 p.m.

BABY EQUIPMENT - Perego, Marmet carriages, playpen, swing, excel cond. 928-0276.

FIREPLACE HEAT ENCHANGER - Sears Model w/2 spd. blower, used 2 seasons. $25. Bob, Ext. 2450 or 744-5217.

POP UP COX '65 - $500; plus aluminum boat 12 ft. $150. Ext. 2964.

CUSTOM MADE - wood console stereo top components; suede jacket, rust, women's size 9. 369-2151.

SEARS KENMORE - washer/electric dryer, excel cond. $100. ea. Make offer for both. 689-8413 eves.

TYPEWRITER - Royal standard office desk type, new ribbon, appearance like new. $45. 475-8658.

POOL - 12'x4' above ground, needs liner. $30. E. Edwards, Ext. 4027 or 286-1121.

TV - Sony 15" color, excel cond. $250. David, Ext. 3145.

CLARINET - Noblet, wooden w/spare Brilhart mouthpiece, complete w/case. $50. 665-2019.

TRANSMITTER - Hallicrafters HT-32 80-10m SSB/CW, 150W w/new 6146B finals, book. $125. Alan, Ext. 2928 or 821-0761.

GIRL'S BIKE - 26" Phillips, made in England, good cond, kept indoors. $45. Dahl, 286-0379.

LIVING ROOM CHAIR - reclining chair; end tables. $25. ea. Ron, Ext. 7101 or 289-1003.

FOR ADOPTION - Lab/Shepherd, 6 months, female, housebroken, all tan, very affectionate, good w/children. 467-1090.

COBRA 135 - SSB, clock, std. CB, 19 channels maco 200 power boost, SWR meter, pluses. Excel. $500. Firm. 744-0778 eves.

HOME HATCHED - Baby blue budgie. $15. For interview. 689-8413 eves.

ROCKING HORSE - spring action, very good cond. $25. 286-0422.

32" FRANKLIN STOVE - w/chimney, never used, must see; 16 cu. ft. upright freezer; sleeper bed, Queen size, cost $800. Sell for $200. 698-7953.

SINGER - portable Zig-Zag sewing machine, $50; Westinghouse Dehumidifier, $60. 281-8538.

FREE - mostly German Shepherd dog, all shots & neutered. Ext. 3699.

SEARS - electric Kenmore dryer, fabric master. $100. 744-7157.

FISH TANKS - (1) 30 gal; (2) 20 gal. Many extras, filters, gravel, etc. 30 gal. $35; 20 gal. $25. Ext. 3147 or 585-9149.

POLAROID CAMERA - One step, w/case & flash, 2 film packs, $28. R. Dietz, Ext. 3059 or 744-7242.

FREE KITTENS - for the taking. 744-7157.

TRAMPOLINE - "Gym Master" steel frame, 6'x12' nylon performing bed. $250. 581-1993.

CONVERTIBLE CHAIR/BED - good cond, $50; formica table, 2 chairs, $25. Ext. 7100.

COLONIAL LOVESEAT - $25; step end table, $15; telephone bench, $20; walnut bar, $25; spinning wheel planter, $20. 929-6148.

FREEZER - Kenmore, mint cond. used one season only, 23 cu. ft. $400. G. Ince, Ext. 3786.

RACER - 10 spd, like new, hardly used, all chrome, French made, must see; AM/FM 8 track deck, good shape, $40. 399-4213.

TRANSCEIVER - Kenwood TS520, SSB/CW with CW filter, like new. $400. Bob, Ext. 2450 or 744-5217.

OSCILLOSCOPE - Heath IO-10 5", works perfectly w/manual. $25. Alan, Ext. 2928 or 821-0761.

BRASS HEADBOARD - king size, traditional style, brand new, still in box. $75. R. Dietz, Ext. 3059 or 744-7242.

COLEMAN STOVE - sleeping bags, air matresses, new. Ext. 3126.

Real Estate

Real Estate advertised for sale or rent is available without regard for the race, color, creed or national origin of the applicant.

For Sale

RIVERHEAD AREA - mobile home 10x50, 1 bdrm, stove, refrig, washer/dryer, tool shed, covered patio, air cond. Ext. 3138.

MIDDLE ISLAND - 4 bdrms, 2½ bath Colonial, fenced 1/2 acre, fruit trees, landscaped, eik, d/r, l/r, fireplace in den, all appl., fully insulated, close to shopping, assumable 8% mortgage, excel cond. $45,000. 924-7148.

SHOREHAM VILLAGE - custom ranch, 3 bdrms, 2 baths, fam. rm w/fp, d/r, l/r, gourmet kit, 2 car O/S garage, 0.8 acre w/w throughout, new oil burner, good financing, walk to priv. beach, tennis, club. 821-0890 after 5:30.

BELLPORT VILLAGE - Bay view lot for sale by owner. 286-1677.

SHOREHAM — 2 story, 4 bdrm Clarendon Colonial, 2 baths, l/r w/fp, d/r, dinette, kitchen & mudroom w/2 stall garage on .45 acre corner lot. Deeded beach rights. 744-2766.

MASTIC - 3 bdrm ranch, country kit, brick/cedar front, garage, full bsmt, shed, fenced 1/3 acre on corner, near Forge River, assumable mortgage. $39,000. 281-4371.

BELLPORT VILLAGE - 3 bdrms, 1½ baths, hi-ranch, eik, den, fam. rm, deck, screened in porch, attached 2 car garage, aluminum siding, excel cond. $46,500 by owner. 286-9310 eves & wkends.

For Rent

STONY BROOK - unfurn, studio apt., walk to Univ. & RR, $260/mo. $40/mo. util. Avail. August 1st. Ext. 3766 or 689-9392.

POCONO'S - chalet in priv. community, outdoor & indoor pools, 2 lake beaches w/water slide, tennis, game room. $175/wk. Bob, Ext. 4551 or 289-2159 eves.

CORAM - 4 bdrm. apt. in Colonial Mother/Daughter. $750/mo. includes util. Pat, 752-1700 days or 273-1568 eves.

BERKSHIRES CHALET - 3 hrs. from NYC: 3 bdrms, 2 baths, fully equipped kitchen, elect. heat, deck w/spectacular view, near lake, hiking trails, near ski areas, 1/2 hr. from Tanglewood Theater. 929-6946 after 6 p.m.

PATCHOGUE - house to share, female to share w/same. $50/wk plus 1/2 util. 475-2328 after 6 p.m.

EAST PATCHOGUE - sublet 1 bdrm apt., appliances, air cond., pool, recreation facilities. 289-5304.

ROCKY POINT — 1 bdrm house w/fp, oil hot water heat, 1 block from beach, 15 min. to Lab. $275/mo. + util. 744-9032 or (212)833-1186.

WATERFRONT WADING RIVER - Cliff house, Rustic, charming. Sleeping loft, stone fp, 4 appliances, furnished or unfudrn. Sept. 7th thru June. $325/mo. 929-8165.

HUNTINGTON — Dix Hills, 4 bdrm, 2½ baths, house on beautiful acre, inground pool. $1,300/mo. 271-2278.

Wanted

APT./HOUSE - to share starting Sept. 1st. Call Pushpito at Ext. 4360 or 732-5804 eves/wkends.

METRONOME - good cond. Reasonable price. G. Ince, Ext. 3786.

SQUARE DANCE CALLER - for local block party, August 15th. 929-4766.

CLOTH DIAPERS - prefolded preferred. Chris, 821-1704.

ARTICLES — Wish to make copies of Breast Cancer Articles in Consumer Reports Jan. 1981 and March 1981. Ed Pluta, Ext. 2957.

REGULAR 8mm EDITOR - (not super 8) or combination of both. Paul, Ext. 4037.

GOOD HOMES - for gray-white and tiger striped kittens, also Calico mother. Lois, Ext. 2959 or 286-1381.

'69-'72 CHEVY TRUCK NOSE - and bed, must be good. Dick, Ext. 3498 or 589-9103.

HOUSE/APT. - to rent, Brookhaven area. JoAnn, Ext. 7203 or 286-0745 eves.

SMALL COMPRESSOR - working or not. Joe, Ext. 2556.

MEDIUM SIZE TRUNK - in relatively good shape for college. Janice Perez, Ext. 3381.

2 BBL CARB - for '71 Buick LaSabre, 350 V8, must be in good cond. & reasonable; skis & other ski equipment for intermediate skier; VHF Hi-Lo antenna, all reasonably priced. John, Ext. 3292 or 286-1348.

APARTMENT - Sayville area, female BNL employee. Ext. 3341 or 281-3567 after 5:30 p.m.

'64 to '69 - 40 HP O.M.C. outboard Crankshaft or power head, good cond. Jim, 265-5218 eves.

'71 PASSENGER WHITE SEAT - in good cond, good money paid. Ext. 3147 or 981-0210.

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

TOOL CABINET - w/drawers. Joe, Ext. 2556.

Car Pools

BABYLON VILLAGE - join or form car pool. Ext. 2224.

FROM PATCHOGUE VIA BELLPORT - 9 yr. old car pool, on-time, has vacancy for paying rider starting 8/17. Alyce, Ext. 2901.

Lost & Found

FOUND - Gold earring, in front of cafeteria. Ext. 2345.

LOST - small, orange, triangular plastic window grill for 1976 Plymouth Arrow. Fern, Ext. 3969.

Services

Services are listed as a courtesy to BNL employees. They are neither screened nor recommended by the *Bulletin*.

SAILING - Moonlight sails, day sails, leaving Bayshore or Fire Island, complimentary wine, cruising catboat. 666-1477.

FIRESIDE CHIMNEY SWEEPS - all types of flues, Summer Special $10. off August '81 only. Fully insured. Bill, 584-6425.

BABYSITTER - mother w/2 small children willing to babysit, Shirley area. Mary, 399-6128.

POOL SERVICE — reliable, cleaning, repairs, maintenance, emergencies. 727-4186.

A-CLASS MECHANIC - all types of mechanical work done on any type of car. Joe, 744-3509.

SANDBLASTING - trailers, chassis, any kind metal equipment. Headers, pulleys, etc. Reasonable rates. 744-3968 eves.

KAYAK LESSONS - equipment supplied, eves, wkends, also cruising & touring, open water trips. Dan, 727-7575.

SECURITY SYSTEMS - fire, burglar, all types. Discounts offered. 286-8330.

ABOVE/IN GROUND POOL INSTALLATIONS - and repairs, insured, licensed. Work guaranteed. Pat, 363-2497.

ASPHALT PAVING - and sealing. Bob, 475-4382.

SIGHT SEEING FLIGHTS - aerial photogr., Long Island, Conn., New York, modern all weather aircraft. 929-6148 day or eves.

AUTO REFINISHING - all areas of body work performed. Reasonable rates. Bob, 744-4047.

BABYSITTING - reliable mother w/playmate, wkdays, my home, any age. Coram area. Joan, 732-1610.

PLUMBING - heating, experienced. 281-7986.

INCOME DIVERSIFICATION - spare time opportunity, no investment. Tax favored. 698-5861 after 7:30 p.m.

BABYSITTING - reliable Mastic/Moriches/Shirley area. $1.50 hr. Heidi, 281-7873.

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