BROOKHAVEN BULLETIN
Vol. 35 - No. 18 May 8, 1981
BROOKHAVEN NATIONAL LABORATORY

Cronkite Elected To NAS

In recognition of his significant contributions to science, Dr. Eugene P., Cronkite was elected to the National Academy of Sciences on Tuesday, April 28. He is well-known for his research on the regulation of hematopoietic cell proliferation and leukemogenesis, and for his development of extracorporeal irradiation of the blood in the study of immunity and treatment of leukemia.

Election to membership in the Academy is considered to be one of the highest honors that can be accorded an American scientist or engineer. In addition to Cronkite, 59 other new members were elected last week, bringing the total to 1,352.

The National Academy of Sciences

Mort Rosen

Eugene P. Cronkite

is a private organization of scientists and engineers dedicated to the furtherance of science and its use for the general welfare. The Academy was established in 1863 by a Congressional Act of Incorporation, signed by Abraham Lincoln, that calls upon the Academy to act as an official adviser to the federal government, upon request, in any matter of science or technology. Cronkite accepted his election to this prestigious organization on behalf of the many young scientists that he has trained or worked with throughout his career, many of whom now hold prominent positions in clinical medicine and research all over the world.

Cronkite was Chairman of the Medical Department for 12 years, returning to fulltime research in July, 1979. During his tenure as chairman, he played a key role in the development of relations with the Health Sciences Center at SUNY-Stony Brook. He is a Professor of Medicine at Stony Brook and Dean of SUNY's Clinical Campus at Brookhaven Lab.

Lecture Reminder

Physicist Michael Creutz will give a BNL Lecture on Wednesday, May 13 at 8 p.m. in Berkner Hall. He will speak on "Roulette Wheels and Quark Confinement." Creutz is a particle theorist who has developed computer techniques which provide strong evidence that quarks, basic constituents of most elementary particles, cannot be isolated.

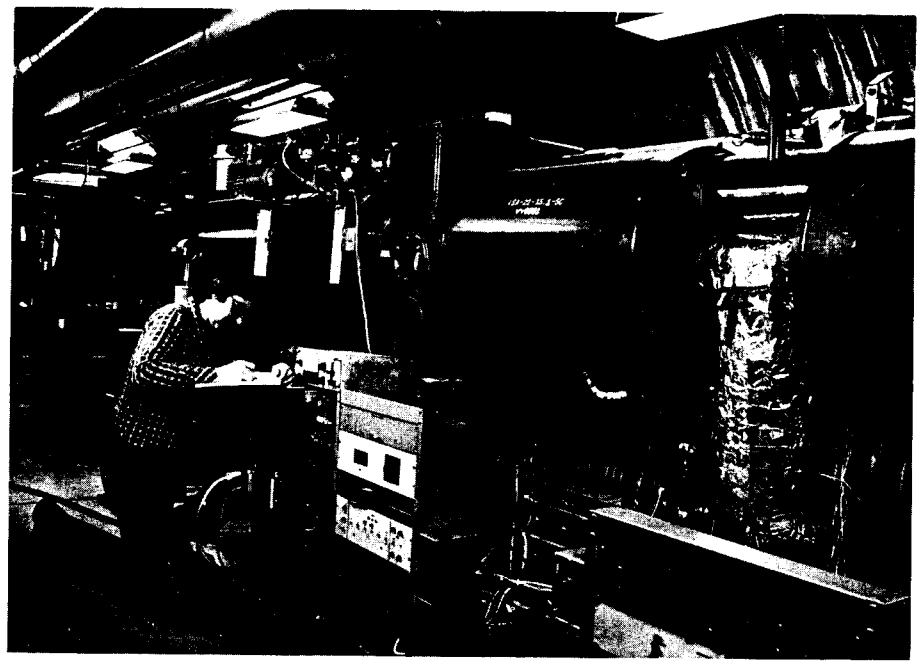
Vacuum Technology Advanced At ISABELLE

How do you keep a cold drink cold during a long hike on a balmy summer day? You put it in a thermos bottle, of course, knowing that the vacuum chamber between your beverage and the outside world will act as an insulator to keep the cold in and the warm air out.

This is precisely the reason for one of the two vacuum systems which have been designed for ISABELLE by the Vacuum Group. In this first system, a vacuum chamber will surround each of the two rings of superconducting magnets, keeping the liquid helium coolant in and the warmer ambient air out.

Liquid helium is used in ISABELLE's cryogenic refrigeration system to cool magnets to the very low temperatures required to achieve and to maintain superconductivity. The vacuum system evacuates the space between the cryogenic magnets and the ambient atmosphere and maintains it at a low pressure of approximately 10^{-7} Torr. This prevents the air molecules from carrying heat from room temperature walls to cryogenic magnets. "To construct a leak-tight system is of utmost importance," said Henry Halama, head of the Vacuum Group," because it determines how much refrigeration is needed. This in turn, directly affects the cost of running ISABELLE because the refrigeration system is the most expensive system to run, since it requires the most power. If even a very tiny amount of coolant leaks into the vacuum space, power costs may become prohibitive, and may even prevent the cooldown and operation of the machine."

Such a leak free system has already been produced and tested by the Vacuum Group in the ISABELLE First Cell, which, from the point of view of its vacuum, is an exact replica of a four-magnet section of an ISABELLE ring. "We completed the vacuum system about a year ago," Halama said, "and since then, we've conducted various experiments on it. We have exposed the system to very stringent tests and we were not able to ruin it. The First Cell remained completely leak free after five cooldowns and one simulated burst to atmosphere when a four-inch valve was suddenly opened and warm air rushed into the vacuum space surrounding the superconducting magnets. We have learned a lot about how to build and run the ISABELLE insulating vacuum and we have proven that one can indeed build a leak free cryogenic system."



Mort Rosen

At the ISABELLE First Cell in Bldg. 902, technician Christopher Lanni monitors the ultra high vacuum system designed by the Vacuum Group. The pump station for this vacuum is shown at right, encased in an insulating material for high temperature bakeout. Above and to Lanni's left is the turbo-molecular pump system designed to maintain low pressure in the insulating vacuum which insures low heat dissipation in the refrigeration system.

The second vacuum system exists within the worm bore tube at the center of the ISABELLE magnets. When the magnets are completed and connected into two intersecting rings, these tubes, containing necessary pumps and instrumentation, will house two 400 GeV proton beams which will collide at six intersections.

If the bore tubes were not also vacuum chambers, they would be filled with air. As the protons circulated through the tubes, they would collide with air molecules and be lost from the useful beam. To minimize this and to keep the protons on a specific and narrow path requires a very good vacuum equal to that generally encountered only thousands of miles up in space.

How high a vacuum will be required at ISABELLE can be appreciated by comparing it to the present vacuum at the AGS. A proton beam stays in the AGS for only a second and is aimed at a large target, usually made of solid matter. In ISABELLE, where proton beams will be stored for many hours and made to collide with each other over long periods, the vacuum must be five orders of magnitude better than that in the AGS.

Again, the Vacuum Group has had no difficulty achieving the required pressure of 10^{-11} Torr. This ultra-high vacuum system was also subjected to stringent testing in the full cell - a 140-foot long section containing all the components to be used in ISABELLE. "All the parameters we set out to meet were routinely achieved. In fact," Halama continued, "the vacuum is better than we need."

Although developed for ISABELLE, the work of the Vacuum Group has other ramifications. "We have advanced vacuum science and technology," Halama said, "and we have certainly shown how to achieve high vacuum simply and very economically."

Having already designed and tested two excellent vacuum systems, the Vacuum Group is continuing with efforts to improve those systems and to provide help with all ISABELLE vacuum systems. One present project is intended to decrease the cost of the insulating vacuum by taking advantage of the properties of charcoal, a porous material which, when cooled down, works like a pump for helium. The idea is to glue activated charcoal onto the superconducting magnets with epoxy and let the charcoal do

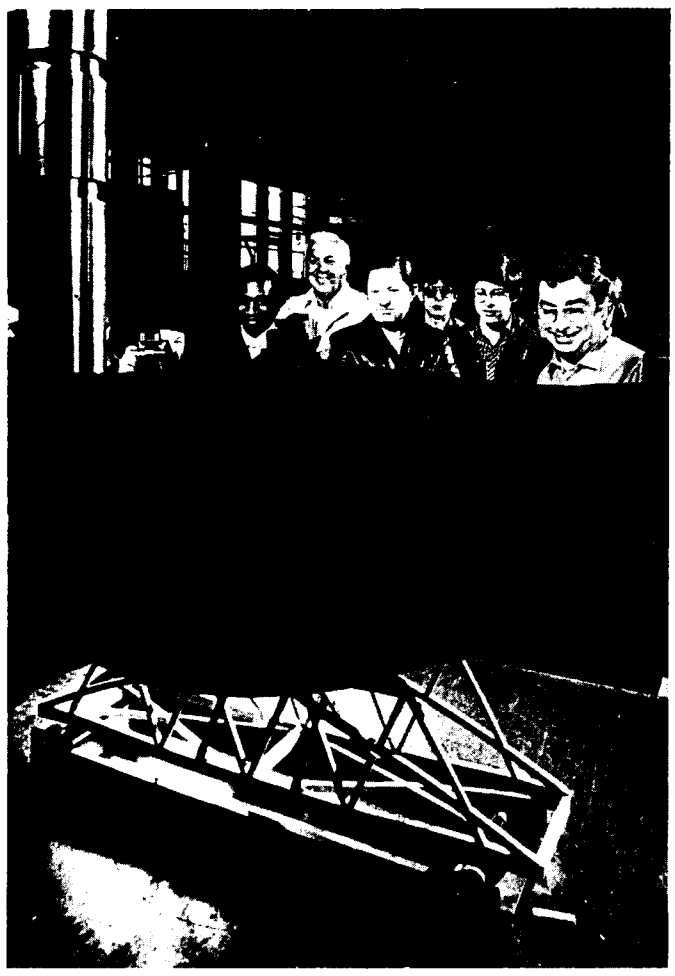
(Continued on page 2)

Plant Physiologists Meet At BNL

Doug Humphrey

The 45th annual meeting of the northeastern section of the American Society of Plant Physiologists was held last week at Brookhaven Lab. BNL's George Wagner (right), chairman of the meeting, talks to Jacobus Eloff, a BNL visiting scientist from U. of Orange Free State, South Africa; Mary Nolan, Rutgers; and Arthur Galston, Yale. They were some of the 120 participants who spent two days attending poster and platform sessions, during which about 40 papers were presented. The meeting was dedicated to the memory of two distinguished scientists, William Hillman, BNL plant physiologist, and Sam Granick, biochemist and plant physiologist from The Rockefeller University. Supplemental support for the meeting came from AUI, SUNY-Stony Brook, and from the Alexander Hollaender Fund for travel expenses of students who made presentations at the meeting. Wagner, Geoffrey Hind and Harold Siegelman made up the BNL organizing committee.

Young Bridge Builders Compete



—photos by Humphrey

At left, Martin Woodle (far right) initiates a vise-type operation on a stress testing machine to determine how much mass this model bridge can support. The vise action stops when the machine senses that an important part of the bridge's structure has failed. Precise measurements appear on the machine's large dials, which are not shown. They can be seen, however, by the spectators who are watching the test with eager anticipation. At right, these people register various emotions as the bridge's performance becomes known. Judging by their expressions, this bridge was not a winner.

A model bridge built by Charles Nostrand, a junior at Cold Spring Harbor H.S., was the winner last Saturday in the BNL Model Bridge Contest for high school students.

Formerly held at Hofstra University, the contest requires that students put engineering theory into actual practice by designing and constructing a model bridge that can support a greater load in proportion to its mass than any of the other bridges. Taking advantage of this opportunity, 147 students entered 183 bridges. While each entry was made of the same materials — balsa wood and Elmer's glue — their shapes and sizes varied widely within the contest specifications.

Nostrand's winning bridge weighed 120.8 grams and supported 2,500 pounds. Its ratio of supported mass to bridge mass was 20.69. In other words, the bridge supported 9,387 times its own weight. With another entry, Nostrand also captured third place.

Second place was taken by Nick Baum of Patchogue-Medford H.S., which was also represented for fourth place with a bridge built by Joe Pagan.

Testing was conducted in Building 480, Metallurgy and Materials Science, on the hydraulic stress testing machine located there. The equipment was operated by Martin Woodle, Accelerator; Carl Klamut, DEE; and Don Horne, DEE.

Vacuum Technology (Cont'd)

most of the pumping. "We already know how to do this, and we have tested it under most operating conditions," Halama said, "now it's just a matter of implementing it, which we will do on future magnets. Once that's done, we will have shown how one can use charcoal routinely in every cryogenic magnet system to save on insulating materials and on power consumption due to reduced refrigeration heat load."

Halama's confidence comes from working with a group which has successfully completed most of its goals. This success, he said, "is the result of a joint effort and the feeling that every contribution is equally important. ISABELLE can only be built with good and committed technicians and engineers." The Vacuum Group has sixteen people, Halama explained, "and we all do our best. We work well together because we seem to share a similar philosophy that nothing is really difficult in life but if you want it, you have to be systematic." —Anita Cohen

Selected Reading

Long Island Forum 44 (3) March 1981
Early Automobile Races. Eileen Smith. 48-49

National Review 33 (5) March 20, 1981
Taming the Saudis. Peter Lubin. 274-277

National Review 33 (8) May 1, 1981
The Soviet Union: Might it collapse? Dmitry F. Mikheyev. 478-489.

The Lancet 1 for 1981 (8224) April 11, 1981
Unwilling Patients. Anotoly Kuryagin. 821-824.

The New England Journal of Medicine 304 (17) April 23, 1981
Humanistic Medicine in a Modern Age. Seymour M. Glick. 1036-1038.

New Scientist 90 (1247) April 2, 1981
Doctors unite against nuclear war. pp. 5.

Newsweek 47 (18) May 4, 1981
Commuting by Computer. Tom Nicholson et al. 58-59.

Science News 119 (17) April 25, 1981
Max Delbruch 1906-1981. Julie Ann Miller. 268-269.

NYC Train Trip

The Hospitality Committee is planning a group railroad trip to the city on Wednesday, May 20. Departure will be at 7:55 a.m. from the Patchogue LIRR station. Round-trip fare for adults is $3.25, children under six years ride free.

Reserve a ticket by sending the fare through the U.S. mail to P.O. Box 322, Upton, New York 11973, no later than *Thursday*, May 14. Make checks payable to "Brookhaven National Laboratory." Tickets will be given out on the train. Refunds will be made only if cancellations are received by the *Friday* preceding the scheduled trip.

Concert Note

Flutist Paula Robison and pianist Ruth Laredo will present a concert on Tuesday, May 12, at 8:30 p.m. in Berkner Hall. Among the most popular performers to appear in BERA's concert series, they will present a program of both solo pieces and duets. Tickets for the concert will be sold at the door. Prices are $6 for adults, $4 for students and senior citizens, and $3 for those under 18.

Equipment Demo

LeCroy Research Systems will be at Berkner Hall, Conference Room D, on Wednesday, May 13, to demonstrate a new Drift Chamber Digitizing System. Hours are from 10 a.m. to 12 noon and 1 p.m. to 5 p.m.

The 4290 System incorporates 2 LSI custom monolithic devices - one a complete, self-calibrating TDC on a chip, and the other, a unique wire chamber discriminator.

Speakers Bureau

March - April

Louis Harson (PE), Long Island Hall of Fame, Camp Upton/BNL History, March 6.

Per Dahl (Accel.), **Avril Woodhead** (Bio); Shelter Island High School 16th Annual Junior High School Science Fair, March 6.

R.C. Anderson (DO), Hartman Systems Management Club, Energy Options for the Future, March 25.

S. SethuRaman (DEE), Science Teachers Association of N.Y. 6th Annual Science Workshop, Environmental Meteorology, April 10.

Elizabeth Heldman (Med), General Council Suffolk County Girl Scouts, Women in Science, April 11.

Michael Creutz (Phys); **Irvin Meyer** (Chem.), Suffolk County Science Exporations 1981, Sub-Atomic Particles; Glass and Glassblowing, April 13 & 14.

Ralph Jones (DEE), Port Washington Library, Brookhaven House, April 22.

Louis Harson (PE), State University of N.Y. at Stony Brook, Camp Upton/BNL History, April 22.

Louis Harson (PE), Veterans of World War I, Camp Upton/BNL History, April 27.

Affirmative Action Committee In Its 14th Year

The Laboratory is committed to a policy of equal opportunity and to maintaining a strong affirmative action program for recruitment, placement, training and upgrading.

This program has the goals of achieving significant participation of minorities and females in all categories of employment in all departments and divisions, strong minority and female involvement in educational and training programs, and improved communication between the Lab administration and minority and female employees. Although department chairpersons and division administrators are responsible for administering Laboratory policy, including affirmative action programs within their organizational units, the Affirmative Action Advisory Committee advises the Lab Director as to the effectiveness of these programs and makes recommendations for improvement.

The committee consists of nine members appointed by the Director. In addition, the Affirmative Action Assistant to the Director and a member of the Director's Office are ex-officio, non-voting members. Committee members serve for rotating terms of two year.

Members of the Affirmative Action Advisory Committee are (from left) Otto White, S & EP; Donald Gilzinger, Accelerator; Rebecca Williams, DEE; Harriet Fadem, Accelerator; Sarah Ebron, PE; George Grigg, NSLS; Frances Scheffel, Chairperson, DNE; Jag Dalal, Mgmt. Info. Sys.; and Emma Ginorio, Fiscal.

—photo by Humphrey

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Published weekly
for the employees of
BROOKHAVEN NATIONAL LABORATORY

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CARL R. THIEN, Public Relations Officer

Kids-R-Us Artwork

Art and craft work done by children who attend the Kids-R-Us Day Care Center will be exhibited on Monday and Tuesday, May 11 and 12, in Room D, Berkner Hall, from 11:30 p.m. to 2:00 p.m. Throughout the exhibit hours, teachers from the center will be on hand to answer questions about the regular program and about the summer activities program planned for children up to grade six. Pre-registration forms for both programs will be available.

Mail Note

The BNL Mail Room wants to do the best job possible in moving mail quickly and accurately.

Sorting incoming U.S. Mail is primarily done by building numbers, some of which have an alpha character suffix to permit a sub sort within larger buildings. You can help the Mail Room help you by having your mail addressed to the proper mail drop, for example:

J. Doaks
BNL 179B
Upton, New York 11973

Mail addressed only to Brookhaven National Laboratory, Upton, New York, slows down the sorting while someone determines which of 99 mail drops is the correct one. Similarly, if our computer printout is in error because you have moved and not advised us, mail can be delayed unnecessarily by being misdirected.

Please tell the Mail Room if you have moved. Also. give your correspondents your ***complete*** address.

Motorcycle Club

The Motorcycle Club's monthly meeting will be on monday, May 11 at 5:15 p.m. in the Recreation Building. Various club members have been planning trips this summer, and we expect to hear their ideas.

Afro-American Club

The first organizational meeting of the Afro-American Culture Club will be held on Monday, May 11 at 5 p.m. in Room B, Berkner Hall. The AACC is a new BERA activity, and all BNL employees are invited to attend this meeting.

The aims of the AACC are to promote Afro-American cultural awareness, encourage intercultural exchange, and help achieve a positive multi-ethnic work environment. The club will sponsor a series of educational, cultural and social events featuring Afro-American talent.

Journal Titles in English Translation

Acta Biochimica Polonica
Angewandte Chemie
Annales des Falsifications et des Fraudes

Annali della Sperimentazione agraria

Bull. soc. chim. France

Chemicke Listy
Chemie-Ingenieur-Technik

Chemisch Weekblad
Comptes-rendus de la societe chimique de France
Croatica Chemica Acta
Doklady
Helvetica Chemica Acta

Memorial des Poudres

Recueil des travaux chimiques de Pays-bas
Vodni Hospodarstvi
Zhurnal neorganicheskoi Khimii
Zhurnal obshchei Khimii

Biochemistry is a lot of baloney
Angry chemist
Where the competition publishes its results
Years of screwing around in the field
Discussion group for French chemists
Unsteady chemist
Are chemists more ingenious, or technicians?
Chemist with urinary trouble
Expense account from that meeting in Paris
Messy chemical reaction
Woman stevedore (U.S.S.R.)
The hell with the reaction mechanism!
Don't forget to go to the ladies' room
Recoil from chemical labors at low pay
Vodka on the rocks
Journal of disorganized chemistry
Journal of obscene chemistry

— *by James Shields. Reprinted from The Journal of Irreproducible Results.*

French Film

The film "Le Souffle au Coeur" (Murmur of the Heart) will be presented by Le Cercle Francais de BNL on Thursday, May 14, at 8 p.m. in Berkner Hall. A donation of $3 ($1.50 for students and senior citizens) will be requested of those who are not members of The French Group. Refreshments will be served after the movie.

This film, directed by Louis Malle in 1971, concerns a 15-year old boy who lives with his bourgeois family in provincial Dijon. He is suffering temporarily from a slight heart condition, and this illness brings him closer to his youthful and beautiful mother. Their ambiguous relationship culminates in an Oedipal manner, but this delicate subject is treated gently and tactfully by Malle. Above all, the film is a witty comedy about the universal problems of adolescence. Featuring Lea Massari, Benoit Ferreux, Daniel Gelin, Marc Winocourt, and Fabien Ferreus, the movie has French dialogue and English subtitles.

Mountain Club

There will be a Mountain Club meeting on Tuesday, May 12, at 7:30 p.m. in the North Room of the Brookhaven Center. Anyone interested in upcoming hiking and camping outings is invited to attend.

Swimming Pool

A new four-month pool season will begin on Monday, May 11. Season tickets may be bought at the pool during scheduled open hours starting on that day.

Fees:

Season Tickets (fees not prorated)	
Individual Membership	$20.00
Family Membership	30.00
Daily Admissions	
Employee/Family Member	1.25
Guest	1.75

Schedule:

Monday through Friday
(Employees Only)
11:00 a.m. to 1:30 p.m.
(Employees/Families/Guests)
5:00 p.m. to 9:30 p.m.

Saturday and Sunday
(Employees/Families/Guests)
1:00 p.m. to 6:00 p.m.

Note: The swimming pool is closed on all Laboratory holidays.

Miniature Plants

Is your interest in houseplants creating overcrowded windowsills? Well, how about miniature plants to solve your space problems! There's a whole world of dwarf miniatures awaiting your discovery. They're manageable because they won't grow and multiply so fast that they'll take over your home.

Dwarf forms of many types of plants are available: perennials, annuals, flowers, shrubs. Many miniatures, like miniature geraniums or roses, can be grown indoors, while some low-growing miniature annuals are excellent for edging or landscape borders. Think about a border of aster, begonia, marigold or zinnia. Some shrubs which stay three feet and under at maturity include juniper, balsam fir, Norway spruce and rhododendron.

Soccer

The season has begun for the outdoor soccer group. Informal games are played each Monday evening starting at 5:15. Those interested should merely show up and be ready to play at the field located in the BERA Recreation Park.

Call Ken Batchelor, Ext. 4674, for more information.

Bowling

Green League

The Light Source took 4 in a match with the Phoubars with A. Lorentsen rolling a 223. The Pinball Wizards took the Sandbaggers for 9-1/2. R. Eggert bowled a 209 and G. Meinken 201/224, 616 scratch, 715 gross. The Blue Jays took 11 from Isa Team. D. Stelmaschuk had games of 203/215 for a 578 scratch series. The Trouble Shooters lost 11 to the Designers. The Sparks took 8 from the Freon Loaders with B. Sick rolling a 212 and J. Cochrane a 215. The Old Timers II could manage 3 from the Old Timers.

Pink League

Millie Connelly had a good night with a 192 game and a 493 series. Other good games by Helen Keeley 172, Audrey Blake 165, Fran Nusz 162, Jeannette Thiede 161, Ellie Kristiansen 160, Madeline Windsor 159, Fran Briening 159, Ann Parrinello 158, Marie Grahn 157 and Carol Beckner 156.

Three teams have a shot at being the second half winners: the Lickety Splits, the Pinsplitters, and the Forty Niners.

Red League

The Strangers (3002 pins) took the 76'ers 11-0, but the 76'ers still clinched the second half. R. Larsen (215) 606 gross, W. Vanzqienen grossed 613, F. Griswold 608, J. Petro 603. The Designers shut out Trouble Shooters 11-0. R. Occhiuzzo grossed 629, A. Pinelli 618 and J. Ferrante 611. Isa Team were 0-11 losers to the Blue Jays.

The Old Timers won 8-3 over Old Timers II. The Freon Loaders took 3 points in a match with the Sparks. R. Marlow grossed 622. The Sandbaggers split a game with Pinball Wizards 1-1/2 to 9-1/2. C. Bohnenblusch a 224 game.

Purple and White

The Gropers won all 7 again giving them a 13 point lead in 1st place. Jim Griffin's 601 series was high for the men, 217/180/204, and for the ladies, 551 rolled by Fran Brown, 159/163/229, Fran's first 200 this season. Other good games this week — Ted Erickson 229, Robert Meier 221, Pat Stone 208, Walt Milian 207, Al Pinelli 206, Ken Asselta 203, Bob Brown 203, Ben Belligan 202, Caryl MacDougall 203/191, Sharon Smith 194, Irene Sperry 191, Jeanne Penoyar 186.

Cooking Exchange

Come join the Cooking Exchange at its next meeting on Wednesday, May 13 in the Recreation Building. The theme of the meeting will be "food for the out-of-doors." In addition to demonstrations of selected recipes, suggestions will be offered for your next camping or backpacking trip and some gourmet fare to take along on a warm weather picnic.

Meetings are held from 12:30 to 2:30 p.m. and are open to all BERA members and their immediate families. There is a charge of $1 per person and babysitting is provided at 50¢ per child

For more information call Ruth Fernow, 928-8465.

Cafeteria Menu

Week Ending May 15, 1981

Monday, May 11		
Mushroom soup	(cup)	.55
	(bowl)	.65
Baked ham w/orange sauce & 1 veg.		1.55
Spaghetti w/meatballs & garlic bread		1.50
Hot Deli - Pastrami	(on bread)	1.65
	(on roll)	1.75
Tuesday, May 12		
Split pea soup	(cup)	.55
	(bowl)	.65
Braised brisket of beef & 1 veg.		1.65
Sweet 'n sour pork over rice		1.60
Hot Deli - Monte cristo		1.70
Wednesday, May 13		
Navy bean soup	(cup)	.55
	(bowl)	.65
Roast turkey & stuffing w/cranberry sauce		1.55
Meatloaf & gravy w/1 veg.		1.55
Hot Deli - Roast beef	(on bread)	1.65
	(on roll)	1.75
Thursday, May 14		
Chicken rice soup	(cup)	.55
	(bowl)	.65
Veal Madeline w/1 veg.		1.60
Swedish meatballs over egg noodles		1.55
Hot Deli - Baked ham	(on bread)	1.65
	(on roll)	1.75
Friday, May 15		
Seafood chowder	(cup)	.60
	(bowl)	.70
Fresh baked fillet & 1 veg.		1.60
Chicken cacciatore over spaghetti		1.60
Hot Deli - Fried clam roll		1.70

R/C Flying Club

On Friday, May 15 at noon in Berkner Hall, there will be a meeting to discuss the yearly display scheduled for May 29. Anyone interested is welcome to attend. For information, call Manny Santos, Ext. 2022 or 2024.

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 listing 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.

OPEN RECRUITMENT: Opportunities for present Laboratory employees and outside applicants.

1581. OFFICE SERVICES CLERK - Handle daily departmental distribution of mail. Part time, 1500 to 1700. Physics Department.

Autos & Auto Supplies

78 RENAULT - LeCar, minor body damage, good running cond, asking $2,800. Ext. 7927 or 234-0158.

74 CHEVY - Malibu, a/t, p/b, p/s, am/fm stereo, good running cond, reg. gas. $1,200. 654-5169 after 5 p.m.

AUTO AIR COND - add/on, fits small V8 GM. $150. Bob, Ext. 4547 or 473-3987.

62 MERCEDES - 220 SE, 4 dr, 4 spd, leather int., runs good, needs work. $300. Murdock, Ext. 4731.

76 CADILLAC - Sedan, leather int., radials, am/fm stereo, a/c, full power, very good cond. $2,995. 929-4529.

77 FORD - LTD II wgn, V8, a/t. p/s, a/c, 29,000 mi, good cond. $3,000. Ext. 4045 or 289-5770 after 6 p.m.

75 CHEVY - Impala, a/c, p/s, p/b, am/fm, good cond, 74,000 mi. $2,000. 286-1709.

74 CHEVY - Caprice, 350 ci, p/b, p/s, a/c, rebuilt trans., no rust, runs good. Must sell. $800. Ext. 3106.

73 SAAB - 99 2.OLE, a/t, a/c, am/fm, low mileage, good cond. $1,850. Louise, Ext. 3397 or 472-4541 eves.

RIMS - 14" fit Ford & Chrysler products, (2) for $10. Morris, Ext. 4188.

70 TOYOTA - Pickup, left front collision, rebuilt eng, many new body parts, no rust. 928-6654.

TIRES - (2) used, good for another 10,000 mi. D78-14, Goodyear. $5. ea. Ext. 4333.

71 FORD - Torino Sta. wgn, (4) ex. tires, extra rims & snows, runs excel. Charlie, Ext. 3950 or 878-1540.

73 PLYMOUTH - Satellite, needs some body work, fair running cond. $450. Barbara, 473-8060 after 6 p.m.

RIMS - (2) 15" Volvo, $25. Bill, Ext. 3369 or 929-6442 after 6 p.m.

77 YAMAHA - 360cc, elect. start, lug. rack, blue, 7500 mi, like new. $995. John, Ext. 4185 or 929-8204.

70 CHEVY - Wgn, p/s, p/b, am/fm, a/c, 90,000 mi, good cond. $875. Peter T., Ext. 4004 or 286-0934.

75 FIREBIRD - 6 cyl, tape deck, 20 MPG, excel cond. $3,000. Firm. Ext. 5110 or 924-3197.

77 MERCURY - Cougar S.W., mint cond, 48,000 mi, 17/22 MPG, new tires & battery. $2,500. 929-6622.

75 FORD - F250 Camper Special P/U truck w/10½' Hornet Camper slide-on, self-contained, many extras. Will sell camper separately. 929-4840.

RIMS - 15" Ford (2) each. FREE. Ext. 3282.

78 KAWASAKI - 175cc, excel cond, extras. $675. Laurence, 744-5079.

77 CHEVY - Nova, 6 cyl, 3 spd, p/s, 41,000 mi, orig. owner, excel cond. Sheryl, Ext. 5174 or 924-7610.

74 AMC HORNET - p/s, p/b, a/t, good cond. $600. 286-3604 eves.

8' PICK UP BODY - from '78 Ford F-350, also step-bumper. 472-1473.

TIRES - (2) Michelin 230x15 on Olds rims. $100. Ext. 3392 or 475-8330.

78 FAIRMONT - Futura, loaded, a/c, p/s, p/b, 6 cyl. 200, must see. $3,900. Nancy, Ext. 4226 or 261-2719 after 6 p.m.

80 MOTORCYCLE - Honda Twinstar, brand new, many extras. Ext. 5221.

76 GRANADA - immaculate cond, std. trans, 24/28 MPG, economical. $2,650. Lou, Ext. 4615.

ANTI THEFT - steering wheel to brake pedal, locking bar. $8. Walt, Ext. 7154.

79 SUZUKI - R.M. 125, excel cond. $675. or best offer. 929-3346 after 5 p.m.

SPARK PLUG - wire sets, (4,6, & 8 cyl.) $5. Bill S., Ext. 4434.

77 F150 TAILGATE - Tan, new $50; 1970 set Ford car shop manuals, $5. Art, Ext. 4819.

70 VOLVO - Sta. wgn, excel run. cond. Owner leaving Country. $800. Kristin, Ext. 3372.

78 FORD - Granada, 2 dr, 6 cyl, a/c, new radials, p/s, p/b, am/fm, immac. cond. $3,500. Carl, 928-7745.

ELEC. AUTO ANTENNA - am/fm, CB, $25. Bob, Ext. 4547 or 473-3987.

CAMPER SHELL - fiberglass cab high for small pickup truck, excel cond. $350. Ralph, Ext. 2368 or 928-6654.

RACING SLICKS - on Chevy rims, $50; Crager s/s mags, 2 front, 2 slicks, $100/ea or best offer. Diane, 878-1630.

CHEVY HEADS - 2-307 w/valves & springs. $30/pr. Joe, Ext. 4204 or 588-3146.

Boats & Marine Supplies

1976 20' BAYLINER - 4 cyl, I.O. cabin w/access., trailer w/braking system. $7,000. John, Ext. 3397.

12' ALUMINUM BOAT - w/oars, locks & 7½ motor. $350. or make offer. Ext. 7148 or 363-2522.

28' LUHRS - inboard & cabin, camper back, V8, w/access, water ready. $2,075. Ext. 4188 or 472-2750.

78 MERCURY OUTBOARD - long shaft, manual s/s prop. $950. 286-3335 after 6 p.m.

OUTBOARD ENGINE - 50 HP Evinrude, 1975, will demonstrate. $600. w/controls. Tom, Ext. 7916.

25' MERCRUISER - 1978 Fiberform, 72 Hr., cabin, full galley w/access. Best offer. 928-5280 after 8 p.m.

16' FIBERGLASS - Runabout, 65 HP Mercury outboard, cox trailer, new power winch, extras. $1,400. Ext. 3319 or 369-3024.

78 BAYLINER - 27' Victoria, sunbridge, 200 HP, Volvo I/O, low hr., mint cond. $18,500. 286-2821.

CQR ANCHOR - 35 lb., new. $150. Ext. 3277.

16' ALUMINUM STARCRAFT - boat, 25 HP Evinrude, both never used. Dinos, Ext. 4666.

ANCHOR - 25 lb. Danforth, $25. John, Ext. 4976 or 744-4386.

16' SKEEC - wood outboard 40 HP Evinrude, galvanized trailer. 298-4057.

25' FIBERGLASS WHEELER - fly bridge, 225 HP Chrysler, FW cooled, dual controls, $7,500. 286-4504 eves.

TRAILER HITCHES - (2) for '73 Pontiac & '72 Duster. Class I. $20. ea. Tony, Ext. 3319 or 369-3024.

Yard Sales

YARD SALE - May 15 & 16, 10 a.m. to 4 p.m., #269 Phyllis Dr., Patchogue.

MOVING SALE - must dispose of 3,000 LP albums (Jazz, Big Bands, popular Vocalists, Classical & much more). Will sell in bulk or separate. $1.00/album. Multiple sets higher. All new cond. 289-2116 after 6 p.m.

Miscellaneous

SPEAKERS - (2) Sansui SP-2500 speakers, $150/pr. Frank, Ext. 4709 or 698-6150.

UTILITY TRAILER - Tamdem axel, 12' long, needs box built on it. $125. 363-6845 after 6.

SOLIGOR MACRO-ZOOM - 85/205mm f-3.8 for Minolta plus 58mm Skylight filter, like new. $100. 369-1464.

TRUMPET - gold plated Schilke, large bore, reasonable. Ext. 7667 or 751-7692.

WHEEL CHAIR - Everst Jennings, used twice, excel cond. $175. 286-1709.

8 TRACK -am/fm in dash, $30; pair 15" Chevy chrome slots, $35; 16' clamboat, flat bottom, needs paint. $150. Ext. 7291.

DOOR - exterior, new 2'8"x6'8"x1¾", (3) windows, right pre-hung Fir. $110. 924-6582.

SURF ROD - Fenwick 10' surf pole, cost $80. asking $20. needs repair. Walt, Ext. 7154.

TV - 19" Motorola, as is. $15. Chris, 589-5126.

CONSOLE ORGAN - Yamaha E-3, 25 pedals, excel cond. Ext. 4201 ask for Louis.

GOLDEN RETRIEVER PUPS - AKC Champ. Male & female. Vet approved, reasonable. 399-4792.

MOTHERS DAY - Special dried floral arrangments, unusual containers, reasonable prices. Irene, 589-5126 after 5 p.m.

REFRIG - $85; Maple dinette set. $165. 878-9518 eves.

MODERN SOFA - 90", good cond, $100; modern chair & ottoman, new cover. $75. 567-2714.

AQUARIUM - 20 gal. tank complete w/light, filters, pumps, & extras. $40. Ex. 7667 or 751-4985.

TV - Zenith B&W 19", channel 4 needs adjustment, otherwise very good. Asking $50. Ron, 281-3149.

REFRIG - G.E. 21 cu ft. bottom drawer freezer, Avocado, excel cond. $90. Charlie, Ext. 3950 or 878-1540.

ELECTRIC RANGE — 30" Westinghouse, gold, good cond. $100. 924-4323 after 7 p.m.

WHITE BIRCH - (4) 6-8 ft. $35/all or $10. ea; Giant Red Canna, .30 ea; lge. Hosta Funkia, $2. & $2.50 ea; Forsythia, Japanese Black Pine. Irene, 589-6468 after 5 p.m.

VIOLIN - w/case and bow, excel for beginner. $75. Kelly, 744-3069.

UNICYCLE - 3½ ft. tall, needs work. Asking $30. Ron, 281-3149 between 5:30 - 6:30 p.m.

BOY SCOUT - "Cruiser" pack frame & pack. $15. Fred, Ext. 4988.

HALF PRICE COUPON - Eastern JFK-San Francisco, $35. or best offer. Roger, Ext. 3578 or 878-4864.

POOL - 16'x4' round above ground, filter, ladder, & access. $450. complete. Linda, Ext. 5141.

HORSE MANURE - for sale, Bartlett Rd. Middle Island. 924-6512 eves.

MONTH OF MAY ONLY - Evergreen Fir & Spruce trees, 20" to 40", 2 for $7. U-Dig. Lily of Valley plants, 50 for $2.50. 727-1617.

REFRIG - and stove, G.E. $300/pr; table & 2 chairs, $50. 878-4259 after 6 p.m.

BIG WHEELS - like new, $13. Bill, 3369 or 929-6442 after 6 p.m.

STEREO RECEIVER — Top rated Model #2230 by Marantz. $170. Firm. Don, 473-6570.

BICYCLE - 20" girl's, $15; glass fireplace doors, $30; electric heater, $10; electric broiler, $10; Christmas tree, $5. John, Ext. 3675.

INFANT PARAPHERNALIA - GM Love seat, walker, carriage, 2 infant seats. Half price. $67. Howard, 286-1444.

BUNDY FLUTE - good cond. Asking $100. 473-9275.

ROOF RACK - for VW squareback or similar, $8; towbar for VW, $12. Bill, Ext. 2378 or 286-0243.

PACHYSANDRA - excel ground cover, healthy plants. 25 for $3. 929-4522.

BABY GRAND PIANO - Henry Miller mahogany, 5'7", old but excel. $1,000. or best offer. 724-7891.

BOXSPRING - for queen size bed, 2 pc. great for guests, good cond. $15. Ext. 2378 or 286-0243.

BALLET TICKETS - (2) ABT dance company at the Met, May 16. Evelyn, Ext. 3395.

BED FRAME - Sears king/queen, $10; battery charger, Eveready, universal, brand new, $12; tennis racquet, Yonnex, medium, 5½ grip, good strings, $25. Ext. 7790.

STOVE - coal & wood burning air-tight, excel cond. $400. 581-7656.

ROTOTILLER - Ariens 3 HP, $100. Frank, Ext. 3372.

SURF BOARD - 6'10" Swallowtail, Dick Catri, very good shape. $80. Ext. 2012 or 265-4385.

TV - 19" B&W, good working cond. Make offer. Ext. 4333.

MEN'S SUIT - Polyester 3 pc. beige, size 46 long, worn twice. $40. Marge, Ext. 5168.

DOLL HOUSES - custom made. 588-5617.

BICYCLE - 20", extra wheels. $10; refrig., 22 cu. ft. side by side Gibson. $150. Bob, Ext. 4452 or 289-1705.

BICYCLE - 21" Motorbecane, brand new cond. Ext. 2482.

RUGS - (2) old 9x12 w/pad, $20. ea; youth bed, $50. G. Virtas, 928-3169.

PREHUNG DOOR - w/steel frame, 3'x6'8", $20. Walt, Ext. 7154.

TABLE CLOTH - hand crocheted beautiful pineapple petals, white, approx. 72" in dia. $100. Wilber, 751-2867.

REFRIG - G.E. 19 cu. ft. side by side, Avocado, perfect cond. Best offer. Ann, Ext. 4959.

FREE - adorable puppies, Golden retriever mix, very lovable. 234-7079 after 6 p.m.

BANQUET TABLE - expandable, seats up to 12. $150. Maria, 821-9438.

APACHE TENT - Camper light wgt. Eagle Model, $350. Steve, Ext. 4008 or 821-0686.

SCOTTS - lge. drop flow, fetilizer/spreader. $15. Frank, Ext. 2043 or 929-8317.

STEREO CONSOLE - Sears w/8 trk. player-recorder, 2 yrs. old. $250. 981-4419.

BEDROOM SET - Contemp. Colony triple dr, (2) nite tables, (2) twin beds, dark walnut. Must see, $500. or best offer; indoor/outdoor water fountain stand, pump, flowers stone, perfect cond. $165. or best offer. Diane, 878-1630.

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. $8,000 firm. Ext. 3485.

MIDDLE ISLAND - country kit, 3 bdrms, 2 baths, l/r, d/r, fam rm, w/w, 5 appl, 2 car garage, ½ acre, walk to golf course. 924-3312 after 5 and wkends.

SELDEN - custom 7 rm, center-hall ranch, 3 bdrms, den, 1½ baths, d/r, eik, l/r w/fp, bsmt, garage, oak floors, ½ acre. $17,000 takes over $27,000 - - 8½% mortg. 698-7953.

EAST MORICHES - custom built, 5 bdrms, 2½ baths, kit, d/r, eating area, l/r, with fp, den w/fp, 2 porches, full bsmt w/fp, garage, fully landscaped 1 acre land, fruit trees, blue spruce, etc., slate patio, beach and marina rights, 1 mi to beach. 7½% interest. Job transfer. Sacrifice $85,000. 878-1630.

WEST ISLIP - relocation sale, 4 bdrm Cape, 2 baths, modern kit, mud/util rm, fin bsmt, attached garage, partially furn, walk to stores. $49,500 by owner. 669-2774.

For Rent

VERMONT CHALET - beautifully furn, stone fp, wkly rentals, woodland trails, pond and lake swimming, boating, fishing, nearby Alpine slide, antiques, music festivals, theatre, tennis, golf. 757-5599 after 4 p.m.

NORTH SHIRLEY AREA - 5 rm apt, all util incl. References required. 399-0513 after 4 p.m.

PT JEFF STA - mint 3 bdrm apt, fully paneled, full eik, l/r, full bath, bsmt, washer/dryer, dishwasher, a/c, garage, gas heat. $425/mo + util. Available immediately. Ext. 4094 or 751-6575.eves

BERKSHIRES CHALET - 3 hrs from NYC; 3 bdrms, 2 baths, fully equipped kit, elec heat, deck w/spectacular view, near lake, hiking trails, near ski areas, ½ hr from Tanglewood theater. 929-6946 after 6 p.m.

MILLER PLACE - 3 bdrm house for July and August, no pets. Rent negotiable. 928-0821 after 5 p.m.

RIDGE - fully furn 2 bdrm house, 5 min from Lab, May-June. $400/mo + util. Suzanne, (212) 694-7337 day; 744-7904 or (914) 941-7016 eves.

MIDDLE ISLAND - 5 mi from Lab, 3 bdrm condo, 5 appl, central a/c, swim, tennis. Ext. 4410 or 924-0054 after 6 p.m.

MIDDLE ISLAND - furnished room(s), 12 min from Lab, a block from Spring Lake Golf Course, priv entr, includes: util, refrig, washer/dryer; cooking facilities can be arranged. 924-7972.

Wanted

HOUSE - 3-4 bdrm, to rent 1 yr beginning Sept. Visiting scientist and family. Ext. 3786.

ROOMMATE - to share house, Speonk, separate bdrm, non-smoker. Ext. 5038.

PERSON - to supervise the activities of 2 children (ages 8 and 10) during summer vacation, my home. Ext. 5230 or 281-0268.

HOUSE/APT - for couple, to rent July and August, Rocky Pt to Huntington area. Ext. 7946 or 744-6294 eves.

RIDING CAP - child's or small woman's size, hard hat for horse riding. Jan, 744-7587.

WORKING WOMAN - to share house w/female owner, reference and security required. $215/mo. 289-1619.

ATARI GAME - that can be used on B&W or color TV plus cartridges. Pete, Ext. 3297 or 821-9547.

BIKE - 10 spd, approx 23" frame. Mimi, 878-2372 after 4 p.m.

20" DIRT BICYCLE - good cond. Lee, Ext. 7629 or 929-3023.

HELLMAN's MAYONNAISE JARS - 1 qt size. Frank, Ext. 2311.

CLASS II TRAILER HITCH - for '73 Pontiac Catalina, 3500 lbs; also boating equip: deck chairs, portable sink, shower, port-a-potti. Ext. 3319 or Tony, 369-3024.

PORT-A-CRIB - Doris, AT6-0796.

VACUUM CLEANER - reasonable. Saha, Ext. 4339 or 924-6139.

PING PONG TABLE - in good cond. Reasonable. Ext. 4333.

DUFFEL BAG - reasonable. Ext. 4156/4173.

HOME - for 6 mo old Peruvian guinea pig. Ext. 3305 before 3:00 p.m. or Ext. 2966.

DOG CRATES - any cond, for new Guide Dog Organization. 744-5079.

DOG HOUSE - for shepherd sized dog. Pat, Ext. 2880 or George, Ext. 2296.

HOUSE/APT - 1-2 bdrms for single occupancy, anywhere near Lab. Vasilios, Ext. 2830.

BUSINESS ASSOCIATE - excel 2nd income, no investment, tax advantages, part-time. Call for appt. 698-5861 after 7:30 p.m.

CHILD CARE - baby boy, Mon-Fri, 8:30-4:00 p.m. Pt Jeff area. 744-0024 eves.

SEWING MACHINE - good cond. Reasonable price. Ann, Ext. 4959.

75 HP EVINRUDE - 1962, primarily for parts. Walt C., Ext. 3254.

TRAINS - Lionel, any "O" gauge or "027" gauge cars, track, and equip. Frank, Ext. 3120.

Car Pools

EAST PATCHOGUE/BELLPORT need 1 person for established car pool. Jim, Ext. 3851 or 286-2557.

BAYPORT/MIDDLE RD AREA - opening 8:30 a.m. to 5:00 p.m. Tom, 472-4228.

SAYVILLE/BROADWAY AREA - on time, to start or join. Linda, Ext. 5141.

BAYPORT/BLUEPOINT AREA - 3 drivers looking for a 4th. Rich or Dave, Ext. 3573.

PATCHOGUE - 2 vacancies (driver/rider) in 5 person on-time car pool. John, Ext. 4615 or 475-6981.

WEST SAYVILLE/OAKDALE/BOHEMIA AREAS - need 4th member. Ext. 2311.

E. SETAUKET/PT. JEFF. AREA - needs 5th member. We think ex-member was great, too. Ext. 7790.

PATCHOGUE - to Lab via So. Country Rd., on-time, room for paying rider, 9 yrs reliable service. Alyce, Ext. 5203.

Lost & Found

FOUND - gold brooch in Bldg. 902-A parking area. Vera, Ext. 4444.

LOST - gold frame safety glasses. George, Ext. 3084.

Services

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

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

PROFESSIONAL TYPING - 727-5475.

FURNITURE STRIPPED - by hand and refinished. Reasonable rates. 928-3653.

WEDDING PHOTOGRAPHER - experienced. Reasonable. Rick, Ext. 2012 or 467-1090.

CUSTOM SYSTEM - specializing in burgular and fire alarm system. 399-3806 or 924-5329 after 5.

HOUSE SITTING - FREE, any period May 18 to Sept. 15. Jack, Ext. 2412.

WELDING - portable arc and gas, trailer repairs and trailer hitch specialist. Bob Geib, 878-4556.

ROTOTILLING - $15/hr. Free garden planning and pH test. Bob, 878-4556.

BABYSITTER - experienced, Riverhead area. Mary Ann, 369-1097

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

LIMO SERVICE - chauffeur driven luxury for proms, weddings, all occasions. Roy, Ext. 4664 or 744-8779.

HAND CANE - and fiber rush. Reasonable rates. Jim, Ext. 5025 or 821-1704.

CARPETS INSTALLED - quick dependable service. Free estimates. Jim, 821-0187 after 5 p.m.

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