



Volume 29 - Number 9

# BROOKHAVEN BULLETIN

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February 28, 1975

THE WHITE HOUSE  
WASHINGTON

February 14, 1975

Dear Dr. Vineyard:

It was with considerable interest that I learned of the major discovery by a research group from Brookhaven National Laboratory and the Massachusetts Institute of Technology and independently by a group from the Stanford Linear Accelerator Center and the Lawrence Berkeley Laboratory of new, heavy, relatively long-lived particle states. On behalf of the American people, I extend my congratulations to you and to your staffs for the dedication and hard work leading to the discovery.

It continues to be my hope that important advances in basic knowledge of this type may lead to a better scientific understanding that ultimately benefits all mankind. I am proud that our Nation's research program is keeping us in a position of leadership in many scientific fields.

I am sure that the new experiments dealing with these discoveries will be attacked with vigor, enthusiasm, and excitement, and I extend to scientists in the field my best wishes for continued success in those endeavors.

Sincerely,

*Gerald R. Ford*

Dr. George H. Vineyard  
Director  
Brookhaven National Laboratory  
Upton, New York 11973

Dr. George Vineyard of Brookhaven, and Dr. W.K.H. Panofsky of SLAC both received similar letters from President Ford congratulating them and their staffs on the recent discovery of the "J" particle in the East and the Psi particle in the West.

## Conservationists At AGS Look For Watts To Save

The pressure rises on a gauge in the control room of the Alternating Gradient Synchrotron. The engineer in charge checks some other data and decides that the big machine should be shut down while repairs are being made.

He picks up the phone and calls the motor generator control room. "Go into the Save A Watt mode," he instructs.

At the motor generator control room the operator punches a series of buttons, and reduces power to the AGS while an assessment of the trouble is made.

A call from the experimental floor confirms that there is indeed trouble with a vacuum line, and it will probably be at least two hours before repairs can be made.

Further calls are made and more buttons are pushed and very soon the accelerator facility has gone from a power level of about 23 megawatts down to a standby of about 5 megawatts.

And when it costs about \$27 for each megawatt hour and likely to go up, the savings for the above procedure is considerable.

The "Expanded Save a Watt" program came into being last October when Accelerator Department Chairman Mark Barton formed an Energy Savings Committee to look into all possible ways to minimize the effect of the high cost of electrical energy for Brookhaven's largest research tool.

Committee Chairman Lyle Smith, with D. Davis, D. Lazarus, A. Maschke, W. Tuttle and W. Walker, met regularly and have looked into all methods available to save energy at the AGS.

In addition to the Save A Watt procedure, the committee has also made recommendations that several buildings and rooms be left unheated or reduced to a very low temperature standby condition. Power usage at the AGS is now monitored daily,

(Continued on page 4)

## The Day The Island Shook

Was there an earth tremor on Long Island last week? According to many Long Islanders and BNL employees the answer is yes, but according to the University of Connecticut which operates several seismographic stations in the area, the answer is no.

On Thursday, February 20, BNL's Meteorology Group received several phone calls from concerned Island residents from as far west as Islip. "Did I just feel an earthquake?" they queried. Some complained of windows shaking while others described whole buildings moving. Some people on site also heard windows rattling only to have their suspicions confirmed by relatives in Shoreham, Wading River and Port Jefferson who also saw windows vibrate.

What really happened "the day Long Island shook?" Evidently, it was not an earthquake. The Lamont-Doherty Geological Observatory, associated with Columbia University and located in Palisades, New Jersey, said they had no record of an earth tremor in the area. Although they did say that their seismographic equipment was really not close enough to Long Island to pick up a small tremor.

The University of Connecticut, with seismographic equipment sensitive enough to pick up tremors as far away as Southern New Jersey, surely would have picked up a disturbance as close as Long Island. Dr. E. Chiburis, Director of the Marine Sciences Institute at the University, said their records showed no evidence of a tremor on Thursday, confirming Lamont-Doherty's report.

The mystery remains unsolved. The "tremor" reportedly occurred sometime between noon and one o'clock. According to Lamont-Doherty, construction companies often choose this time for blasting. Perhaps the "tremor" was the result of near-by construction work.

Earthquakes are not totally alien to Long Island. On March 29, 1950, an earthquake was recorded off-shore from Port Jefferson with an intensity between one and three on the Modified Mercalli scale. So, hold on to your hats!

## Electronic Giant Goes On-Line To Sort Out Particle Potpourri

What is orange, weighs 700 tons and is 19 feet tall? The world's largest spectrometer magnet which is the core of BNL's recently constructed multi particle spectrometer (MPS).

The MPS is the Lab's major spectrometer facility and is available for use by universities throughout the United States. There is only one other like it in the world, the omega spectrometer at CERN.

Sometimes called an "electronic bubble chamber," the MPS is capable of analyzing enormous amounts of particle data at a very fast rate. Data collected by many different kinds of electronic particle detectors are fed directly into an on-line computer for analysis and storage.

The design, construction, and operation of the MPS has been a joint effort between a research group in the Physics Department, led by Sam Lindenbaum and Satoshi Ozaki, and the Particle Detector Division of the Accelerator Department.

The vast layout of the MPS includes a conventional research spectrometer for incident beam analysis, the main MPS spectrometer centered around the 700-ton magnet, a control room, a trigger trailer, and a gas purification and re-cycling facility. It is located in the northwest corner of the AGS East Experimental Building Addition, on the Medium Energy Separated Beam (MESB) line.

Protons, accelerated in the AGS ring, come to the MPS facility via the slow external beam line. These protons are directed against a tungsten target, where they scatter target particles in much the same way as an eight ball scatters a cluster of billiard balls. Basically, three different kinds of elementary particles and their anti-matter twins are produced and enter

the MPS beam line via the MESB. These are protons, pions and kaons, and their anti-matter selves anti-protons, anti-pions, and anti-kaons.

Once in the MPS beam line, the particles pass through the first of the MPS's two spectrometers where they are identified and their position in space located. This spectrometer is a conventional research spectrometer in that it has a magnet in the center with detectors before and after it. A series of proportional wire chambers before and after the magnet measure the momentum of the particles and three Cerenkov counters on the other side of the magnet measure the velocity of the particles. Knowing these two measurements, researchers can determine the masses of the various particles and therefore their identity.

What takes place inside a Cerenkov counter is not too different from a sonic boom, produced by aircraft travelling faster than the speed of sound. When a particle enters a Cerenkov counter, filled with a particular gas, it travels faster than light does in the same gas. The result is a flash of light, called the Cerenkov effect, which is comparable to a sonic boom.

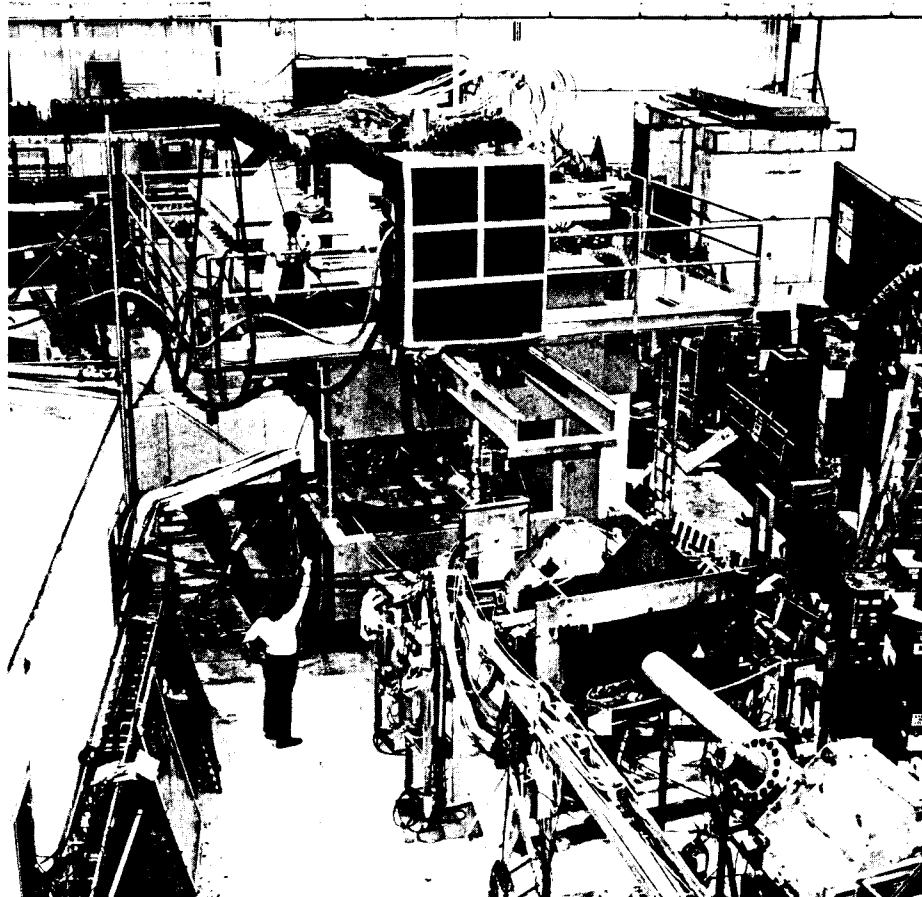
The use of gas instead of liquids or solids in Cerenkov counters, was developed by Sam Lindenbaum's group in the early 50's. Liquids and solids are not selective enough for high energy research.

Once past the first spectrometer, the journey of the particles through the MPS is only halfway completed. They are then directed against another target which is a one-foot-long cylinder of hydrogen, out of which a third class of particles emerge. With the resources of the main MPS spectrometer, high energy physicists try to re-

(Continued on page 2)



Sam Lindenbaum (left) and Satoshi Ozaki, MPS project leaders, confer on the future experimental program for the MPS.



A "bird's eye" view of the MPS layout shows the 700-ton, "C"-shaped magnet in the background and part of the spectrometer beam in the foreground.



Some of the MPS staff and users in the facility's control room.

Electronic Giant

(Continued)

construct the picture of what happens when the particles collide with the hydrogen target. Satoshi Ozaki compares the situation to a bag of fruits (the particles) colliding into another bag of fruits (the target) resulting in a random scattering of all the fruits. "What we want to do is reconstruct the bags of fruit, so to speak, and determine what different kinds of fruit are in the bag and where they are located in the bag," explained Ozaki.

Drawing on the resources of the MPS, researchers can identify particles, and determine their direction, charge and momentum in order to reconstruct exactly what took place when particles collided with the protons in the hydrogen target.

The main MPS magnet, which is "C" shaped, can accommodate a large number of "fruits" or particles in its wide magnetic field. The higher the energy of the particles colliding with the hydrogen target, the greater the number of particles produced, and therefore the wider the angle of the scattering. The space inside the "C" where the magnetic field is concentrated is 15 feet long, four feet high, and six feet wide.

When ionized particles enter a magnetic field they are bent. Particles with a positive charge bend one way and negative particles bend the opposite direction. Not only can a magnetic field be used to determine the charge of a particle, but it can also be used to determine the momentum of a particle. The radius of curvature of the bent particle is inversely proportional to the momentum of the particle.

The space inside the magnet contains a series of spark chambers used to locate particles and follow their path through the MPS. A series of detectors on the other side of the magnet serve to identify the particles as they escape from the magnet.

Besides containing the world's largest spectrometer magnet and being totally electronic, the MPS has a very distinctive feature called "trigger."

Trigger is an electronic filtering device

which filters out all the events occurring when a particle hits the target, with the exception of the candidates for events that researchers want to see. Unlike bubble chamber photographs which present a researcher with an overview of all the events resulting from particle collisions, the MPS has the ability, with trigger, to select the type of events desired and filter out the rest.

A sample of the events is analyzed by an on-line computer of the On-Line Data Facility located in the control room. The on-line computer technique was developed by the Lindenbaum Group at BNL and was first used here in 1962.

The MPS group and their many university collaborators are currently running experiments in which they want to analyze only the events resulting from collisions between anti-protons and protons. They hope to find other particles similar to the recently-discovered J-particle. Trigger allows them to look at this type of event only, without having to contend with all the other events occurring at the same time.

Because of trigger, many different experiments can be run on the MPS at the same time. In theory, eight independent users could run four different experiments, totaling 32 simultaneous experiments.

To date, four different experiments have been approved by the BNL High Energy Advisory Committee to run on the MPS. The Committee approves all experiments conducted with the AGS. Approval is being sought on six or seven additional experiments. But in light of the excitement over the J-particle discovery at BNL and the psi particles at SLAC, the MPS group is con-

(Continued on page 4)

Figuring Carpool Costs

Most carpool drivers can determine a fair fee to charge riders with the help of the following chart developed by the Federal Highway Administration in a pamphlet published in April 1974.

Costs in cents per mile for standard (S), compact (C), and subcompact (SC) cars follows.

	S	C	SC
Original vehicle cost depreciation	4.2	2.9	2.3
Maintenance, accessories, parts, tires	3.4	2.7	2.5
Gas and oil (excluding taxes)	3.2	2.6	2.0
Garages, parking, tolls	2.0	1.5	1.5
Insurance	1.6	1.5	1.5
State and federal taxes	1.5	1.2	.9
Total cost per mile	15.9	12.9	11.2

Karate

For people interested in Karate classes, there will be a meeting on Friday, February 28, at 5 p.m. in the Gym. For further information call Whitey, Ext. 2913.

National Nutrition Week  
March 2-8, 1975



Here are a few helpful suggestions for planning nutritious well-balanced meals:

1. Eat a variety of foods from within each of the basic food groups. There is no one "superfood" that provides everything the body needs and in the amounts needed. Besides, a variety makes meals more interesting!
2. Vegetables and fruits provide us with important vitamins and minerals. To preserve these vitamins and minerals in vegetables, use very little cooking water and cook only until crisp, not soggy.
3. Parents take note! Teach your children good nutrition by setting an example. Children imitate their parents. What's good for you is good for them. Food patterns begin during infancy.

Arrivals & Departures

Arrivals

Beverly T. Goldstein ..... Personnel  
Jawed A. Jafri ..... Chemistry  
Betty L. Lutz ..... Physics

Departures

Anthony Davis ..... Plant Engrg.

Stony Brook Events

A dance theatre production, classical concerts, art shows and free films highlight this week's events at the State University of New York at Stony Brook. Unless noted otherwise, all activities are free and open to the general public.

Friday, February 28

The University Museum, located in room 142 of the Social Sciences Building, features a Smithsonian Institution traveling exhibit of Puerto Rican poster art with 50 color serigraphs by Lorenzo Homar and a dozen of the Island's outstanding artists. This is the last day of the show.

Penny Kelmer will give a Master of Music degree flute recital at 8:30 p.m. in Lecture Center 105.

A dance theatre production, "Why Knot?," choreographed by Cecily Dell, will be the first spring production of the Theatre Arts Department. The work includes elements of dance, music, singing, and speech, focusing on the structure of change, with the individual dances representing different aspects of that process. Performances begin at 8 p.m. (except for Sunday at 3 p.m.) in the Caldron Theatre, Building B on the South Campus. Tickets are available at the door for \$1, for students, and can be reserved in advance by calling 246-5681.

The Stony Brook Union Governing Board is sponsoring a Cabaret night in the Union Buffeteria from 9 a.m. to 1 a.m. Drinks and food will be available.

Saturday, March 1

Elvin Jones will perform with a full jazz group in the Stony Brook Union Ballroom at 9 p.m. For ticket information call 246-7107.

The Stony Brook Chamber Singers, under the direction of Amy Kaiser, will perform at 8:30 p.m. in Lecture Center 105.

Saturday Cinema will present "African Queen" and "Caine Mutiny," both with Humphrey Bogart. The films will be screened in the Stony Brook Union Auditorium from 4 to 7 p.m.

Sunday, March 2

The Sunday Simpatico Series will begin at 2:30 p.m. in the Stony Brook Union Buffeteria. The admission charge is \$2 for the general public and 50¢ for Stony Brook students. A cheese plate and wine or cider will be served. Entertainers to be announced.

The Friends of Sunwood concert series, "Sundays at Five," will present Peter Wolf on harpsichord at 5 p.m. at the Sunwood Estate, Old Field. Mr. Wolf will present a keyboard study consisting of an aria with diverse variations for the harpsichord by Johann Sebastian Bach. Admission is \$5. For further information call 246-6799.

The University Orchestra, under the direction of David Lawton, will perform in the Administration Building second floor lobby at 8:30 p.m.

Monday, March 3

The Contemporary Issues in Health Care and Public Policy lecture series features Dr. Max Schoen, Dean pro tem of the University's School of Dental Medicine, who will speak on "Population Responsibility in Health Care." The lecture will be held at 7 p.m. in Building F, room 147, on the South Campus.

Rebecca LaBrecque will give a Master of Music recital on piano at 8:30 p.m. in Lecture Center 105.

Tuesday, March 4

Tuesday Flicks present "Eclipse" at 8 p.m. in the Stony Brook Union Auditorium.

The Benedict Day Care Center presents "Lucia," a contemporary Cuban film dealing with the themes of revolution and women's liberation. The movie will be presented at 8 p.m. in Lecture Center 100. A \$1 donation is requested.

Samuel Baron, a Performing Artist-in-Residence, will give a flute concert as part of the Artists Series at 8:30 p.m. in Lecture Center 105. Tickets are \$2.50 for the general public, \$1 for students and 50¢ for Stony Brook students.

Wednesday, March 5

Suzanne Smith will perform on the cello at 8:30 p.m. in Lecture Center 105.

Thursday, March 6

Thursday Night Cinema presents "Further Adventures of Uncle Sam," a feature, and "Spirits of the Dead," at 8:30 p.m. in Lecture Center 100.

A Quick Stomp To Fame

The rhythmic sounds of Bourbon Street are now only as far away as your stereo. The Isotope Stompers, the Lab's own Dixieland jazz band, have just released their first album.

The music on the album is best described as "revival jazz," based on traditional New Orleans jazz. Selections include well-known New Orleans favorites like *Wolverine Blues*, *Tin Roof Blues*, *Bourbon Street Parade* and *Tiger Rag*.

A totally original song, *Isotope Rag*, was composed, written and arranged by Pieter Meyers who is the leader of the band. He also plays all three clarinet pieces in the song.

The band was formed in 1971 by a group of jazz enthusiasts who were all affiliated with BNL. The Isotope Stompers made their debut when the Lab celebrated its 25th anniversary. They were so well received by the Lab community that they began playing for audiences in the Brookhaven Center on a regular basis.

The original "Stompers" were Pieter Meyers, Alida Meyers, Gordon Brown, Harvey Bumstead, Ron Hammond, Bill Barnes and Roy Rubenstein. The new Stompers include Bob Cantwell, replacing Barnes who went on to become a professional musician, and Jack Zito, who replaced Roy Rubenstein when he went to FermiLab.



Pieter Meyers, Chemistry, displays the new record album released by the Isotope Stompers.

WALK, a radio station in Patchogue, has been playing selections from the new album which they describe as "the best Dixieland around." Anyone interested in buying the album, which costs \$4.50, contact Harvey Bumstead (Ext. 4605) or Pieter Meyers (Ext. 4357).

If you would prefer to hear the Isotope Stompers in person they play every Monday from 8 to 11 p.m. at the Sunset Inn in Sayville, and at Bill's Steak House in Bayshore from 8 p.m. until midnight on Sunday.

Summer Student Selection

Summer student applications are now on display in the Office of Academic Relations, building 460, for review and selection. Members of the scientific staff who are interested in supervising an undergraduate from June 9th to August 22nd should inquire at their departmental offices regarding availability of assignments. Selections of students and alternates must be forwarded to departmental offices by interested staff members no later than March 7th.

Public Sale of  
Motor Vehicles

Two (2) vehicles, located at Warehouse T-87, will be available for Public Sale: - a Step Van and a Pick-up Truck (latter is accident damaged).

Inspection will be permitted from March 10th through March 14th, during the hours of 9 a.m. to 4 p.m., except Saturday and Sunday.

Bids will be opened on March 19th, 1975, at General Services Administration, Business Service Center Bid Room, 26 Federal Plaza, New York, N.Y.

This will be an Informal competitive bidding. Bid forms may be obtained at building 87 and 211. For further details, please call Extension 2303 or 2977.

Emergency Closing

While warm weather will occasionally come during the next few weeks, this coming month still has the potential for heavy snowstorms . . . the blizzard of 1888 was in March! Here again is the list of radio stations that carry news of closing or late opening of the Lab on snowy days:

Station	Area	AM	FM
WALK	Patchogue	1370	97.5
WBAB	Babylon	1440	102.3
WGLI	Babylon	1290	—
WGSM	Huntington	740	—
WHLI	Hempstead	1100	98.3
WHRF	Riverhead	1570	—
WLIX	Islip	540	—
WLNG	Sag Harbor	1600	—
WRIV	Riverhead	1390	—
WWRJ	Southampton	—	95.3
WBLI	Patchogue	—	106.1
WRCM	Riverhead	—	103.9

On February 14 an article was published in the *Brookhaven Bulletin* about the snow storm that occurred on February 12. In that article, it was reported that “. . . there is no loss of pay or vacation time during emergency closings.”

While the statement is true about employees who were at work during the declaring of the emergency closing, employees should be aware that the Supervisors’ Personnel Manual, Section 15, is very specific on the treatment of vacation during emergency operation periods. “When the emergency period covers only a portion of an employee’s shift, and the employee fails to report for work on the balance of his shift, the unworked hours outside the emergency period are charged to vacation or taken as leave without pay, at the employee’s option.” Also, “employees absent on pre-arranged vacation . . . will continue to have this time charged to the announced reason for the absence.”

Correction

In the February 21, 1975 issue of the *Brookhaven Bulletin*, two paragraphs in the article on Cesar Sastre’s BNL Lecture were incorrect due to a typographical error. The two paragraphs should have read as follows:

“When Sastre first came to the Lab he spent some time with the Reactor Operations Group getting familiar with the old Brookhaven Graphite Reactor (BGR). He then joined the Experimental Reactor Physics Group where he worked in servo-controls, dynamics of the Liquid Metal Fuel Reactor (LMFR), applications of on-line analog computers to critical experiments, safety analysis of the HFBR, and start-up experiments on the HFBR.

“In 1968, in the wake of larger events, he was invited to move into the Technical Support Organization, a forming group at the time, that was to work on the development of techniques for the improved control of fissionable materials for the ultimate purpose of preventing the unauthorized access to potential weapon materials, enriched uranium and plutonium. The work of this group contributed to upgrading actions in the license-exempt and licensee parts of the nuclear industry.”

Cafeteria Menu

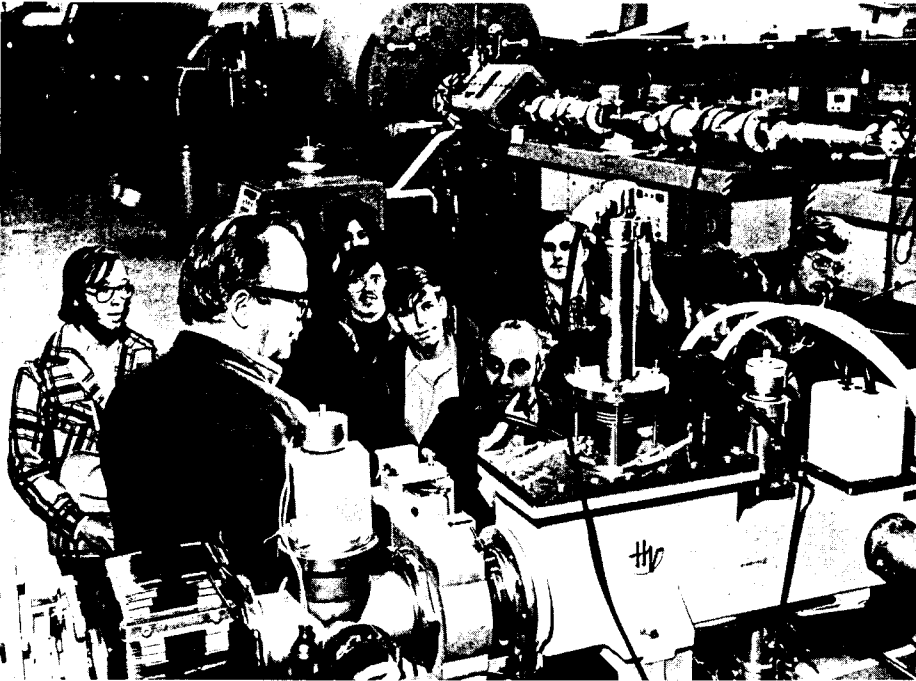
Week Ending March 7, 1975

Monday, March 3			
Cream of Tomato Soup			
Manicotti & 1 Veg.		1.00	
Breaded Pork Chop & 1 Veg.		1.15	
Tuesday, March 4			
Vegetable Beef Soup			
Meat Loaf & 1 Veg.		1.05	
Western Omelet & French Fries		.95	
Wednesday, March 5			
Chicken & Rice Soup			
Barbequed Lamb & 1 Veg.		1.15	
Special - Spaghetti w/Meat Sauce, All You Can Eat		1.00	
Thursday, March 6			
Navy Bean Soup			
Beef Hash w/Gravy & 1 Veg.		1.00	
Southern Fried Chicken & 1 Veg.		1.05	
Friday, March 7			
Manhattan Clam Chowder			
Fish & Chips		1.00	
Roast Sirloin & 1 Veg.		1.20	

Swimming Pool Note

On Tuesday, March 4th, the swimming pool will be closed during the 5:00 to 9:30 evening hours.

Physics Students Tour BNL



Harvey Wegner, Physics, takes a group of graduate physics students on a tour of the Tandem Van de Graaff. The students, who visited various research facilities at the Lab on Tuesday, were from the Long Island Graduate Center of the Polytechnic Institute of New York.

Slo Break Basketball

With the week of February 13, two of the three thirds into which the season was divided were completed. The team standings are:

Team	Won	Lost
Persuaders	11	1
Spuds	6	6
Condors	4	8
Roga	3	9

Individual scoring for players with nine games or more:

Player	Av.	Team
Brown	26.0	Roga
Nordstrom	16.7	Spuds
McKeever	16.1	Spuds
Garrison	12.2	Persuaders
Vignato	12.0	Condors
Brooks	11.9	Condors
Rowley	11.9	Persuaders
Samuelson	11.9	Spuds
Casey	11.2	Persuaders
Thomas	10.3	Condors

In the February 13 games, Garrison with 18 points and Casey with 16 points led the Persuaders to victory over Brown with 20 points and Roga. The final score was 69-56.

The Spuds evened their season record as Gill and Nordstrom put in 25 points apiece. Brooks and Vignato were high scorers for Condors with 20 and 13 points.

Last week the Condors put the pressure on the Persuaders 10 game winning streak. Bob Barone sent the game into overtime with a 6 foot jump shot at the buzzer. Mac Thomas’ 23 points were not enough as the Persuaders won 61-59.

The second game was a shoot out between the Spuds and Roga as seven men reached double figures. Brown led Roga with 22 points while Glenn and Cotter had 19 each. For the Spuds McKeever poured in 31 points assisted by Nordstrom with 18 points. Final score was Spuds 83, Roga 77.

—Walt Brooks

Hospitality Trip To NYC

The Hospitality Committee is planning a group railroad trip to the city on **Wednesday, March 12.**

Departure will be at 8:45 a.m. from Patchogue. Any train to Patchogue may be used for the return trip. The cost for the train round trip will be between \$2.00 and \$3.00, depending on the number of people attending. Children under 6 years of age are free.

If you are interested, please sign up not later than March 5. Call Ruth Dimmler, 751-6342 or Rosemary Jewett, Ext. 3089.

Hospitality News

The next morning coffee will be held on Tuesday, March 4, from 9:30 to 11:30 a.m. in the Brookhaven Center. Free babysitting will also be provided in the Center. Riet Claus and Mia van Zelst will jointly discuss their country, The Netherlands.

Tune In!

**#372**  
**Question:** *With the national economy in a state of turmoil, a few questions have come to mind. Could you give me some reasons why a credit union has never been instituted?*

**Answer:** Over the years, the Laboratory management has reviewed this area and has generally concluded, that on balance, Laboratory employees and the management are better served by a Commercial Bank than a Credit Union for the following reasons:

A. Bankers Trust provides our employees with low cost interest rates that are substantially lower than the rates charged by other commercial banks and, in fact, are lower than the rates charged by the Grumman Employees Credit Union. A recent inquiry to Grumman indicated an annualized rate of 10.2% to employees, while Bankers Trust interest on secured loans (car loans, ½ down) 7.11% and on unsecured loans 8.58%, on an annual basis.

B. The broad range of services provided by a full service commercial bank on site are greater than a credit union could offer, for example:

- (1) Establishing checking accounts
- (2) Depositing of cash, and cashing checks
- (3) Conversion of foreign currency

C. The New York State Department of Labor requires that employees have easy access to cashing their payroll checks. This service is provided by the on-site bank. Normally, credit unions do not have large balances of cash on hand to provide this service. Grumman we know does not, and they have a credit union staff of 40 people.

D. Provides a convenient method for depositing Brookhaven National Laboratory’s collections in the bank. This service would not be available if a credit union was established, but would require an off-site trip to a bank.

E. Requires a considerable amount of administrative detail to start, separate chartering, specialized staffing, and the additional expense of operating a facility.

—B.J. McAlary

Soccer

Ken Batchelor

With three weeks remaining in the Winter Indoor Soccer League, AGS has already won first place, but the competition for second place is intense with only 2 points separating the other three teams. DAS and Medical have moved from the cellar into second place by virtue of three wins and are draw in their last four games, and have the momentum required to take second place. Goals have been hard to come by this season with a total of only 37 being scored so far. AGS has conceded only 3 goals, two of them resulting in 1 to 0 losses to DAS and Medical and Physics respectively.

League Standings

	Goals						
	P	W	D	L	F	A	Pts.
AGS	18	11	5	2	12	3	27
DAS & Medical	18	6	4	8	7	15	16
Physics	18	6	3	9	7	9	15
Chemistry & Biology	18	4	6	8	11	10	14

**Leading goal scorers:** Meyers 8, Batchelor 6, Oldham 4, Friedberg 3.

BNL Bowlers Enter Tournaments

Brookhaven National Laboratory has entered the 34th Annual Long Island Industrial Invitation Bowling Tournament for Men sponsored by Grumman Aerospace Corporation.

The tournament will be staged at the Mid Isle Lanes on Peninsula Blvd., Hempstead, N.Y. on the nights of March 1, 8, 15 and will terminate on March 22. The competing teams this season will include Sperry, Republic, Arma, Pan American, Airborne, Doubleday, Fairchild Camera, Kollman, AMF, National Bank of North America, Nassau County Civil Service Employees Association, Long Island Lighting, Hazeltine, Newsday, Brookhaven National Laboratory and Grumman.

Bowling for BNL will be Joseph Scesny, Richard Larsen, Richard Adams, William Kollmer, Constantino Buzzeo, Ralph Nelson, Lewis Jacobson, Bernard Belligan, Edward Meier, Eugene Fales, John Berech and Edward Sperry.

Brookhaven National Laboratory has also entered the 32nd Annual Long Island Industrial Invitation Bowling Tournament for Women sponsored by Fairchild Republic Division and Republic Assistance Fund, Inc. to be held at Mid Isle Lanes on April 5, 12, and 19.

Bowling for BNL will be Catherine Van Noy, Marguerite Stoeckel, Helen Caisey, Jean Hamilton, Eleanor Murgatroyd, Grace Fales, Rosalie Piccione, Kit D’Ambrosio, Nancy Mayeski and Elizabeth Jellett.

More details on these tournaments in future issues of the *Bulletin*.

Bowling News

Grace Fales

Red League

The Neutrons hold first place with a 49-17 record, followed by the Lucky Strikes with 44-22. Highs for the night: J. Scesny 202, N. Carter 200, E. Malcolm 200, E. Fales 205, and R. Nelson 201.

Green League

200’s for the night: N. Parrinello 222, M. Bull 211, A. Kreisberg 211, B. Bellingan 201, G. Walker 202, and W. Crockett 205. N. Franklyn had an “almost” with 199.

Pink League

Not much doing this week – Kay Conkling converted the 5-10 split, while Bev Nine converted the 3-8-10 for a 189, Cathy Van Noy 201 and J. Hamilton 181.

Black and Blue League

Week of 1/29: Congratulations to Joe Mayeski for his 600 and 678 Club Awards; to Debbie Antonio for her triplicate award. Highs for the night: Joe Mayeski 230/203/609 scratch/680 gross, Frank Costello 220, Dick Murgatroyd 216. Pots were won by Joe and Nancy Mayeski 257 & 203. Week of 2/5: Dick Murgatroyd 238, Howie Bell 204, Pat Lebitski 176, Ellie Murgatroyd 171/162. Pots were won by Dick Murgatroyd 256, and Pat Lebitski 229. **Best wishes to Lew Jacobson for a speedy recovery!**

Selected Reading

**BioScience 25, February 1975**  
Science and public policy. E.Q. Daddario. 75

**Eng. Sci. 38, December 1974-January 1975**  
Inquisition, repression, and ridicule. A.R. Hibbs. 4-6  
The relevance of science. G. Porter. 22-3

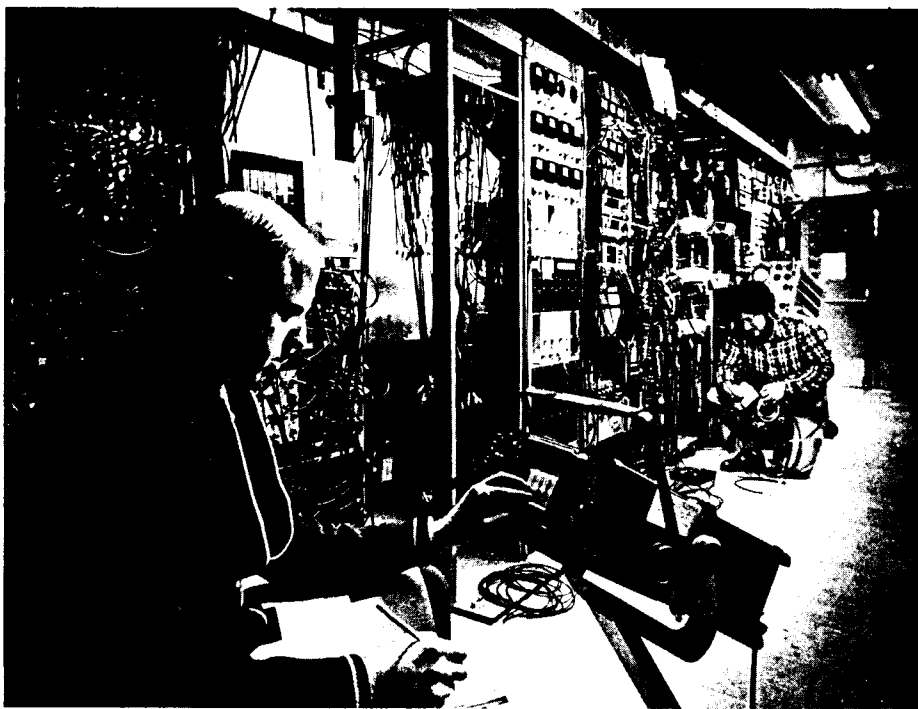
**Science 187, January 10, 1975**  
Science advice in the White House? Continuation of a debate. E.B. Skolnikoff and H. Brooks. 35-41  
In energy impasse, conservation keeps popping up. R. Gillette. 42-5  
The environment, a “mature” cause in need of a lift. L.J. Carter. 45-6+

**Science 187, January 24, 1975**  
Robert A. Goldwin: Bridge between thinkers and doers. B.J. Culliton. 239-41

**Science 187, January 31, 1975**  
Karl Hess: Technology with a human face. N. Wade. 332-4

**Science 187, February 21, 1975**  
Foreign technology and the United States economy. S. Gee. 622-6  
Energy R & D: New jurisdiction for reorganized house committee. J. Walsh. 632-4





Eric Willen (left) and Asher Etkin, CCNY, in the trigger trailer, where trigger selections are made.

## Electronic Giant

(Continued)

centrating on finding additional particles of this nature with the MPS.

Two decades of computer and electronic technology were harnessed in the design of the MPS. It is the latest in a series of spectrometers designed by the Lindenbaum research group (now the Lindenbaum-Ozaki group) since the 1950's.

The series began with simple counter telescopes from which the group worked up to spectrometers with hodoscope arrays on either side of a magnet with on-line computer analysis, to spark chambers on either side and eventually to the Double Vee Magnetic Spectrometer which is the predecessor of the MPS.

Many of the components of the Double



Stephen Jacobs (right) of Brandeis University, and Dave Weintraub of Carnegie-Mellon University inspect a gas Cerenkov hodoscope located downstream of the main MPS magnet. The hodoscope identifies particles escaping from the magnet.



Arnold Roesch inspects the gas purification and re-cycling facility which circulates gas in the spark chambers.

Vee Magnetic Spectrometer were used in the construction of the MPS. The main magnet was originally built for the heavy liquid bubble chamber at the Midwestern Universities Research Association (MURA). Although the magnet was built, the AEC shut down the MURA facility before the bubble chamber was completed. The magnet was transported to Argonne National Laboratory for storage.

For many years, the Lindenbaum-Ozaki group had been requesting a large magnet similar to the one rusting in storage at Argonne. When it was offered to Lindenbaum at no cost, it was an offer he could not refuse, although he did not know whether it would be suitable. "Well, I took a look at it but to be honest, it was a gift horse and it wouldn't have made any difference what we were being offered, we would have accepted it," recalled Lindenbaum.

By adding a little steel here and there

they were able to change the shape of the magnet from a round to a more suitable rectangular "C"-shape. "I would say, that if I were to start all over again, I do not think I would build it differently," said Ozaki. Lindenbaum added that he did not know if they would have done as well if they had started from scratch with a new magnet. "Being constrained to work with this existing magnet, we probably built a bigger machine than we would have had the nerve to ask for in the funding," he said.

Despite its tremendous weight, equivalent to that of four 747's, the magnet can be lifted 2-thousandths of an inch above the ground by hydraulic oil bearings and rotated 30° in a matter of a few minutes.

With the exception of basic equipment, all of the MPS's electronic components were built by the MPS group, which includes the Lindenbaum-Ozaki Group and the Particle Detector Division, which has the collaboration of approximately 30 individuals from eight different universities.

Lindenbaum and Ozaki, as group leaders, technically and operationally manage the MPS facility. Ken Foley, Physics, is involved with hardware design and running experiments. Bill Love, Physics, is a specialist in computer programming required for on-line and off-line analysis. Ed Platner, Physics, is a specialist in spark chamber and electronic design.

The Accelerator Department has not



Bill Miller checks the signal from a multi wire proportional chamber (seen above his head) located in the beam spectrometer.

only provided space, funding, and administration for the project, but manpower as well.

Bill Miller, Accelerator, is working primarily on the design of the multi wire proportional chambers and associated electronics of the MPS. Eric Willen, Accelerator, works with the electronic hardware and associated operations of the MPS. Tom Morris, Accelerator, is responsible for making computer reproductions of particle



Tom Morris analyzes a computer reconstruction of a particle event displayed on an oscilloscope in the MPS control room.

paths through the MPS. Al Saulys, Accelerator, specializes in the on-line software and data analysis.

In addition to their individual specialties, everyone in the MPS Group participates extensively in the overall MPS research program.

—Jean Burke

## Watts To Save

(Continued)

and new experiments are screened for energy saving by use of smaller magnets, and better power utilization. Magnet apertures on new beam lines are shimmed to save additional power.

Almost all of the energy savings procedures are the result of "brainpower" and "manpower" rather than purchase of expensive equipment to effect the savings. The net result of the savings effort has been to make all employees and experimenters dedicated to the idea of "getting more protons per kilowatt hour."

While the initial work of the committee has resulted in considerable savings in operating modes, the work is now being directed to other areas besides the main power supply. The Radio-Frequency system now drops back to standby as does the Linac when a shutdown goes beyond ten minutes. Of course if BLIP is running, the Linac still stays on line.

The system has been operating long enough now so that the startup procedure is little more complicated than pushing the right buttons again to get up to full power.

Instead of resting on their laurels, the Energy Savings Committee is now looking at ways to save energy on the cooling water system and the building heating procedure.

According to Lyle Smith, "We've made some great progress with saving megawatts, and now we are going to see what we can do for kilowatts and watts!"

## Official & Special Events

Monday, March 3

Nassau Community College  
Physics Students Tour

Tuesday, March 4

Garden Writers Association Tour

Monday, March 10

Oceanography Workshop - Building 318  
(March 10-14)

Cross Section 4 Center Meeting -  
Building 197 (March 10-14)

Tuesday, March 11

Adelphi University Physics  
Students Tour

Wednesday, March 12

East Stroudsburg State College  
Biology Students Tour

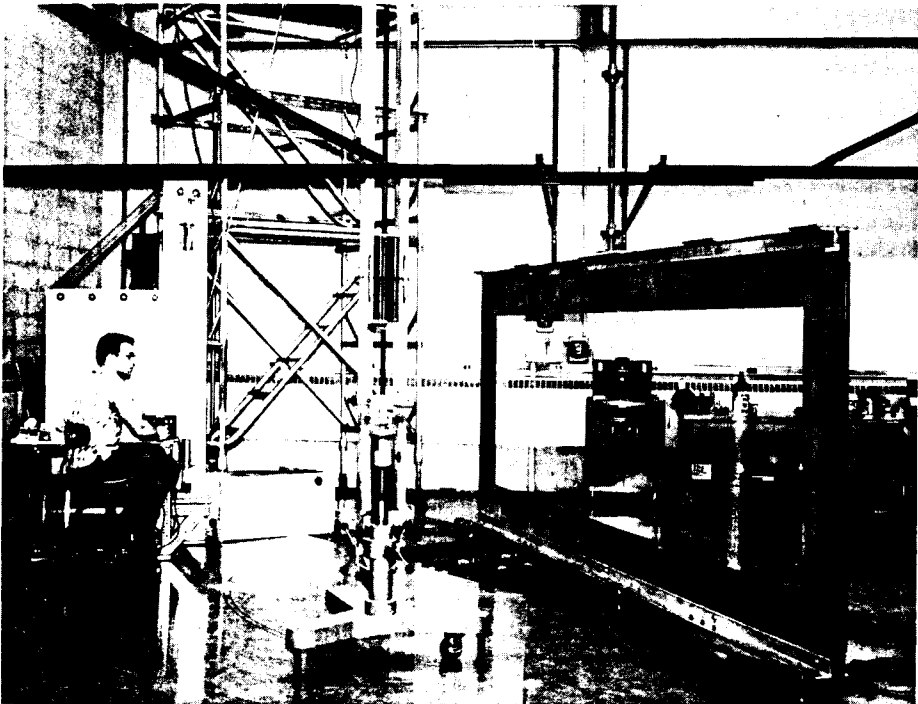


**BROOKHAVEN BULLETIN**

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Bob Wheeler, Physics, winds a spark chamber plane in the high bay area of the Physics Building, where the chambers used in the MPS were built.



On top of the 700-ton magnet, a mass of cables carry spark chamber readout signals to the control room. To the right, the top edges of the chambers can be seen. Walking around the magnet can be a precarious experience if you are carrying or wearing anything made of iron.



Using The Family Car  
Tips For Energy Savers From  
The Federal Energy Administration

There are more than 100 million registered automobiles in the U.S. A typical car, with an average fuel economy of less than 13.7 miles-per gallon, travels about 10,000 miles each year – and consumes well over 700 gallons of gasoline.

Altogether, these automobiles consume some 70 trillion gallons of gasoline each year – or about 14 percent of all the energy used in the United States, almost three-quarters of all gasoline used and 28 percent of all petroleum.

The importance of individual gasoline savings cannot be over emphasized. If, for example, the fuel consumption of the average car were reduced just 15 percent through fewer daily trips, better driving practices, and better maintenance, the nation's consumption of petroleum would fall by over 680,000 barrels per day, or about 4 percent of demand.

These individual savings may be accomplished through a combination of the following:

Drive Less

• Join a carpool. About one-third of all private automobile mileage is for commuting to and from work.

If the average passenger load (1.3 people per commuter car) were increased by just one person, each individual's out-of-pocket expenses for commuting would be cut, and the nationwide gasoline savings would be more than 700,000 barrels per day (enough for some 67,000 cars to drive from San Francisco to New York City and back).

• Eliminate unnecessary trips. Take one less short trip a week. Do several errands in one trip, combine your trips with those of friends and neighbors.

If every automobile consumed just one less gallon of gasoline a week (an average of about 13 miles of driving) the Nation would save 5.2 billion gallons a year, or about 7 percent of the total passenger car demand for gasoline.

Employ Energy-Efficient  
Driving Practices

The driving technique of the individual behind the wheel is the most important single element in determining the fuel economy of any car. One authority insists a careful driver can get at least 30 percent more mileage than the average driver, and 50 percent more than the wasteful one.

• Drive at moderate speeds. Most automobiles get about 21 percent more miles per gallon on the highway at 55 miles per hour than they do at 70 mph.

• Accelerate smoothly – save engines, tires, and gasoline.

• Drive at a steady pace – avoid stop and go traffic.

• Minimize braking – anticipate speed changes. Take your foot off the accelerator as soon as you see a red light ahead.

• Do not let the motor idle for more than a minute. Turn off the engine. It takes less gasoline to restart the car than it takes to let it idle. Generally, there is no need to press the accelerator down to restart a warm engine.

• Do not let the gas station attendant overfill your tank. Tell him to remove the hose when the automatic valve closes. This will eliminate any chance of spillage.

Keep Your Car in Prime Condition

Good car maintenance and care in the choice of accessories can mean fuel economy and dollars saved.

Parking Permits For  
SUNY-Stony Brook

Parking permits for use at the State University of New York Stony Brook campus, are now available at the Transportation Office, 2 Center St. Permits will be issued on a daily basis to employees who must go to Stony Brook on Laboratory business. Please contact John Cross, Ext. 2535.

Classified  
Advertisements

Placement Notices

Each week the Personnel Office lists personnel placement requisitions, currently being processed. The purpose of these listings is, first, to give notice of all non-scientific staff positions being filled and, second, to give employees an opportunity to request consideration for themselves through the Personnel Office. In filling vacancies, the Laboratory's objective is to give first consideration to present employees, as follows: employees within the immediate group having the vacancy, employees within the department or division, employees within the Laboratory as a whole.

For further information regarding a placement notice, or to request consideration for an available position, contact Supervisor, Personnel Placement & Development, extension 2874 or 2882.

- 39. BIOLOGY ASSOCIATE - Part-time position. Biology Department.
- 40. BIOLOGY ASSOCIATE - B.S. degree or equivalent in Biology. Experience in virology and biochemistry. Biology Department.
- 41. DATA SERVICES ASSISTANTS (2) - Temporary positions. Physics Department.
- 42. CUSTODIAN - Temporary position. Staff Services Division.

Autos & Auto Supplies

- 66 FORD RANCH WAGON - 71,000 mi, auto trans, radio, 2 new tires, runs well. \$300. 744-7976.
- 65 FALCON STATION WAGON - Sedan, ps, auto trans, radio, 2 new tires, water pump, muff. \$210. 281-8274.
- 67 CADILLAC COUPE DE VILLE - Full pwr, good tires, needs body work. R. Nelson, 744-8949.
- WHEELS - 15" for jeep or scout, 3 ea; also 14" for Chevy, all 5 lugs. H. Marshall, Ext. 3376.
- 55 T-BIRD - Classic 2 seater, 2 tops, auto, 70,000 orig mi, excel cond. \$3,000. Steve, Ext. 3822, 929-6527.
- 72 PENTON 125 ENDURO - Excel running cond. \$425. 653-5989.
- RIMS - 2-14" Chevy, \$5; 2-13", 5 holes, \$5; 1-15" Ford, \$5. O. Booker, Ext. 4719.
- 68 PORSCHE TARGA - 911, 5 speed, am/fm, new steel radials. \$3,450. R. Stafford, 286-9197.
- USED TIRES - 5-15", 5-13" asst cond. Ext. 4172, 475-0144.
- TIRES - 2-13" w/Chrysler rims. Ext. 3609.
- CAR RADIO - Am/fm w/speaker. \$25. Al, Ext. 4592.
- PICKUP TRUCK BED COVER - Heavy, waterproof canvas, fitted w/brass fasteners. \$40. 286-0798.
- 72 MERCURY MONTEREY - 4 dr, vinyl top, rear defroster, ps/pb, auto, 20,000 orig mi, excel cond. 588-6417 after 5.
- 65 FORD F350 PICKUP - 1 ton, dual wheels, rebuilt motor, 6,000 mi, 4 sp, new tires, many extras. 924-4693.
- 68 FORD FALCON - 6 cyl, auto, new tires, rebuilt trans, excel running cond. \$600. 924-4693.
- 73 YAMAHA - 175 cc, 2,200 mi, road & trail, runs very good, asking \$450. 924-4693.
- 71 KAWASAKI 500 - Fully equipped, 18,000 mi. \$600 or best offer; 3 helmets, 1 brand new, \$50. Schiro, 286-8234 after 6.
- BRIDGESTONE MOTORCYCLE - 100 cc, excel cond, 73 dirt bike. \$300. Danny 281-8343.
- 70 GREMLIN - 40,000 mi, new clutch, shocks, ball joints, good gas mi, slight fender damage. \$1,100. Christman, Ext. 4394, 751-7839.
- 66 FORD MUSTANG - 2 door, 6 cyl, 64,000 mi. Ext. 3617.
- VOLTAGE REGULATOR - Fits many Ford made cars, new. \$5. Gordon, Ext. 4791/4613.
- 67 CHEVY BELAIR WAGON - 327 eng turbo-hyd, r/h, air, new rubber, very good. Ext. 3848, 472-0553.
- TIRES - 2-10.00, 16.5, all weather truck tires, 8 ply, w/wo wide rims. Tony K., Ext. 2023.
- 69 COUGAR - Auto trans, clean, runs well, 66,000 mi. Bob, Ext. 3312.
- TIRE CHAINS - For 6.50-13, 6.00-14 & 5.50-15 tires, like new. \$10. Katcoff, Ext. 4341, 475-4005.
- 72 SUPER BEETLE - Excel cond in & out, am/fm, low mi, must see. Asking \$1,750. 281-1773 after 6.
- 69 CHEVY IMPALA - 4 dr hardtop, ps/pb, sm V8. \$650. 928-0414 after 6.
- MINIBIKE - Chibi 65cc, 3 spd, 1 yr old, excel cond. \$175. Al Bodan, 473-3465.
- 73 PULLMAN CARRIAGE TRAILER - 24 ft, self contained, sleeps 5, many extras. \$5,900. Marie, Ext. 3155/3143, 732-6137 eves.
- 74 CHEVY NOVA - Ps, radio, heater, w/w, very low mileage, excel cond, economy, 6 cyl. 475-6938.

Boats & Marine Supplies

66 MERC OUTBOARD - 50 hp, elec, good for parts. \$60 or best offer. 924-4693.

Miscellaneous

DINING RM FIXTURE - 3 light pull down, walnut, 16 in dia, perfect cond. \$12. Fred, Ext. 4791/4613.

- COOT DECOY - 1 doz, used once. \$15. John, Ext. 3354.
- MINI-BIKE - 3½ hp, Rupp sprint, shocks, front & back, trail tires. \$55. 751-0835 after 6.
- PLUMB AXE - \$12 new. \$10. Ext. 4791/4613.
- BEDRM SET - 4 pc Fr. Prov, white finish w/gold color trim, good cond. Asking \$100. O. Booker, Ext. 4719.
- 24" GE TV - B/w, good picture tube, tuner needs attn. 286-1253 after 6.
- MINIBIKE FRAME - New paint, good cond. \$20. Pete, 588-4766.
- AUTO BABY SWING - W/sun shade, excel cond. \$8. Mike, Ext. 2446, 286-2032.
- TOOL BOX - Hip roof cantilever, 4 trays. \$12. Ron, Ext. 4310.
- FISHER STEREO AMP - X100B, 50 watt, excel cond, \$65; Garrard changer w/mag cart, \$15. Bob, Ext. 4551, 289-2159.
- DINING RM TBL - Blonde w/leaf, 4 chairs, china closet, good cond. 363-8919.
- GE VACUUM CLEANER - Good running cond, complete w/attachments. 289-1242.
- LAFAYETTE HE-10 - Short-wave receiver. R. Williams, Ext. 4259, 286-0893.
- MEN'S RAINCOAT - Black trench coat, zip-in lining, 46 long, worn once. R. Williams, Ext. 4259/4207, 286-0893.
- HEATHKIT - AD-2022, quadraphonic decoder, all access. R. Williams, Ext. 4259/4207, 286-0893.
- BOOKS - Mystery, sci fic, etc, some brand new, paperbacks 10¢, hardcovers 25¢. R. Williams, Ext. 4259/4207, 286-0893.
- 6' BIRCH KITCHEN CABINET - Top & bottom w/stainless sink. \$125 or best offer; 40" Hotpoint elec stove, \$40. 423-7714.
- TYPEWRITER - Used Facit, standard sz, manual, good cond. \$75. F. Silkworth, 473-1578.
- BEDRM SET - 5 pc, lg size, new cond, \$400; asst old furn, reasonable. Ron, Ext. 4652, 289-1003.
- APPLIANCES - 540 lb chest freezer & hvy duty dryer, 220V, both 1 yr; Maytag wash mach, 5 yr, all excel cond. \$300. 588-8100, M-F, 9-5.
- BABY ITEMS - Stroll-a-chair convert stroller, carriage, etc, other items, excel cond. Ext. 4216, 289-0532 after 6.
- KITCHEN CABINETS - Like new, uppers, lowers & exotic broom closet. Ext. 4216, 289-0532.
- DINING RM SET - "Blond Mahog" table, 4 chairs, breakfast, server, good cond. 744-8567 after 6.
- ELEC RANGE - GE 36" free standing, push button, good cond. \$125. 472-0086 after 4:30.
- STEREO TAPE REC - Sony, 7", 2 & 4 track, stereo & mono & approx 35 reels of tape, needs cleaning & minor repair. \$110 complete. Joe Bush, Ext. 4257.
- GE CAN VACUUM CLEANER - Excel cond, w/all attach. Bill, Ext. 2022.
- CLOTHING - Size 10 evening wear, suits, coats, reasonable. 472-0509.
- THERMOSTAT - Honeywell. \$1. J. Olson, Ext. 3382, 289-8629 after 6.
- ICE CREAM MAKER - Salton elec, used few times. \$12. 744-3744.
- SUNBEAM ELEC CLOCK - In shape of grandfather clock, about 11" tall, new, factory guarantee. \$7. R. Horwitz, Ext. 4134.
- DESK - Sect, 18th cent bed, odd tables, stove, ven blinds, boy's bike, chest of drawers. 475-1453 after 5:30.
- TWIN BED - Box spring & firm mattress on legs. \$50. 286-9619 after 6.
- HI RISER BED - Converts from sofa to dbl bed, inner-spring mattresses, steel frame. \$45. 286-9619 after 6.
- 2 CHILD BED RAILS - 60", \$3; 40", \$2; 4 pc yellow canister set, \$6. Bill, Ext. 2022.
- ANTIQUE FURN - Cut glass Hamilton Beach "Cook Blender," never used, bric-a-brac, lamps. 472-0509.

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

- SETAUKET - 4 bdrm colonial w/3 baths, liv, din, eat-in kit, study, fin bsmt, lovely wooded 0.45 acre, walk to SUNY. 751-3375.
- BROOKHAVEN HAMLET - 4+ bedrm, study, liv, din, lg kit, 1½ baths, 2½ car gar, 2.3 acres, boat landing, marsh, woods. Ext. 3402, 286-0798.

For Rent

- 2½ RM APT - Full bath, kit, priv ent, util incl. 589-6069.
- PATCHOGUE VILLAGE - 4 rm apt, w/w carpet, no pets, priv entr. 289-3427.
- FURN ROOM - Kit priv. Ext. 3800, 585-3794.

Wanted

- USED VW - 62 & up, reasonable, any cond. Tony, Ext. 2023.
- CAMPER VAN - In good cond. Ext. 2032.
- GARDEN STATE RIDERS - For round trips Sats & holidays. W. Hulak, Ext. 4278, 732-2248 after 5.
- WOOD KITCHEN CABINETS - 5 or 6' base w/over-head cabinets, also stove & sink unit. 475-4199.
- BABY CRIB - Good cond. 732-3135.
- HOME FOR TWO DOGS - Spayed female, beagle mix; male shepherd mix; both good natured, obedient, need room to run. G. Schiro, Ext. 3743, 286-8234.
- GENERATOR OR ALTERNATOR - W/regulator, high output. Ext. 3515.
- RIDE - From Moriches to Lab 0830-1700. 878-0744.
- LOOM - Jack type floor model in working cond. M. Coopersmith, Ext. 3125.
- CAMPBELLS LABELS - Soup & bean, needed by St. John School to get gym mats, send to F. Chandler, Bldg. T-89.
- ALUMINUM CANS - 0.5¢ per can. J. Olson, Ext. 3382, 289-8629 after 6.
- 1000 ALUM BEV CANS - Not mashed, small dents ok, no lot too small, 1¢ ea. A. Roesch, Ext. 4719.
- AQUARIUM - 10 gal for gerbils, can be leaky, cheap. Woodwell, 286-0798.
- 35 MM CAMERA - W/auto exposure meter, good cond. Ext. 3765, 744-5079.
- HUMIDIFIER - In very good cond. Adams, 744-5448.
- BABY'S - Playpen, child's restraining gate. Jean, Ext. 2902.
- STURDY FURN - For new Planned Parenthood clinic: straight chairs, standing lamps, clothes tree, vacuum cleaner & couch. 472-0702.
- Car Pools
- RIDE WANTED - Miller Place, near Echo & 25A, will share expenses, car pool possible. Carol, Ext. 2346, 928-2437 after 5:30.
- ONE DRIVER - Wanted to complete 4 man car pool, 8:30-5, Brentwood, Bayshore area. C. Hebrance, Ext. 4562.
- Lost & Found
- FOUND - Canon lens cap in lobby, Berkner Hall. Jerry, Ext. 4498.
- Services
- NEW CARPET SALES - Carpet cleaning by extraction method in your home, repair work done. 475-8597.
- CLEANING SERVICES - Rug shampooing, waxing, window cleaning, general house cleaning. 924-6118.
- EXCEL TYPING DONE - Reasonable rates, manuscripts, theses, etc. Susan, Ext. 3609, 928-6082 after 5:30.
- INT PAINTING & WALLPAPERING - Free est. Bob, 698-7647 after 5.
- WILL DO HEMS - Reasonable rates. Sharon, Ext. 3311.

Classified Ad Policy

Deadline is 12 noon Monday for publication Friday of the same week.

- 1. The Brookhaven Bulletin's classified section may be used only by active and retired Laboratory employees.
- 2. All items for sale or rent must be the advertiser's property.
- 3. Ads for material acquired for resale in association with a full or part-time business cannot be accepted.
- 4. Firearms offered for sale or trade may not be brought on site.
- 5. Ads not carried because of space restrictions will be held for publication in the next issue.
- 6. Ads are run only once and must be resubmitted if they are to be repeated.
- 7. Ads should be restricted to 20 words or less and typed or printed on the form provided, and must bear the employees signature.

☐ For Sale: Auto & Auto Supplies  
☐ For Sale: Boats & Marine Supplies  
☐ For Sale: Miscellaneous

☐ Wanted  
☐ Carpools  
☐ Lost & Found  
☐ Services

Check ☒ the heading applying to your ad. Print or type your ad in 20 words or less.

Ads concerning property for sale or rent cannot be accepted on this form. Special Real Estate Ad forms are available at the Office of the Brookhaven Bulletin, Room 111, 40 Brookhaven Avenue.

Employee's Signature..... Life No. .... Ext. ....  
Send to: Brookhaven Bulletin, Building 460, 40 Brookhaven Avenue (Ext. 2345).