



BROOKHAVEN BULLETIN

Published by the Brookhaven National Laboratory Public Relations Office



Volume 26 - Number 17

April 27, 1972

That Time Again!



Do you think you have problems trying to remember whether to set your watch ahead or back for the start of Daylight Saving? Pity poor Jim Rutherford in the Cyclotron control room. Trying to read the backward clock is difficult enough without the added problem of deciding which way to turn the hands. If you are up at 2 a.m. on Sunday morning, it will magically become 3 a.m. whether you make the right moves with the hands of your alarm clock or if you goof and arrive at church an hour late - or is it early?

Search And Discovery Of Phosphorus Isotope At Tandem Facility

Following the announcement in January of the discovery of a new isotope (silicon-33) at Brookhaven, scientists at the Tandem Van de Graaff facility decided to undertake a systematic search for a number of other new isotopes whose decay properties had never been seen in nature.

Phosphorus-35 was the objective in the first experiment of the new series and it proved to be successful. Phosphorus-35 has a mass number (of weight) of 35 (total of protons plus neutrons in the nucleus), a half-life of 48 seconds, and decays by emitting beta and gamma radiations.

Nature often causes isotopes of elements in the periodic table to undergo changes, usually by giving off energy and decaying into an isotope of a neighboring element. Brookhaven scientists, however, start with two light elements and fuse them together to form a heavier one, then measure and analyze the subsequent decay. Proof of the existence or non-existence of many isotopes by this method would fill in some of the gaps in the knowledge of the natural inter-relationship of the elements.

The results with phosphorus-35 were reported in a paper authored by David R. Goosman and David E. Alburger and presented by Goosman at the American Physical Society meeting in Washington, D.C. on Tuesday, April 25, 1972.

All of the experiments in the search for new isotopes are being conducted in Brookhaven's unique Tandem Van de Graaff facility, where any particle that can carry a charge can be accelerated. Using a process called electron-stripping heavy ions are accelerated to energy levels sufficient to cause them to fuse with other ions in the target, thereby producing new isotopes. That is how silicon-33 was produced as the by-

(Continued on Page 3)

Elections To NAS And Philosophical Society

At the 109th annual meeting of the National Academy of Sciences in Washington, D.C. on Tuesday, April 25, 75 new members were elected.

From Brookhaven, one of the two women elected to membership was Gertrude S. Goldhaber of the Physics Department. Mrs. Goldhaber will become one of the eleven women members of the 950-member organization.

Also elected were Rodney Cool, alumnus of BNL, now at Rockefeller University, and George B. Field, AUI Trustee-at-Large from the University of California.

On Friday, April 21, at its annual meeting in Philadelphia, Dr. Maurice Goldhaber was elected to membership in the American Philosophical Society.

Honor Thy Secretary



Ruth Anne Otterstedt, Secretary and Receptionist in Applied Math, takes time out from her daily routine to smile for this photographic reminder of National Secretary's Week, April 24-27. This week has been set aside to honor all those who do secretarial work, whether in a glamorous office in a hub of activity or in a secluded office far from the limelight. This Friday is Secretary's Day at BNL. Whatever you do for your secretary, don't make it a one-day formality but a year-long practice - a few words of praise for a job well done, a smile, or a simple "thank you" is all it takes to show your appreciation.

Whatever Happened To The Neutrinos?

The radiant energy from the sun that we are enjoying today was produced some 10 million years ago, but the neutrinos that pass through the earth every day, traveling at the speed of light, were produced in the sun approximately eight minutes before their arrival. Apparently, however, we are getting less neutrinos than theory says we should. Perhaps our theories of what is going on in the sun have to be revised.

Both the radiant energy and the neutrinos come from the same process of four hydrogen atoms fusing to yield helium-4 going on deep in the heart of the sun, where the temperature is 15 million degrees Centigrade (27 million degrees Fahrenheit). The process is similar to what may someday be used to generate power by thermal fusion reactors on earth.

A solar neutrino has never been seen, and its presence can only be observed via



Ray Davis checks valves in charcoal filter cooled to 320 degrees below zero before extraction of argon-37.

the effect it leaves behind when it accidentally collides with an atom on earth. The neutrino is an elementary particle that has very unusual properties. It is a neutral, massless particle that has the unique ability of being able to penetrate enormous amounts of matter, like a hundred light years of rock, without being adsorbed or even deflected from its course. These particles formed in the interior of the sun pass out of the sun into space. Their energy and number are characteristic of the particular nuclear fusion reactions operating in the sun. The aim of the experiment reported on by Ray Davis of the Chemistry Department is to observe the neutrinos, measure their flux and energy and thus test our ideas of how the sun generates energy.

A large solar neutrino detector was built in 1968 a mile under solid rock in the Homestake Gold Mine in Lead, South Dakota. The detector is actually a huge tank of perchloroethylene, a common dry cleaning solvent that is 85 percent chlorine. Ten railroad tank cars of this solvent (100,000 gallons) are used. When a neutrino collides with an atom of chlorine, the radioisotope Argon-37 (half-life 35 days) is formed. At approximately 100 day intervals, the contents of the tank are purged with helium gas to remove the Argon-37 present, which is then analyzed for its radioactive decay in a small proportional counter.

When the Brookhaven solar neutrino detector was first used in 1968 it was found that the flux of energetic neutrinos from the sun was four to eight times lower than had been predicted from theories of the process. Since then, improvements were made in the over-all sensitivity of the detection apparatus. The report given at the American Physical Society, Washington meeting, presents the observations made during the last two years. Even with the improved detection sensitivity, the expected flux of neutrinos was not observed. The results show the actual neutrino capture rate in the detector is less than 0.2 neutrinos per day, which when compared to the theoretical prediction of 2.0 per day, is a factor of

(Continued on Page 3)

Columbia Science Writers



Relaxing in the sun outside of Berkner Hall is this group of BNL staff members and students from the Graduate School of Journalism of Columbia University. Each spring a group of budding science writers comes to Brookhaven for a two-day visit to sharpen skills in reporting scientific stories. Each student observes the work of one scientist and participates in an afternoon of research. At the conclusion of the visit each student is expected to write of his experiences for publication in a newspaper or magazine.

Research Intern



The first student to participate in an experimental program of undergraduate research internships from northern New England colleges is Dilek Barlas. The 22-year old junior from Bates College in Maine, is shown with his advisor, Ron Peierls. Barlas, who comes from Turkey, is doing research on the evaluation of phase-space integrals by using Monte Carlo computation methods.

Cafeteria Menu

Week Ending May 4, 1972

Friday, April 28	
Clam & Celery Bisque	
Fried Shrimps w/French Fries	.95
Roast Lamb w/Mint Jelly & 1 Veg.	.95
Broiled Halibut w/Carlton Butter & 1 Veg.	.95
Monday, May 1	
Tomato Soup	
Roast Fresh Ham & 1 Veg.	.90
Chicken Patties w/Giblet Gravy, Currant Jelly & 1 Veg.	.90
Western Omelet w/French Fries	.80
Tuesday, May 2	
Mulligatawny Soup	
Grilled Ham, Sausage & Pineapple & 1 Veg.	.90
Creamed Chicken & Mushrooms on Noodles	.90
Sauerbraten w/Potato Pancakes	.90
Wednesday, May 3	
Yankee Bean Soup	
Baked Beef Loaf & 1 Veg.	.85
Shrimp Chow Mein on Rice w/Chrip Noodles	.90
Polish Kielbasy w/Potatoes & Sauerkraut	.80
Thursday, May 4	
Beef Barley Broth	
Beef Hash w/Brown Gravy & 1 Veg.	.80
Baked Lasagna w/Sauce & 1 Veg.	.90
Broiled Chicken Livers w/Bacon Strips & 1 Veg.	.85

**Ladies' Tea . . .
Cheese And Bread Tasting**

The Hospitality Committee cordially invites all ladies who are employees or employees' wives to attend their spring tea. This party, which is a cheese and bread tasting, will be held on Wednesday, May 10, from 3 to 6 p.m., at the Brookhaven Center. Child care is available free of charge at the Gymnasium, 3 Center Street. If you would like to donate a favorite cheese of yours, please contact June Adams (744-5448), Norma Chernick (GR 5-0168) or Dorte Lehmann (extension 503).

The Hospitality Committee hopes to see you at the Tea and looks forward to the opportunity of introducing you to new friends. The following list is this year's Committee. Please feel free to contact your area representative if you need additional information or assistance.

On-site	
Josette Auerbach	286-3742
Dorte Lehmann	Ext. 503
Betty Davis	Ext. 7108
Yaphank	
Alice Desmond	924-6972
Shirley, Mastic	
Roberta Zucker	878-2372
Marie Martins	281-6809
Brookhaven, Southaven	
Ruby Fajer	AT 6-3534
Ruth Schwarz	286-1236
Bellport	
Lela Radeka	286-0854
Marilyn Shellabarger	286-8060
Sayville, West Sayville, Oakdale	
Bobbie Horn	LT 9-2759
Elaine Hendrie	567-3277
Patchogue	
Jane Shotkin	289-3246
Grace Cohen	GR 5-4038
North & East Patchogue	
Dorothy Scott	286-1292
Zohra Huq	289-6676
Blue Point, Bayport	
Muriel Elliott	EM 3-6596
Barbara McGeary	
South Shore East of Shirley	
Ruth Cottingham	878-0926
Florence Gurinsky	878-1013
Hamptons	
Dorothy Sheehan	727-0747
Setauket, Old Field	
Betsy Britton	941-3609
Sara Mockett	751-3888
Belle Terre, Harbor Hills, Port Jeff & Port Jeff Station	
Bea Drucker	473-1620
Margherita Ehrenson	HR 3-5845
Stony Brook, St. James, Smithtown & Huntington	
Charlotte Earle	751-1610
Shoreham	
Marguerite Platner	744-3235
June Adams	744-5448
Rocky Point, Miller Place, Sound Beach	
Pat McKenzie-Wilson	744-6474
Centerach, Coram, Selden, Ridge, Middle Island, Medford Station	
Sigrid Walther	924-3428
Riverhead & North Fork	
Louise Boyd	PA 7-3019
Chairman of Committee	
Terri Pittenger	286-9471

Cooking Exchange

Children demonstrate their talents at the stove for the next Cooking Exchange session. Included on the program will be a dress-up salad, a chicken dish and some fantastic desserts. All of this will cost only 75¢ for each person attending to help cover the cost of recipes and babysitters.

Date: Thursday, May 4
Time: 3 to 5 p.m.
Place: Recreation Building

BROOKHAVEN BULLETIN

Published Weekly for the Employees of Brookhaven National Laboratory

CARL R. THIEN, Editor
CLAIRE LAMBERTI, Editorial Assistant

40 Brookhaven Ave. Upton, N.Y. 11973
Telephone 516 924-6262 Ext. 7238

NORBERT J. DERNBACH
Public Relations Officer

Stony Brook Events

A lecture by naturalist Robert Cushman Murphy, music recitals, and the Long Island Sound Crew Championship are among events open to the public at the State University of New York at Stony Brook this week.

Thursday, April 27

Robert Cushman Murphy, the prominent naturalist and long-time Suffolk County resident, will discuss the impact of Long Island growth on the environment at 8 p.m. in Room 236 of the Stony Brook Union. His talk will be the third in a series, "On and Off Campus," sponsored by the Association for Community-University Cooperation. Also, Mrs. Jean Squires, co-founder of the Environmental Center, will present an illustrated lecture on the Center's programs for educating and involving young people in environmental concerns.

Sunday, April 30

The University Orchestra will perform in concert at 8:30 p.m. in the Gymnasium.

Tuesday, May 3

The Music Department is sponsoring a student recital featuring the Bach Aria Group at 8:30 p.m. in Room 105 of the Lecture Center.

The Second Annual Purchase Award Exhibition begins today in the Stony Brook Union Gallery and continues through May 12. Works in various media by members of the University Community will be on display, 10 a.m. to 5 p.m.

Wednesday, May 3

Dr. David M. Lee of the Department of Physics of Cornell University discusses "Evidence for a New Phase of Solid HE³," in a Department of Physics colloquium at 4:30 p.m. in Room 137 of the Physics Building.

Thursday, May 4

Francois Truffaut's film, "Shoot the Piano Player," will be shown by the Center for Continuing Education at 8:30 p.m. in Room 100 of the Lecture Center, and followed by his film, "Jules and Jim."

Friday, May 5

The Theatre Department presents Ionesco's play, "Jack or the Submission," at 8:30 p.m. in the University Theatre, South Campus, Surge Building B.

Saturday, May 6

Two Stony Brook alumni crews will race at 1 p.m. in Port Jefferson Harbor to open the first annual Long Island Sound Intercollegiate Rowing Championships. At 1:30 p.m. the Stony Brook Patriots junior varsity crew team will take on the teams from C.W. Post and the University of Rhode Island. The varsity competition for the Myron E. Doucette Cup will begin at 2 p.m.

NET Tickets

The Recreation Office still has some tickets to the NET playoff game on May 1, 1972.

Arrivals & Departures

Arrivals

Julian A. Aguilar.....P.E.P.
Carol S. Ogeka.....Photography

Departures

William V. Johnson.....H.P.S.
James R. Mallins.....Physics
Louis M. Picinich.....H.P.S.

Neutrinos

Continued

ten below the forecast. This new result is indeed very puzzling.

Explanations of the null result of the experiment are varied, but not very satisfactory. It is possible that the interior structure or composition of the sun is not understood. Many possible variations in the solar composition and process have been studied by astrophysicists.

The nuclear reactions of most critical importance in the solar energy generation processes have been extensively studied at the California Institute of Technology under the direction of Professor W.A. Fowler, and at other laboratories. Nuclear physicists now believe the nuclear physics of these simple reactions are well understood and it is unlikely that there is an error, or oversight. It has been suggested that the energy generating process is periodic in time, and we are just unlucky to be making observations at a time when the cycle is at a minimum. It takes 10 million years for the radiant energy to leak through the huge mass of the sun, whereas a neutrino gets through in a few seconds. So the radiant energy we are now enjoying was produced 10 million years ago. Another explanation put forward by Bahcall, Cabbibo and Yahill, of the Institute for Advanced Study, is that some neutrinos decay before they reach the earth. The decay properties of the neutrino may not be observable at ordinary terrestrial distances, but are important in distances of the scale of the solar system.

In his experiment, Davis is assisted by John C. Evans, Veljko Radeka, Lee Rogers, and John Galvin, all of Brookhaven National Laboratory.

Search And Discovery Continued

product of another experiment and how phosphorus-35 was deliberately produced.

To make phosphorus-35, a target containing oxygen-18 was bombarded with a beam of energetic fluorine-19 ions. These two nuclei merged to produce an isotope having a total of 37 protons and neutrons. The merger was followed immediately by the emission of two protons, which created the sought-for phosphorus-35 isotope. This new nucleus then decays by first emitting beta rays which change it into sulfur-35, and then, by the emission of 1572.36 keV gamma rays, it decays further to the lowest energy state of sulfur-35. By detecting and measuring the gamma rays given off during decay, it was possible to prove that the new phosphorus isotope had been made.

Verification was done in a separate experiment, using the research Van de Graaff accelerator to form sulfur-35 (the daughter of phosphorus-35) by bombarding a target of sulfur-34 with deuterons (nucleus of heavy hydrogen, containing one proton and one neutron). The sulfur-35 state was found to have an energy of 1572.24 keV. Thus, the gamma-ray energy from the Tandem Van de Graaff experiment was in very close agreement with sulfur-35 and the conclusion was inescapable that phosphorus-35 has been formed when oxygen-18 was bombarded with fluorine-19.

The element phosphorus has only one stable isotope found in nature, phosphorus-31. The discovery of phosphorus-35 brings the number of radioactive isotopes of phosphorus whose half-lives are known to seven, the six previously known radioisotopes having masses of 28, 29, 30, 32, 33, and 34. There had been some theoretical estimates of the mass (or weight) of phosphorus-35 and its so-called spin-parity.

Volleyball News

Odelli Ozer

The long awaited championship game between the Cool Tools and the Spikers was finally played on Monday, April 17.

Unfortunately this game failed to reach the high level of play and exciting competition that has characterized previous encounters between the two teams. After two weeks of inaction both teams initially appeared to be somewhat rusty. In fact the Spikers had such a dismal beginning that they dropped the first set unable to stop Don Strayer's well placed serves.

In the second set however things began to change. Shocked out of their lethargy by the loss of the first set the Spikers regrouped their defense and proceeded to systematically destroy the Cool Tools with a spiking offense which had suddenly become very effective. Spectacular saves by Mas Suenaga, Jack Crow and Don Strayer were not sufficient to stop the Spiker attack. Unable to make the transition from defense to an offense centered about Lew Sneed, the Cool Tools dropped the second and third sets.

The Spikers, by coming from behind and winning the game 2-1 have won the championship of the Men's League for the 1971-72 season.

BNL Bowling**End Of Season Schedule**

- May 2 - League play-offs Port Jeff.
- May 4 - League play-offs Oakdale.
- May 6 - BNL Championship - Men & Women
Port Jefferson Bowl.
- May (Date to be Arranged)
- Rainbow Tournament
Port Jefferson Bowl - 6:00 p.m.
- May 9 - Bowling Awards Evening at the BNL
Recreation Building 5:30 - 8:30 p.m.

**Scheduled Softball
Play At B.E.R.P.**

The Softball Fields at the Brookhaven Employees' Recreation Park are to be used only for scheduled play. The fields are not to be used before 5:00 p.m. during the week.

A Reservation Schedule is maintained at the Recreation Office at 58 Brookhaven Avenue, Ext. 391, and reservations are now being taken for department and group activities.

Met Baseball Tickets

Met baseball tickets are still available for the following dates in May.

- May 5 - San Diego
- May 7 - San Diego
- May 11 - Los Angeles
- May 15 - Montreal
- May 16 - Montreal
- May 17 - Montreal
- May 30 - Philadelphia
- May 31 - Philadelphia

BERA Golf

Last call for all golfers. BERA golf will begin the week of May 8th.

All golf applications must be in by today. New members are welcome; late applicants contact J. Conway, Ext. 7559.

Next week all members will receive individual and team rules along with the BERA golf schedule.

All members are asked to send all recent score cards to Jack Detweiler, Bldg. 911B.

Softball News

Each year over 350 Laboratory employees participate in the Softball program. This program is open to all Laboratory employees and in the case of our Mixed League is open to the spouse of an employee, i.e., husband or wife. As in the past, four leagues will be formed depending on the number of teams entered. These leagues are the Brookhaven League, National League, and the Laboratory League, along with the Mixed League. Games are played on Tuesday, Wednesday or Thursday evenings at 5:30 p.m. at the Brookhaven Employees Recreation Park. Refreshments are encouraged at all games, and picnic facilities are available at all fields.

If your department does not have a team, and you are interested in playing, there is still time to sign up. There are approximately 20 teams participating and some of them need additional players. Call Dick Ruffing, Ext. 7215, or the Recreation Office, Ext. 391 for any additional information.

Bowling News

Grace Fales

Green League

Congratulations to R. Jones with a 195/213/601 series for his Club Award and highest score of the night. Other highs were: R. Meier 227, K. Riker 213, W. Hayes 203, and J. Cuccia 238. If this night was any indication of what the roll offs will be, it promises to be an excellent game. The Designers rolled a 3027 pin fall, while the Sandbagger's rolled 3119.

Pink League

Congratulations to the Hopefuls who have secured first place for the second half and can't be touched. Pat Oster and Helen Keeley of the Spares combined for 166 each but couldn't tumble the Hopefuls who were led by Ellie Murgatroyd 189/478. Carol Beckner, 168, of the Bioboosers tried to spur her team out of the cellar, but the Fiscal Assets were a determined group led by Helen Caisey 192/487. Kay Hunt 160 and Ruby Burwell 177 of the Alley Oops were victorious over the Pinsplitters despite the noble effort of Marge Stoeckel 188/493. Honorable mention to Sue Munsterman 147, Fran DeMarco 148, and Lilly Lambeck 155.

Black and Blue League

With bowlers like Helen Caisey with a 170/169/163/502, Lou Caisey 198/543, Ginny Diebel 175, and Ginny's "my Allan's" consistently good bowling all season, how could the Caisey Cats miss being the uncontested Champs in this League. There will be a roll off for second place between Handsome Bud's AR's and Dick, "what's his name?" Cellar Dwellar's. Phil Borzi was in good form rolling a 184/191/540 and Ben Belligan 185, Joe Mayski 183 looked good too. Pam Murgatroyd with a 169 and Dot Pollock 167 decided to stop sandbagging and showed their teams and their opponents that they really knew what they were doing.

Selected Reading

New Scientist 54, April 13, 1972
Resources for doomsday. J. Bray. 63+
Serendipity explored. B. Holloway talks to Dr. M. Sherwood. 69-71
Science, government, and Lord Haldane. J.G. Crowther. 85-7

D-110 Where Are You?

A refund on the price of one ticket is waiting for the person who purchased seat number D-110 at the Recreation Office for the Duke Ellington concert on June 13.

Last week two winners were drawn from the first 100 tickets purchased for the concert. Ticket number D-106, bought by Larry Fuller, DAS, was the first winner. D-110 has not yet claimed his (or her) prize.

Fuller purchased a block of ten tickets for the Ellington concert for a group that has been a regular participant in all of BERA's special events. "I guess I should have bought a few more," said Larry, "and I would have gotten the second free ticket!"

Tickets have been on sale to the general public since Tuesday, and are starting to go fast. If you haven't purchased your ticket yet, they are still available to employees and family members at \$5.00 each. The price to the general public is \$6.00.

Swimming Pool Schedule

Open Weekdays Monday through Friday
12:00 noon - 1:30 p.m. Employees Only
(Must have Season Pass).

5:00 p.m. - 9:30 p.m.
Employees/Family/Visitors.

Rates

Season Pass
Employee or Family Member \$ 5.00
Family (Same Household) \$10.00
Daily Single Admission
Employee or Family Member 50¢
Visitor 75¢

(No Single Admissions 12 noon - 1:30 p.m.)

**Classified
Advertisements****Positions Available**

The Brookhaven Bulletin each week will list job openings which have come to our attention and may be of interest to Lab employees. Each listing will be repeated (if still available) only once.

LABORATORY CUSTODIAN (4) - Plant Engrg. & Planning. Application deadline: May 5, 1972.

REGISTERED NURSE - Rotating shifts, Medical Department.

TECHNICAL SPECIALIST - Whole body counter and computer operations. Bachelor's degree or equivalent required; radioisotope experience desirable. Medical Department.

OFFICE SERVICE ASSISTANT II - Housing Office, Staff Services.

For further information, please contact Employment Supervisor, Ext. 2109 or 2513.

Autos & Auto Supplies

64 OLDS 88 STATION WAGON - Good cond, extra snows & rims. \$500. R. Hodor, Ext. 7630.

FORD SHOP MANUALS - For all 1971 models; eng, \$2.50; chassis, elec, body, \$1.50 ea; all 4/\$6. Bob, Ext. 2575.

14" WHEELS - Fit Chevy & Tempest, \$5/pr; gen, GM type, 12v, \$7. Bob, Ext. 2450, 289-0357.

2-15" RIMS - From old Buick. \$3 ea, both/\$5.50. Al, 273-5574 after 6.

2 FIBERGLASS BELTED TIRES - W/rims, size H78-14 (equiv to 7.35x14), excel cond, from Olds Cutlass. \$40/all. Al, 273-5574 after 6.

71 COUGAR - 352 V8, red/white, int & vinyl roof, ps, disc brakes, am/fm radio, many extras. \$2950. 475-5526.

2 F60-14 TIRES - Glass belted wide ovals, "Saxon Speed Track," used 1000 mi. 281-6325 after 6.

STAR 1233 - Good cond. \$200. Ext. 341.

15' PENN YAN - Lapstrake runabout, 50 hp Johnson V-4, trailer, anchor, compass, etc., etc. \$500. 751-3686.

63 CHEVY IMPALA - 67-427 eng, headers, dual coil distrib, 4 spd Hurst, new bearings, new 850 Holley carb, bckts, Vette wheels, excel cond. \$975. 286-9197.

71 NOVA - Low mileage, avocado green, 3 spd on column, mags, cm/fm radio, excel cond. 234-2533.
68 PLYMOUTH VALIANT - Green, 4 dr, 6 cyl, manual shift, r/h, good cond. \$800. Arnie, Ext. 7411.

60 WILLYS JEEP - 4 w/d, locking hubs. \$350. V. Racaniello, Ext. 7821, 286-9606.

TIRE - Almost new Firestone D/C 7.35x14 w/w on 14" rim. \$10 or take over payments. Bob, Ext. 7356 after 6.

63 CHEVY II WAGON - 6 cyl, std trans, runs. \$80. 286-9523.

66 VW SQUAREBACK - 55,000 mi, needs paint job. \$800. 924-6666 after 6.

66 VW BUS - 1000 mi on compl rebuilt eng, curtains & paneling, new tires plus extra set mounted tires. \$900. Daniels, 979-0520.

66 VOLVO 122S - Recently reguilt eng, clean. \$900. J. Guthy, Ext. 2152, 475-8083.

68 GRAND PRIX - R/h, ps/pb, air cond, new tires, brakes & exhaust system. \$1695. George, 727-6676.

62 FALCON FUTURA - 6 cyl, auto trans, bckts, many new parts, good running cond, must be seen, orig owner. \$225. Ron, Ext. 366.

64 AMBASSADOR - 2 dr hdtp, 293 CID, 8 cyl, auto trans, ps/pb, am/fm radio, bckts, new tires, good running. \$300. Herb, Ext. 7247.

69 BSA ROCKET 3 - 750 cc, new 1970, custom dressed, many extras. 475-0037.

64 CHEVELLE SS - R/h, auto trans, 2 dr, 6 cyl, excel running, has body rot. \$250. JU1-8412.

67 SUNBEAM MINX - 4 dr, r/h, auto trans, 4 cyl, 25 mpg, clean, good running. \$675. JU1-8412.

69 VW CAMPER - Pop-up top, fully equipped, very good cond. Ext. 7821, 744-5592.

AUTO TRANS FOR CHEVY - Good cond. \$20. 363-6597.

66 CHEVY BELAIR - 9 psgr wagon, V8, auto, ps/pb, r/h, 42,000 mi, good cond, avail immed. Ext. 2900, AN1-2932 after 6.

64 OLDS - 4 dr hdtp, ps/pb, air cond, good running cond, good tires, will pass inspection, excel value. Vin C., Ext. 7821, 281-8928.

Boats & Marine Supplies

26' CHRIS CRAFT - In water & in good cond, sleeps 6, has legal head. 878-0743.

CONTROL BOX & CABLES - Johnson, cut to fit 16' boat. Warner, Ext. 378, 475-7025.

16' WINNER RUNABOUT 1967 - Fiberglass hull, 75 hp Johnson, tilt-bed trailer, many extras. \$1300. Pate, Ext. 7494, 286-8835.

KAYAK - 16' fiberglass w/paddles, 1 man touring model, red & white. Peter, Ext. 2458, 878-0781.

MARINE COMPASS - Airguide No. 88, never used. \$10. Ext. 7219.

16' CHRIS CRAFT - Newly painted hull, 33 Evinrude used 25 hrs, tilt trailer, ready to go, make offer. Ext. 453, 473-9527.

SAILBOAT - Lightning-rigged, fiberglassed hull, dacron sails, extras, all reasonable offers considered. Ext. 343, 286-8847.

ALCORT SUNFISH - Good cond. \$325. 727-4295 after 6.

STERLING BOAT TRAILER - Tilt tongue, 1200 lbs cap, 18' long, 4 ply tires, new winch, extras. \$175. Peter, Ext. 447.

20' FIBERGLASS CRUISING SLOOP - Sleeps 4, 4 sails, winches, fully equipped, low price. Ext. 2993, 744-9436.

30' GAILBRATH - Fly Bridge 1968, 265 hp Palmer FWC, monel tanks, outriggers, cedar hull, oak frame. \$3950. 273-4575 eves.

12' ALUM ROWBOAT - Aircraft, very good cond. \$90. Hank, Ext. 434.

OUTBOARD - 7½ hp McCulloch, elec start. \$40. McKeown, Ext. 7295.

14' ALUM STARCRAFT - Trailer, 15 hp motor, gas tank, boat cushions, oars, anchor & rope. \$450. 744-6858.

26' JERSEY KING SKIFF 1949 - 145 hp, sleeps 4, sink, fully equipped, auto bilge pump, perf fishing or family boat. 744-2552.

71-40 HP JOHNSON - Elec start, 71 Tee Nee trailer, both excel cond. 14' fiberglass, good cond. \$1100. Fred, 286-8713.

8' PLYWOOD SAILING PRAM - Compl w/sail, floor boards, oar locks, etc. \$75. 286-0147.

BOATING/FISHING EQUIPMENT - 7½ lb Danforth anchor; fishing poles/reels for trolling; spare boat trailer-tire & wheel; misc equipment cheap. 744-9832 weekends only.

16' GLASPAR RUNABOUT - Full canvas, 18 gal gas tank, w/40 hp Evinrude, elec shift & start, 1970 Cox trailer. \$1350. 286-0147.

Miscellaneous

CONTEMPORARY SOFA - 95" long, incl blue damask slipcover, good cond. Asking \$50. 698-0886.

CUSTOM TAILORING & ALTERATIONS - Men's & women's clothing. 286-3454 after 7.

POWER LAWN MOWER - Almost new, \$35; lg old dresser, \$20; metal frame bookcase, 5 shelves, \$10. Peter, Ext. 7551.

17" EMERSON TV - Crib & matt; carriage, colonial diaper table; high chair; all excel cond. MI3-8976.

CESSPOOL PROBLEMS? - Chemically cleaned. \$25 for 15 gal, we put it in. Check our price! 289-0565.

KING SIZE HEADBOARD - Also fits twin size beds, good cond, \$25 firm; 8' sliding glass doors w/hardware & screens, \$55 firm. HR3-9180 eves.

GERMAN SHEPHERD - Needs good home, loves children, housebroken, 9 mos old. 981-1826.

SM REFRIG - 8 cu ft, w/freezer top, very good cond, \$15; 21" TV, floor model, walnut cabinet, very good cond. \$20. Harry, Ext. 7272.

FREE ESTIMATES - Get those dead & unwanted trees taken away now. 289-8212 eves.

PLOWING & ROTO-TILLING - Free estimates. 289-8212 eves.

28" BOY'S BICYCLE - \$45. 473-0178 eves.

AC GENERATOR - 2 KV, diesel driven, motor rebuilt. Geo., Ext. 657.

HAMMOND ORGAN - Model A-100 series, like new. Best offer over \$1000. JU6-7063 after 3.

CAR-TOP CARRIER - Sears vinyl covered, w/lock, 48x36x14, used 1 trip. \$10. 744-3744.

PETRI-FLEX 7 - 35 mm camera with f1.4 55 mm lens & many extras. \$150. Rob, 286-0267, 286-0082.

US COINS & CURRENCY - & foreign coins, old 78 phonograph records. O. Booker, Ext. 2401.

FOR BABY - Vaporizer, \$5; carriage, \$10; lg hobby horse, \$15; stroller, \$3; bouncer-walker, \$3; hike-a-poose, \$5; car seat, \$3. 929-6790.

29 GAL FISH TANK - Incl sand, filter, gravel, heater, hood light & reflector. Asking \$30. 588-4291.

ZENITH STEREO CONSOLE - Am/fm/phonograph, Early Am cabinet, needs elec cord & needle. \$75. Tyce, 744-6166 days, Ext. 2815 eves.

PORTABLE TV - Sears Silvertone 18" b&w, good cond, needs cleaning. \$30. 744-6166 days, Ext. 2815 eves.

2 OLD TV SETS - Yours for the taking. 878-1486.

FREE - Reddish Labrador Retriever, female, 2½ yrs old, good watchdog. 727-1617.

3 PC WICKER SET FOR PATIO OR DEN - Best offer. 475-0881 after 6.

PIANO - Hardman upright. \$200. T. Morris, 744-5096 after 4.

WHITE BIRCH TREES - \$5 ea; various size locust poles. Frank, JU8-5437 after 5.

GO CART - Fwd, reverse, neut, susp, lights, 3 hp, excel cond. \$85. Ext. 7336, 286-9431.

LG MELNOR WALKING SPRINKLER - \$10; 2 piston pumps w/elec motor & pressure switch, \$25 ea. Jim, Ext. 567.

PLAYHOUSE - 4'x7', white/red peaked roof, great for a little girl. \$25. Morris, 744-5096 after 4.

8 TRACK TAPE DECK - New, for auto. \$30. W. Lundgren, Ext. 7526, 585-3794.

ELEC FOOTBALL - 1½ yrs old, extra men, access, scorekeeper, backboard, lg field. \$6. Bob, 744-5096 after 4.

RIDING LAWN MOWER - 5 hp, runs but needs work. \$30. Ext. 7784.

SAMOYED PUPPIES - AKC reg Eng & Canadian, champ lines, health guaranteed. \$150. LT9-7504.

PERSIAN KITTEN - 9 wks old, CFA reg. 929-4631.

25 W MONO-AUDIO AMP & PREAMP - Garrard record player, best offer. Ext. 2993, 744-9436.

MARTIN D-28 GUITAR - W/plush case, 4 yrs old, beautiful. \$350, will bargain. David, Ext. 7805, 751-0216.

CEMENT MIXER - Excel cond. Sears biggest/½ hp motor. \$100 firm. Ext. 7821.

BRONCO MINI CYCLE - 50cc, 4 spd, 1 yr old, good cond, great for trail-riding. \$150 firm. 732-3296 after 5:30.

HUGE WOODEN DESK - 6 drawer, 36"x66" top, & swivel chair. \$50. Bob, Ext. 629.

3 SPD PORTABLE HI FI - Not stereo, perf for the kids. \$10. Bob, Ext. 629.

VERY SOLID WOOD CABINET - W/3 drawers & 2 doors, 4'x2'x3'h, could be used in kitchen, bsmt, or garage. \$45. Bob, Ext. 629.

SPRAYER - Wheel barrow type, 18 gal cap, used 4 times, Sears & Roebuck. Orig cost \$72, sell \$25. John, 744-5867 after 6.

SWITCH PLATE SET - Colonial style, bronze finish, 4 pcs. \$3. M. Strongson, Ext. 2727.

FM TUNER CONVERTER - For auto, \$15; child's portable phono, \$5. R. Hildenbrand, Ext. 7777.

2 ELEC MOTORS - ¼ hp; 1 white cast iron porcelain sink & mtd cabinet. Ext. 7423.

FM TUNER - 2-channel 36w amp, compl remote control, on, off, vol, tune & tune meter. \$25. Glasoe, 286-0903.

RIDING MOWER - Moto-Mower, 26", h.d. clutch & transaxle, good cond. \$100. Ext. 597, 286-0436.

DESK - Plastic top, blonde finish, wrought iron legs. \$12. Ext. 2719.

KODAK BROWNIE STARMETER - Built in light meter, 127 film, 1½x1½; SVE projector, 2x2 slides, 300w, 5" lens, \$10. Feigenbaum, Ext. 2207.

CAMERA - Minolta Autopak 500, f2.8 lens, zone focus, auto exposure, 126 instamatic cartridge, \$15; exposure meter, Cavalier CdS, \$5. Feigenbaum, Ext. 2207.

SNOW BLOWER - 1 ft swath, handy for sm jobs, cultivator attachment interchangeable w/blower. \$20. Glasoe, 286-0903.

PRECISION SURVEYOR'S LEVEL - 26 pwr, stadia, new cond, cased, no tripod. \$90. Ext. 597, 286-0436.

GERMAN SHEPHERD PUPS - AKC reg, Rin Tin Tin bloodline, blk & silver, whelped 4/12/72, avail 5/20. 1 male, \$75; 4 females, \$50. 878-2405.

SHETLAND FLOOR POLISHER - All attachments. \$10. Bob, Ext. 2450. 289-0357.

BOY SCOUT UNIFORM - Size 12, like new. \$5. Bob, 744-5096 after 4.

PISTOL - Snub nose, 38 cal w/2" barrel. \$45. B. Watson, Ext. 2159, 289-0928.

PISTOL - 32 cal semi-auto, beautifully engraved blue steel w/white pearl handle. \$45. B. Watson, Ext. 2159, 289-0928.

CRAFTSMAN RIDING LAWN MOWER - 26", 6 hp, used 25 hrs, in good cond, orig cost \$346. Make offer. G. Langhorn, 727-7866 or Ext. 476.

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

CENTER MORICHES - ½ acre, corner wooded plot, 1 block from water. W. Lundgren, Ext. 7526, 585-3794.

RANCH HOUSE - 3 bedrms, 2 baths, den w/fireplace, eat-in kitchen, din rm, liv rm, cedar shake ext, 2 car garage, oil h/w heat, low tax area, Pt Jeff schools, partly wooded 0.37 acre, priv beach rights. Low \$40's. 473-9354 eves.

RANCH HOUSE - 6 rms, full cellar, almost an acre of grounds, Mastic Beach. 281-5498 after 6.

E. PATCHOGUE - 2 story colonial, 3 yrs old, 4 bedrms, 2½ baths, 2 car garage, fireplace, major appliances, 0.4 acres landscaped garden. 286-8455.

Classified Ad Policy

Deadline is 12 noon Friday for publication the following 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

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 112, 40 Brookhaven Avenue.

(Name & Phone No. To Call)

Employee's Signature..... Life No..... Ext.....

Send to: Brookhaven Bulletin, 40 Brookhaven Avenue