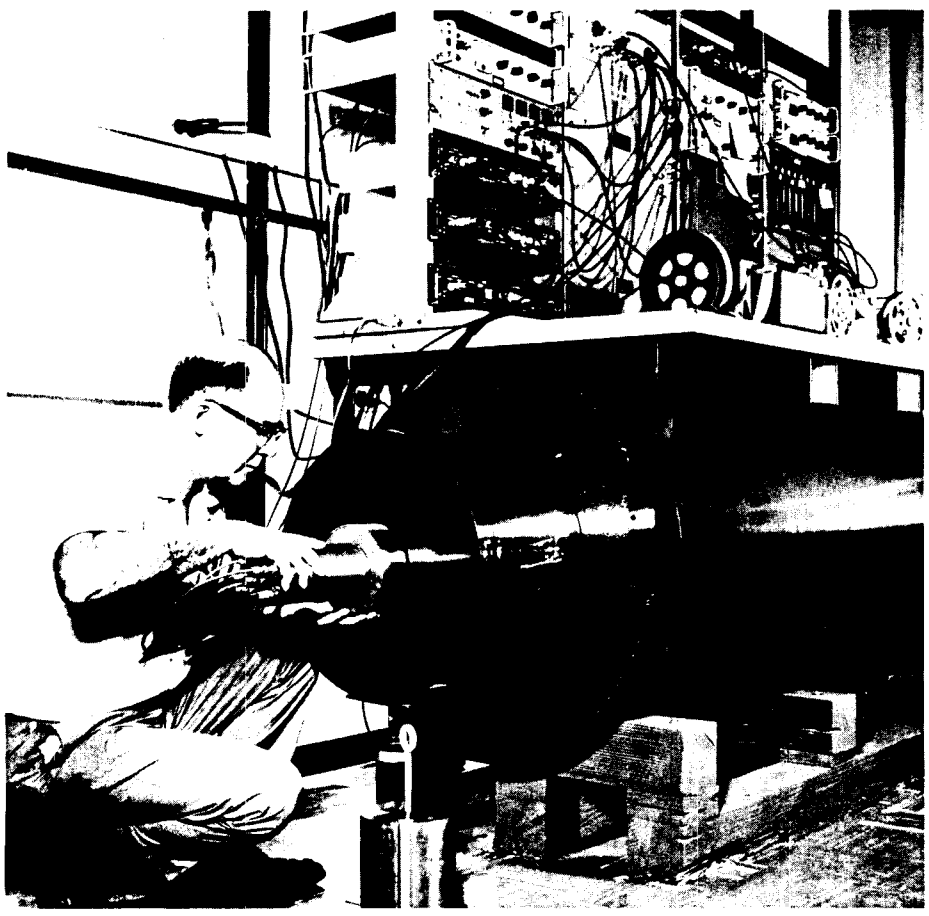
BULLETIN BOARD

Volume 21, Number 36 | Published by the BNL Public Relations Office | September 14, 1967

9-1307-66

Solar Neutrinos Are Counted At Brookhaven



Dr. Ray Davis of Chemistry is shown placing a low level counter in a cut-down navy gun barrel which acts as a shield from stray cosmic radiation. This equipment is used in the Brookhaven Solar Neutrino Experiment.

A BNL team of scientists, headed by R. Davis, Jr., of Chemistry has gone 4850 feet into the earth to learn more about what is going on deep inside the sun.

Known as the Brookhaven Solar Neutrino Experiment, the effort combines some ather unsophisticated facilities such as a 00,000 gallon tank of cleaning fluid (tet-achloroethylene) in the Homestake Gold Mine in South Dakota and a 16-inch Navy gun barrel at BNL. In combination with some sophisticated instrumentation, the net result is a kind of "telescope" that permits Brookhaven scientists to look into the heart of the sun.

At the center of the sun, where the temperature is 30 million °F, fusion takes place, producing energy in the form of heat, light and neutrinos. Heat and light are familiar to man, but neutrinos are not. We know they are weightless, they have no electrical charge, and they travel at the speed of light. It is because of these properties that Enrico Fermi coined the name "neutrino" or "little neutral one." We also know they have the ability to pass through matter with only a slight chance of being captured or absorbed. Earth is almost as nothing in their path. For example, Davis and his group calculate that ten billion-billion neutrinos pass through their 20-ft. diameter by 48-ft long tank every day, yet hey capture only about two neutrinos per day.

Initial results are reported in a paper, "The Brookhaven Solar Neutrino Experiment" being presented in Chicago at the American Chemical Society meeting on September 14. Authors of the paper are Ray Davis, Jr., Don S. Harmer, Ken C. Hoffman and N. Blair Munhofen, all of BNL.

The paper describes the method of neutrino observation and the initial results. The detection of neutrinos in the tank of tetrachloroethylene depends upon the production of the radioactive isotope Argon-37 (half-life 35 days). This happens when a neutrino passing through the tank reacts with an atom of chlorine-37 to produce an atom of Argon-37 plus an electron. (This is equivalent to a neutrino capture.) The Argon-37 that is produced is then trapped in a special charcoal filter, from which it is removed and returned to Brookhaven where it is detected in a special counter mounted inside the bore of a 16-inch Navy gun barrel.

The gun barrel is one of four that are used in the basement of the Chemistry building as shields against stray radiation

(continued on page 3)

Walsh to Weston

Frank W. Walsh has been appointed Materials Management Officer at the National Accelerator Laboratory in Weston, Illinois. While at BNL he was Manager of the Supply and Materiel Division.

Walsh had worked at Camp Upton as early as 1939, when as a civilian, he was with the contracting firm that was rebuilding Upton for the army. In 1941, he left for "a few years of army duty" overseas, and after discharge returned to Camp Upton to work with Don Mallory in the Army Engineers Office.

From 1945 to 1947, Walsh worked for the Manhattan Project at Upton, and in April of 1947, he joined BNL. In 1951 he became a group leader of the Supply section, and in 1953, became Division Head of Supply and Materiel. He was a member of Naval Reserve Research Company 3-9, with the rank of Lt. Colonel.

When he left BNL last Friday, members of his division presented Walsh with a gift and a huge card, signed by many of the men who worked with and for him.

Walsh, his wife Patricia and their family will live in the town of North Aurora, Illinois, seventy miles north of Weston. Other former BNL employees working at Weston are Don Poillon and Charles Daly.

Wm. Floyd Extension Still Closed to North

"We have a problem" said a spokesman for the New York State Department of Public Works. "The end sections of the guard rails along the William Floyd Parkway must be installed before we can open the road."

Traffic delineators (thin posts that have reflectors on top) are being installed along the sides of the road, and striping of the pavement is well under way.

According to a representative of Lizza Bros. Inc., a change in subcontractors has been made, and work will progress at a greater rate than had previously been estimated. It is expected that the road can be opened for limited use by October 10.

Engineers from the Public Works Department, after talking to the BNL Public Relations Office, told the *Bulletin Board* that they would inspect the job, and try to determine if the section from Jericho Turnpike north to Whiskey Road could be opened immediately.

Meanwhile, a check of the 6th District Traffic Court in Patchogue, revealed the following information about the Tickets issued to many BNL employees. The fine for travel on a restricted highway is $5, and this moving violation must be recorded on the driver's license. The fine may be paid by mail if it is the driver's first offense on the charge, or if the driver has had only one other conviction for a moving violation.

If more than one other conviction has been recorded, the driver must appear in court, and faces the possibility of a loss or suspension of his license. The *Bulletin Board* will attempt to put all BNL employees who have had tickets on this charge in contact with each other so that some concerted action may be planned.

Carl Pozgay, a Development Engineer in the Physics Department has contacted State Senator Leon Giuffreda (see Letters to the Editor) who has promised to investigate the delay in opening the road.

9-341-67

Frank Walsh

9-332-67

Phil Borzi, assistant manager of Supply and Materiel is shown presenting Frank Walsh with a gift and a card at a Farewell Party held on site the day that Walsh left the Lab. Photos by Humphrey

Biology Satellite Down Safely From Two Day Journey

The NASA Biosatellite that was launched last Thursday and carried a BNL experiment on board, completed its mission and was recovered on Saturday, about 1000 miles southwest of Hawaii.

To the Brookhaven scientists and technicians who had been working on the experiment for the past four years, it meant a chance to complete the program that was interrupted last December after the failure of Biosatellite I.

The launch from Cape Kennedy was delayed for more than three hours by technical difficulties that included discovery of a switch that was part of the parachute deployment system being installed backwards. The lift-off finally came shortly after 6 p.m., and was reported as a perfect flight to the 200-mile orbit path.

The 250-pound capsule was brought down a day early because of radio transmitter trouble and an approaching storm in the recovery area. The capsule was plucked from the air on Saturday after a 45-hour flight. It drifted down by parachute and at 12,000 feet was snatched by cables suspended from the tail of an Air Force plane from Hickam Air Force Base.

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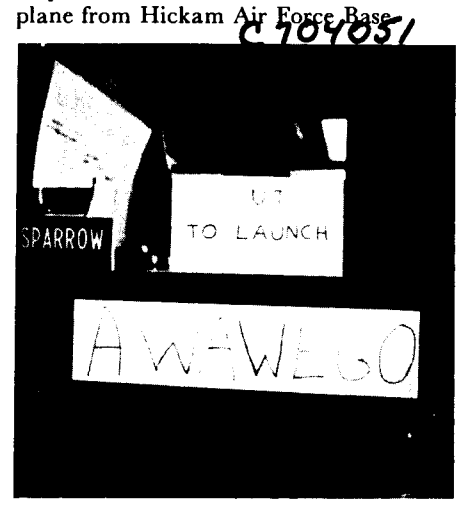


Signs placed on the door of the office of Dr. Arnold Sparrow while the Biosatellite experiment was in progress.

In ten minutes the crew hauled the biological space lab aboard the plane which flew to Hickam where Arnold Sparrow, Lloyd Schairer and Kodumudi Marimuthu were among the group of scientists who were waiting to receive it.

Besides the Tradescantia from BNL, in the capsule were pepper plants, wheat seedlings, amoeba, mammalian cells, frogs eggs, sea urchin eggs, bread mold, fruit flies, beetles, wasps and bacteria. Initial examination showed that results could be observed in two of the experiments, and indicated that the entire payload would provide useful scientific information.

As soon as the BNL experiment was retrieved from the capsule, the BNL crew of scientists went to work on the cytological and histological fixation of the root and bud material before preparing to return to Brookhaven. The fixation chore took 24 hours of around the clock work for all members of the team, and left no time for enjoyment of the Hawaiian scene.

When the fixation was complete, Lloyd Schairer took the plant material to the airport to begin a complicated rendezvous with the members of the group who had been left at Cape Kennedy.

In order to insure that all samples, control or otherwise were treated the same, the return trip was planned so that all material would be brought together at Kennedy Airport in New York and then return to BNL in a single group. Schairer arrived at Newark Airport early on Monday, and rented a car to drive him to Kennedy to meet the group from Florida. The entire team arrived at BNL late in the afternoon on Monday, and all the plants were placed in the Controlled Environment Growth Chamber until studies of results could be made.

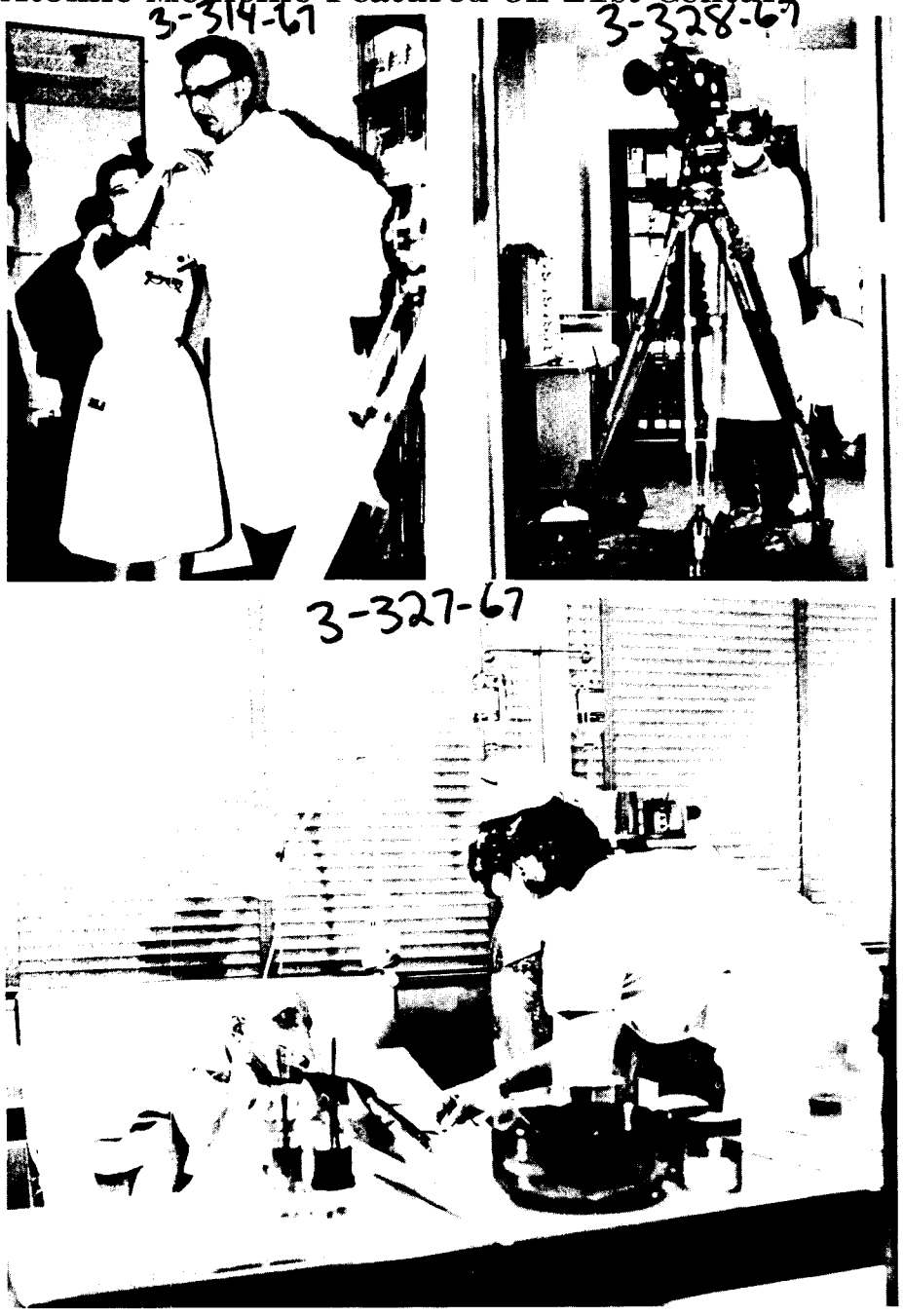
(continued on page 3)

Wiswall to Head New NED Division

Dr. Richard H. Wiswall, Jr., of the Nuclear Engineering Department has been appointed to head the newly-formed Chemistry Division.

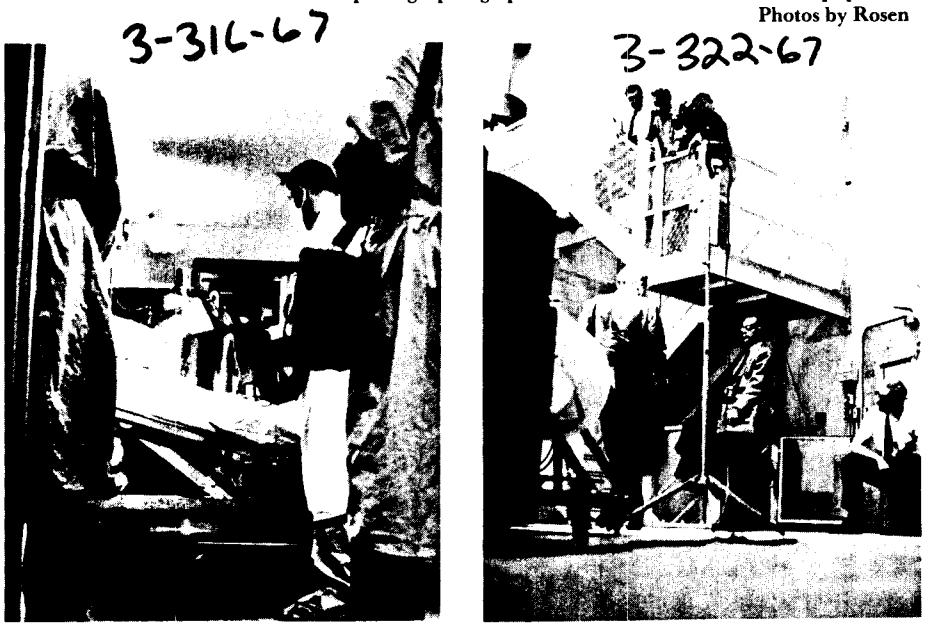
Dr. Wiswall, a Fellow of the American Nuclear Society, has been on the staff of BNL since March of 1949. For many years he has served as Assistant Head for Chemistry of the Chemistry and Chemical Engineering Division of Nuclear Engineering, and is Chairman of the Chemical Analysis Committee.

Atomic Medicine Featured on 21st Century



On Sunday, September 17, at 6 p.m., CBS Television will air a show on Atomic Medicine which will include many scenes taken at BNL. Comments will be made by Dr. Victor Bond, Associate Director for Life Sciences and Chemistry. The photos above show the CBS camera crew getting ready to enter a room where a patient is being treated with extracorporeal radiation. Cameras and crew all had to be sprayed or gowned. The large center photo shows what the camera will show. The lower photo shows camera and sound men around the patient. The last photo shows the camera crew in the Medical Reactor photographing operation of some of the research equipment.

Photos by Rosen



Honored for Service ...

Robert Lehn, Central Shops Superintendent, receives his Twenty Year Award from Assistant Director G. Norris Glasoe. Except for a brief period with the Cyclotron Group, Bob has spent these years helping the Shops Division grow to its present complement of 165 people.

Budget Bureau Men Tour Lab Facilities

David Lawhead, AEC Budget examiner of the Bureau of the Budget, and J.L. Culpepper, AEC Division of Research have been touring the Lab for the past three days in order to become familar with the research program and equipment at Brookhaven.

Mr. Lawhead replaces Bruce Van Wyk, who visited the Lab last year. While at Brookhaven, the men will also discuss budget problems with members of the staff.

Swimming Pool Schedule

The pool will be closed from September 1st until mid-October for maintenance repairs. Watch the Bulletin for further schedule announcements.

Here and There

Dolores del Castillo

B. J. McAlary and F.X. Jones (Fiscal) are attending the Annual Fiscal Officers' Meeting being held at Los Alamos Scientific Laboratory, New Mexico, Sept. 12-15.

Leonard Baker and **Robert Young** (Safety Services Office) have been appointed Adjunct Instructors at Suffolk County Community College. They will be teaching Evening Division courses in the fire science curriculum, including Introduction to Fire Protection (Mondays), Fire Science of Gases (Tuesdays) and Industrial Safety Engineering I (Thursdays).

R. Ronald Rau (Physics), **Thaddeus Kycia** (Physics) and **Rodney L. Cool** (DO) will leave next week to attend the Heidelberg Conference on Elementary Particles, Sept. 20-27.

Yoshio Shimamoto (Applied Math) will leave on Sept. 18 to visit Prof. H. Heesch in Hanover, West Germany, to discuss a proposal to solve the 4 color problem on a digital computer.

Alfred Wolf (Chemistry) has returned to his part-time teaching of Organic Chemistry at Columbia University where he holds an appointment as Adjunct Professor.

Ben Bielski and **Jan Gebicki** (Chemistry) are the authors of an **Atlas of Electron Spin Resonance Spectra** published by Academic Press in August.

Stephen W. Feldberg (NED) will present a paper to the American Chemical Society meeting in Chicago. The title of his paper is "Theory of Regenerative Second-order Mechanisms in Chronoamperometry – The Paradox of Disproportionation."

James Galligan (NED) recently attended the International Conference on Strength Metals and Alloys held in Tokyo.

Paul Michael (NED) will present a paper at a seminar to be held by the Fluid Dynamics Panel of the Advisory Group on Aeronautical Research and Development (AGARD) in Teddington, England, Sept. 18-21.

Andrew Sunyar (Physics) presented a paper to the International Conference on Nuclear Structure held at the University of Tokyo this month.

Dr. P.G. Katsoyannis (Medical) returns on Sept. 17 after lecturing at the 6th Congress of the International Diabetes Federation held in Stockholm and at the International Symposium on the Pharmacology of Hormonal Polypeptides and Proteins held in Milan. The subject of his lectures was synthetic insulin.

A number of foreign attendees at the Cambridge Conference on Magnetism and the Cambridge International Conference on High Energy Accelerators will be visiting at the Laboratory next week.

The **Brazilian Delegation** to the Policy Planning meeting in Washington, D.C. will tour the Laboratory on Sept. 14.

The U.S. Patent Office issued Patent No. 3,337,728 on August 22, 1967, to the United States of America as represented by the United States Atomic Energy Commission for a Mass Spectrograph Ion Source Wherein A Pulsed Arc is Produced by Vibrating One Electrode. **Lewis Friedman** and **Adolph P. Irsa** (both of Chemistry) were the co-inventors.

There was a mass exodus from the Accelerator Department this week. Eighteen members of the staff were invited and are attending the VI International Conference on High Energy Accelerators being held in Cambridge, Massachusetts, Sept. 11-15.

Letters To The Editor

Dear Sir:

A whole year has passed since Lizza Corporation's full-time efforts at constructing the William Floyd northern extension deteriorated abruptly to the most transparent of pretense at completion of this project.

State Senator Leon Giuffreda has promised me to contact Austin Saar on September 8, 1967 and to use the full weight of his office to bring about the immediate opening of the roadway.

The Senator suggested I mail the herein enclosed Petition along with as many Brookhavenite signatures as I can muster, to Mr. Saar.

The Petition will be available for signatures at the Bank on Friday, September 15, and at the Cafeteria on Monday, September 18.

Carl J. Pozgay

Petition

The undersigned voters of Brookhaven Town, New York do hereby petition Austin Saar, 325 W. Main, Babylon, N.Y. Regional Chief of the New York State Department of Public Works, to exercise his authority on behalf of said voters in immediately ordering the opening to the public of that portion of the William Floyd Parkway situated between the Jericho Turnpike and Route 25A. It is understood by said voters that present use of this roadway will be subject to reasonable restrictions that will be necessary to avoid undue hazards to workmen engaged in completion of the project.

.....

(signature)

You may sign and return to *Bulletin Board* if you so desire.

Brookhaven Center Schedule Changes

Commencing on Friday, September 29, and continuing until further notice, the Brookhaven Center will be on the following schedule for evening service.

Sunday through Thursday, the Center will be open from 5 p.m. until midnight Dinner will be served until 8 p.m. The Tap Room will serve a light menu until 11:30 p.m.

Service will be limited to sandwiches and beverages in the Tap Room on Friday.

Saturday the Center will be closed.

Arrivals & Departures

Arrivals

Kenneth Batchelor	Accelerator
Darlene Bentz	Physics
Charles A. Brinkman	Accelerator
Dermott E. Cullen	Nuclear Engineering
Julius M. Elias	Medical
L. Raymond Fox	Biology
Donald I. Garber	Physics
Charles F. Garmeson	Accelerator
D. Elizabeth Hamill	Biology
Henry B. Hansteen	Plant Eng. & Planning
William R. Harris	Physics
Sidney H. Kahana	Physics
Uri Kahshon	Physics
Karen A. Kemna	Personnel
Burton S. Kleinman	Applied Math.
Georg K. Kunz	Chemistry
Hyung J. Lee	Physics
Dale W. Lick	Applied Math.
Carolyn McKinlay	Medical
E. Boyd Osgood	Physics
Chia-Chang Shih	Physics
C. Lewis Snead	Physics
John F. Siedlewicz, Jr.	Plant Maint.
W. Dwain Simpson	Physics
Jeffrey B. Sokoloff	Physics
Haven C. Sweet	Biology
Carmen M. Zopf	Medical

Departures

Michael Ardon	Chemistry
Patricia Austin	Fiscal
Frank E. Benjamin	Syst. & ADP
Joseph J. Cascone	Biology
Sandra M. Dioquardo	Physics
Mary D. Elman	Accelerator
Sin Hitotumatu	Applied Math.
Ikuo Ino	Biology
Gilbert A. Johnson	Reactor
Tohru Kamei	Accelerator
Willard L. Koukkari	Biology
Frederick P. Lipschultz	Physics
Reuben M. Rudman	Chemistry
Thomas G. Schumann	Physics
K. Suryanarayanan	Chemistry
Frank W. Walsh	Supply & Materiel
Teresa J. Welch	Chemistry
Patricia K. Zimmerman	Chemistry

9-256-67

Neutrinos . . . (continued)

in low level counting experiments. Originally the gun barrels were procured from surplus, and brought to BNL for conversion to more peaceful uses. The long guns were cut into 8-foot sections, weighing about 16,000 pounds each. These guns are made from "old" iron (before the use of atom and hydrogen bombs) and contain a very small amount of residual radioactivity.

For accurate results, it is necessary to reduce the background radiation to as low a level as possible. Hence, the tank was placed deep underground to shield it from cosmic radiation and the counter was mounted in the thick gun barrel, which acts as a shield. Additional precautions, however, are taken to eliminate interferences from unrelated nuclear processes that could also produce Argon-37 in the tank and possibly result in a false neutrino reading.

Various elements, when they decay, are capable of producing neutrinos, but there is a definite energy level for each neutrino, and chemists use this method of identifying the neutrino source. In the Brookhaven experiment, the only neutrinos having enough energy to produce Argon-37 plus an electron from chlorine-37 are those produced in the decay of Boron-8, which is part of the thermonuclear process taking place in the sun.

The theoretical forecast had led scientists to believe that the neutrino emission from the sun would allow from 1.5 to 5 neutrino captures per day. In the single experiment performed to date, Dr. Davis reports that the capture rate in the underground tank was less than 2 neutrinos per day. Knowing this plus the efficiency of neutrino capture allowed Dr. Davis and his group to calculate the flux from the Boron-8 decay to be approximately 60 million solar neutrinos per square inch per second at the earth's surface. Previous calculations had predicted the flux could be anywhere from 40 million to 150 million solar neutrinos per square inch per second at the earth's surface.

Dr. Davis stressed that this was only the first experimental run, and that additional measurements must be made extending over a period of several years. Because of the low rate of neutrino capture, their removal from the tank filter and subsequent analysis at Brookhaven Laboratory can be done only three times per year. The results should provide an experimental test of the present theory of the solary energy generation process.

Satellite . . . (continued)

On Tuesday the entire team was hard at work scoring results of the experiment, and the only evidence of the Hawaiian aspect of the trip was a plastic-wrapped pineapple balanced on the corner of a desk in one of the laboratories.

After the launch, Sparrow and Schairer stayed at Cape Kennedy only long enough to determine if orbit had been achieved before climbing aboard a NASA plane with the other scientists for the trip to Hawaii. The possibility of an early termination of the satellite flight had been planned for by Marimuthu going directly to Hawaii before the Cape Kennedy launch.

The final results of the experiment will be revealed only after much study of the specimens that were carried into orbit, as well as the control plants that never left the ground. In the months ahead, a new control group will be subjected to all of the stress, heat, radiation and vibration of the experiment except the weightlessness, to provide a further check on observations made here at BNL.

Broadway Preview September 18 . . .

One of the new openings on Broadway this Fall will be "Suite in Three Keys" by Noel Coward. "Suite," a series of three one-act plays, was a sensational hit in London, where it opened last year. Mr. Coward won a prize for his authorship of the play and star Irene Worth was also honored with an award for her performance in a leading role.

The BERA Theatre Group will get a preview of this Fall opening at its meeting on September 18th. Being prepared for presentation is the opening play of the three, "A Song at Twilight." Everyone is invited to join the meeting for what is certain to be an interesting program.

At the Theatre. Monday, September 18. 8:30 p.m.

Fish Tales

by Capt. Cooch

The last hot days of Summer heat are over and the sharp coolness of night brings the poignant scent of the oncoming Fall which brings the Great Migration! Sharpen your hooks for the Fall plunge. The mighty *Roccus saxatilis* will descend upon us.

The South Shore should, the second week of September, see the beginning of the mullet run and already on the North Shore the fish are working steadily east. Roanoke Point is the favorite choice right now. Great schools of fish begin massing; feeding habits increase as they work both morning and evening tides. The Sound fish are moving east and northern schools are going South to the Chesapeake Winter grounds. Evidence of this: Montauk rips now are producing. A 52-pound bass was taken along with big blues at the elbow.

In closing, as our illustrious leader would say, 'Watch the Birds' . . . What Birds???

Football Notes

by Jack Brennan

Taking advantage of their opponent's miscues, the Old Timers licked AGS 36-18. M. Gottfried, M. McKenna of the Old Timers and F. Campbell of AGS scored two TD's each. The Chamber Chaps threw a scare into the Batmen, leading at one time 12-0 before the Batmen got warmed up. Batmen tied the score on C. Johnson's interception late in the first half and added three more TD's in the second half to win 30-12. T. Erickson had two TD's for the Chamber Chaps. The new team, the Kickers, matched the Panthers right to the end before losing out 30-18. L. Johnson of the Panthers and A. Wisowaty of the Kickers each scored two TD's.

	W	L
Old Timers	2	0
Batmen	2	0
Slow Pokes	1	0
Panthers	1	1
Kickers	0	1
AGS	0	2
Chamber Chaps	0	2

Fairway Fables

by Sam La Placa

During BGA's 5th special 9-hole event, par at the Spring Lake GC took an unmerciful beating at the hands of some of our club members. George Starke and Charley Flood tied for the win with sizzling net scores of 31. Net scores of other par busters close behind the leaders included J. Meyer 32, J. Tveekrem 32½, J. Weiss 33, G. Kuzmack 34, R. Hildenbrand and W. Tunney 34½, J. Fontana 35, and C. Davis 35½. J. Cardamone's 41 took low gross honors.

On August 31st the Oak Tree course of the Middle Island GC hosted BGA's 6th special event. Despite a pre-tournament drenching downpour, George Starke (net 35) came through with his second consecutive win. J. Weiss and L. Lawrence both posted net 38, while J. Petro carded a 38½. Low gross was captured with a 44 by Les Lawrence.

The final BGA tournament of the '67 season has been rescheduled from September 14th to September 21st. Played at the Spring Lake GC, this 9-hole event will be followed by a buffet and an all-important membership meeting. Please contact C. Flood (Ext. 2871) for reservations.

Camera Club

There will be a meeting of the BNL Camera Club on Monday, September 18th at 8:00 p.m. in the Recreation Building. Newcomers, oldtimers, and visitors are most welcome. Bring slides and prints of your summer's activity.

BERA Film Series

BERA Fall Film Series

Sept. 21	Galia
	Short: Harlem Wednesday
Sept. 28	The Troublemaker
	Short: Manolete: His Life and Death
Oct. 5	Last Year at Marienbad
	Short: McLaren Abstracts
Oct. 11	No Film
Oct. 19	Salto
	Short: Ragamuffin
Oct. 26	Juliette of the Spirits
	Short: The Painting

All films at 8:00 p.m., Lecture Hall

Stan Anderson, Accelerator, and Ronnie Evans, I&HP are shown trying to decipher directions during a recent Rally. **Photo by Rosen**

They're Off And Bowling

This week marks the start of the regular bowling season at BNL. Some of the BERA-sponsored leagues have already had their first sessions, and all are on their way to the season finale, the championship play-off.

The following is a list of the leagues and the representative to call if you have any troubles.

Purple	**Charles Mengler**
Red	**Mike Rothbart**
Green	**Bob Hambley**
Rose	**Dot DioGuardo**
Pink	**Pat Towey**

BERA Concert Series 1967-1968

This seasons's concert series promises to be one of the most exciting series given at the Lab. There will be six concerts included in the series which will extend from October until March. Season tickets will be available early in September from ticket sellers in each department. The concerts take place at the Brookhaven Center at 8:30 p.m. Refreshments are served in the Center following each concert.

The Concerts included in the series are:

Guaneri String Quartet	October 11
Rampal/Veyron-LaCrois (flute and piano)	November 9
Pasquier Trio	December 5
Oscar Ghiglia (guitar)	January 25
Evelyn Crochet (piano)	February 27
Early Music Quartet	March 21

Camping Club

There will be a meeting of the BNL Family Camping Club on September 21st at 8:00 p.m. at the Recreation Building. All members are urged to attend. Anyone wishing to join the club is cordially invited to attend.

Piloting Classes Open 1967 Fall Registration

Captree Power Squadron
Sept.
18 – 1945 hrs – W. Babylon H.S.
19 – 1945 hrs – Amityville Memorial H.S.
20 – 1945 hrs – Farmingdale Sr. H.S.

Great South Bay Power Squadron
September
19 – 2000 hrs – N. Babylon H.S.
21 – 2000 hrs – Brook Ave. H.S., Bay Shore
19 – 2000 hrs – Islip H.S.

Old Field Point Power Squadron
September
19 – 2000 hrs – Vandermeulen H.S.

Patchogue Bay Power Squadron
September
18 – 2000 hrs – Patchogue H.S.

Smithtown Bay Power Squadron
September
18 – 2000 hrs – Sweetbriar Elementary School, Smithtown

Sports Car Club Rally

There will be a Sports Car Club Rally on Saturday, Sept. 23, 1967. Registration will be at 7:00 p.m. The first car will be off at 7:45 p.m. from Oakdale Bowling Lanes parking lot on Montauk Highway.

The Rally is open to all types of cars. You'll need a flashlight and a partner. The fee is $3.00 for club members and $4.00 for all others. Trophies will be awarded at the end of the Rally.

For further information, call Stan Anderson, Exts. 2411-12-13.

Jets Tickets

The Recreation Office has received the Jets tickets for this season. If you have not yet bought tickets, there are still some available. Stop by the Recreation Office between 9:00 and 1:00 or call Ext. 391 to order tickets.

Vision Tests at Clinic Between 4 and 4:30 p.m.

Eye examinations necessary for renewal of New York State driver's license will be given at the clinic in the Medical Department between 4 and 4:30 p.m. each day.

Because of the great number of people who are taking advantage of the testing service at the clinic, it was necessary to assign definite hours for the eye tests.

When taking the test, it is important to remember to bring your driver's license with you so that the proper information can be transferred to the test form.

USNR Research Co. 3-9
Brookhaven National Laboratory
Upton, N.Y. YA4-6262 Ext. 591
Drill Schedule

For Quarter Ending 31 December 1967

20 September
BNL Lecture Series
H.A. Johnson, *BNL*

11 October
Operation of HFBR
Gerald Kinne, *BNL*

18 October
AGS Conversion (BNL Lecture)
Robert Wheeler

8 November
Operation of Construction Battalion Reserve
Robert Terwilliger, *BNL*

15 November
Radiation Induced Polymerization
(BNL Lecture)
Donald Metz

13 December
Modern Optics
Cdr. Herbert Hallock, *Grumman*
Leadership Lecture
Lt. P. Heim

20 December
World War 2 Development and
Operation of Amphibious DUKWs.
Dennis Puleston, *BNL*

UNIFORM DRILL

Classified Advertisements

Autos & Auto Supplies

54 CHEVROLET ½ TON PICKUP - New brakes, shocks, 5 good tires, recent tune-up. $150. 281-6732.

57 OLDSMOBILE 88 - Auto, r/h, hard top, needs muffler. $50. 281-6732.

8.25x14 TIRES - Mobil, used 600 mi. Cost $108, sell for $65. 281-6732.

65 RAMBLER 550 CLASSIC SEDAN - 6 cyl, std, naugahyde interior, 31,000 mi, orig owner, must sell. $1095. 289-1277 after 6 p.m.

66 BRIDGESTONE MOTORCYCLE - 175 cc, 2,000 mi, orig owner, extras. Ext. 2131, SE2-3135 after 5:30.

61 MERCURY - Conv, clean, leaving for college, must sell. B. Petersen, Ext. 2248, 286-1366.

61 GMC - 4 wheel drive, w/'65 camper, sleeps 4, many extras, immaculate. $2,600. 475-4729.

60 FIAT/1200 - 4 dr sedan, 7 tires, good town car, under 40,000 mi. Ext. 2325, LT9-2884.

65 TRIUMPH 1200 - Conv, good cond, ski rack. $600 or offer. McMahon, 281-7494.

64 CORVAIR MONZA - 4 dr top, auto trans, new tires, excel cond. $800. Ext. 7267, can see car 9/19/67, AT9-5854.

62 CORVAIR 700 - Auto, new tires, runs well. $300. R. Kimber, Ext. 7400.

66 CHEVROLET IMPALA - Green, excel cond, low mileage, avail Sept 22-23. AT9-0905 after 5:30.

63 CHEVY II - Conv, std trans, reasonable. EM3-7038.

63 VOLKSWAGEN - Sunroof, radio, good cond. $650. C. Neuls, Ext. 7222.

62 DODGE DART 330 - Auto trans, ps, r/h, new battery & muffler, good cond. $450. T. Migita, Ext. 7266.

55 CHEVROLET - '61-'62 Corvette engine, 3 speed Hurst trans, Mallory ign, 283. R. DiLello, Ext. 2258.

64 VOLKSWAGEN BUS - P. Ettari, Ext. 2407, 273-6436.

58 CHEVROLET - 2 dr sedan. P. Ettari, Ext. 2407, 273-6436.

59 CORVETTE - White, blue int, '66-327, Isky, Mondello heads, duo-coil, hi-riser, Muncie (4), Hurst, I-beams, 2 tops, new tires, chrome rims, tach, headers, $1500. Mike, Ext. 2871.

TRIUMPH-TR4 - Hard top, white fiberglass w/cloth lining & wrap-around rear window, excel cond. S. Spark, Ext. 2442.

2 '67 CHEVY CAPRICE MAG TYPE HUB CAPS - Fit most 14" rims. Cost $25 ea, sell 2 for $20. Roger, Ext. 7356.

60 DESOTO - 4 dr sedan, V8, auto trans, ps/pb, r/h, new tires, good cond. $400. Ext. 7688.

58 CHEVROLET - Station wagon, auto trans, good cond. Rivas, Ext. 7364.

51 CHEVROLET CARRY ALL BEACH BUGGY - Equipped w/bunks, etc, beach tires & extra set for the road. Best offer. 281-5982.

SWAP - '63 Ford XL, '66 engine, 4 speed Hurst, mag wheels, new brakes, excel tires, excel cond - for Corvette. 472-0455.

6.58x15 TIRES - 2 Goodyear, used only 1000 mi. Cost new $18 ea, best offer. Figuera, Ext. 7266.

57 FORD - 6 cyl, 2 dr, std shift, clean, inspected June '67, runs well, needs new gen & radiator. $50. R. Strand, Ext. 7658, LT9-1889.

Boats & Marine Supplies

18' FIBERGLASS OUTBOARD - 2 bunks, head, 75 hp Johnson elec. R. Squires, Ext. 2939, 666-8973.

18' SEA SKIFF - '56 Lyman, 65 hp Gray engine, navy top, all legal equip, many extras, an excel fishing boat. Trigg, AT6-1262.

20' SLOOP - Dacron, SS rigging, sleeps 2, outboard & cradle moring, North shore. W. Hersey, Ext. 7168, AN5-6326.

8' PRAM - Mahog, oars, 2 hp Sears outboard engine. $95. V. Abbruscato, Ext. 481.

RHODES 19 SLOOP - Fiberglass, C/BD, lights, racing equip, 2 suits sails. $2200. Ext. 2531.

ANA HARDTOP SKIFF - 24' Lapstrake, new covers, bow rail, A-1 cond, sacrifice. $1,850. GR5-2629.

16' CRUISER'S INC LAPSTRAKE RUNABOUT - 40 hp Evinrude, navy top, side curtains, mooring cover, many extras, in water, will demonstrate. $600. EM3-6037.

22' CABIN CRUISER - Head, excel motor, 110 hp, old but reliable. $300. 475-5863 after 6 p.m.

Miscellaneous

EXPO 67 TICKETS - 7day youth passport. $7. AT6-8517.

ROTO-BROIL - $10; set of blonde coffee & end tables, $15; brass portable TV table, $8; 32 cup coffee urn, $5; Johnny pole w/cabinet, $5. Ext. 2588.

STEREO RECORD PLAYER - $40; TV, $25; oval rug, $15; crib w/mattress, $12; wood playpen, $4; projector, $5; carriage/car bed, $3; chaise lounge, $2. McMahon, 281-7494.

REFRIGERATOR - Westinghouse frost-free, 13 cu ft, freezer top holds 45 lbs, very good cond. $35. Ext. 567.

2 GOOD CASEMENT WINDOWS - W/screens & storms, 36x38 & 25x70. $20. takes all. Bill, MO9-3293.

ELECTRIC GUITAR - 2 pick-up Zim-Gar, $30. Tom, Ext. 2117.

SINGER VACUUM CLEANER - Power master C-7, all attachments, incl revolving floor brush, 1 yr old, $40. Ext. 2829.

GUILD GUITAR - W/carrying case, excel cond & tune, steel strings, hollow body, model A-50, $150. G. Baker, 286-1218.

LOT - 9/10 wooded acre, Shoreham Village, curbs, water, over 200' front. J. May, Ext. 7461.

SERVEL GAS REFRIGERATOR - Old, serviceable, $10. Bookless, Ext. 350.

COLOR TV - Delmonico 19", used only 8 mo, best offer over $225. J. Raynor, Ext. 7692, 878-1721.

PICTURE TUBE - 21CBP4, 1 yr old, $2. Austin, Ext. 668.

PORTABLE RCA VICTOR TV SET - Rivas, Ext. 7364, 500 after 6 p.m.

TENT - Umbrella type, excel cond, sleeps family of 5. $40. Kahane, SH4-6636.

BEAGLE PUPPIES - AKC registered, reasonably priced. Mac, Ext. 466, 281-9559.

DISHWASHER - Hot Point, under counter, needs valve. $25. Ext. 477.

CENTRAL HEATER (KEROSENE) - Priced reasonably. 281-7508.

WASHING MACHINE - Kenmore, 8 yrs old, needs some work, motor in excel cond. Best offer. 744-2480.

COMPLETE DARK RM - Leitz Focomat enlarger, Gra-Lab timer, safelights, trays, Grain focusar, easel, extras. All for $60. Dick, Ext. 7215.

8 LB CAN OF MICROMET - A. Torre, Ext. 423.

COUCH - 2 chairs, old, excel cond, 2 sets slip covers, 74" couch, wing-back & man's chair. Asking $100. 473-7667.

20' WOOD LADDER - 2-10' sections, good cond, $10; Craftsman sander & polisher, $15. Ext. 7407, 878-0792.

MERCURY DIMES - Various dates from 1923; F, VF, P, 20¢; MM, 40¢; min order 5, your choice of avail dates. Hill, Ext. 2463.

HOT POINT ELEC 30" STOVE - Counter top slide in, coppertone color, like new. $35. H. Lobe, Ext. 2969.

COMBINATION CHIFFEROBE-DRESSER & CRIB - $20. Cas, Ext. 2598.

HAND CARVED MAHOG BUFFET - Lion-head pulls. 744-8473.

ASSORTMENT - Beds, mattresses, lamps, 1 orange rug, beige curtains in various sizes. 744-8473.

FREE - 2 female AKC tricolor collies, inquire. R. Breuning, 924-8681.

LIVESTOCK - Ram, ewe, wether lamb, 2 nanny goats, 1 kid, sale or trade, make offer. R. Breuning, 924-8681.

COLLIES - 2 AKC pups, 1 male, 1 female, sacrifice, I have another litter almost ready. R. Breuning, 924-8681.

FREE - 2 young female cats, housebroken, very playful. Bill, Ext. 2319.

AUTOMATIC WASHER - Kenmore, 10 yrs old, needs work, motor good. $5. E. Van Der Kolk, Ext. 2924.

RUG - Rose nylon, 12x16; odd chairs for din rm; TV; arm chair; washing machine. H. Petersen, 286-1366.

PORTABLE ORGAN - Farfisa "Combo Compact," excel cond. 941-4212 after 6:30 p.m.

SHRUBS - Rhododendron, junipers, yews upright & spreaders, blue viridis. Brownie, Ext. 2380.

SKIS - Beautiful cond, going away to school, must sell, Kneissl Diplomat 6'3", best French bindings, Look Nevada. J. Elliott, EM3-6596.

CEMETERY PLOT FOR 2 - At Washington Memorial Park, Coram, save $40. Priced to sell at $310. P. Lindevald, Ext. 445, JU8-6361 after 6 p.m.

TRAILER HITCH - 2"ball for '61-'64 Ford or Mercury, used once. New $18, sell for $10. V. Abbruscato, Ext. 481.

HAM RADIO STATION NCX-3 - CW, AM, SSB, AC power supply, built-in speaker, microphone, antennas. Nick, Ext. 2193.

BICYCLE - Boy's std size, light wt, good cond. $12. 281-6732.

BICYCLE - Girl's 24" frame, gold, white & silver, German made, w/w tires, lt wt. $17. 281-6732.

RCA 21" CONSOLETTE TV - Very good cond. $35. Hank, Ext. 601.

PONY - Large, 9 yr old gelding, rides, drives, comes fully equipped, brown w/white markings. EM3-6109.

HORSE - Black gelding, beautiful, English trained, spirited, friendly, girl's pet, must sell, college bound. Adele, 286-1087.

COMPLETE LIBRARY - Great Books of the Western World, incl bookcase. Dotty, Ext. 330, 2458.

GREENHOUSE - Plastic, 20'x12'. $75. John, Ext. 7750.

RIFLE - 7mm Mauser, factory sporter, Redfield sights, excel cond. $25. John, Ext. 7750.

Houses

STONY BROOK - Cape, 4 bedrms, established neighborhood, ½ acre, 2 baths, liv rm, fireplace, din rm, dble garage. $28,500. 751-1908.

EAST SETAUKET - Split level, 7 rms, 3 bedrms, 1½ baths, fam rm, util rm, basement, garage, s/s, fully landscaped, ½ acre wooded plot. Walter, 473-2673.

BROOKHAVEN VILLAGE - Waterfront colonial, 3 bedrms, panelled liv rm & den, breakfast rm, din rm, 1½ baths, dble garage, bulkheaded dock, ½ acre. $33,000, AT6-0322.

SHOREHAM - Leaving LI, must sell, will consider reasonable offer, 4 bedrm custom ranch, playrm, 2 baths, fireplace, air cond, wooded ½ acre, many extras. 744-2480.

NORTH PATCHOGUE - Ranch, 3 bedrms, panelled liv rm & playrm, fireplace, 1½ baths, many extras. $15,500. GR5-4627.

SELDEN - 3 bedrm split, w/w carpeting, oil heat, radio control garage door, s/s, extras, leaving Lab. $16,500. Cas, Ext. 2598, 732-4206.

SMITHTOWN - Split, 3 bedrms, 1½ baths, liv rm, din rm, eat-in kitchen, den, garage, patio, s/s, ¼ acre fenced, washer, dryer, refrigerator, 24' pool. AN5-2374.

BELLPORT VILLAGE - Split level, 3 bedrms, panelled liv rm, playrm, trees, near schools. $14,000. AT6-8981.

NORTH SHIRLEY - Sale or rent, 5 bedrm ranch house, 1 acre land, 5 min from Lab. AT6-9197, AT6-1331.

WADING RIVER - 2 bedrm ranch, w/w carpeting, baseboard hw heat, dble garage, full basement can be finished for add bedrms, etc, landscaped, 130' x150', schools, churches ½ mi. Ext. 2234.

EAST PATCHOGUE - For sale or rent, 3 bedrm split level, on ¼ acre, near Great South Bay. Starr, (212) YU6-4410 days, (212)TU4-0316 eves.

HUNTINGTON - Sch Dist 5, 3 bedrm colonial, 5 yrs old, excel cond, 1½ baths, family rm, w/w carpeting, s/s, fenced. $21,000. 643-7306.

For Rent

2 BEDRM RANCH - Middle Island, will sell or rent, finished basement, baseboard hw heat, carpeted throughout. 924-5221.

3½ RM APT - Lg, Port Jeff Sta, heat & gas incl, priv entrance & back patio, walk to shopping & train. $136/mo. Cammarano, Ext. 691, HR3-7142.

TENT - 10x12 high wall, week or weekends. 273-6436.

FURNISHED HOUSE - 2 bedrms, liv rm, bath, mod fireplace, w/garage, nice area, E. Patchogue. $115/mo. Iwai, Ext. 2885.

4 BEDRM CUSTOM RANCH - Shoreham, playrm, 2 baths, fireplace, sun deck, 2 car garage, air cond, wooded ½ acre, beach rights. 744-2480.

AERATING MACHINE - By the hour or day. Bob, GR5-5542.

Wanted

STORM/SCREEN COMBINATIONS - 1 door, 32" x80½"; 4 windows, 24"x48". D. Van Der Kolk, Ext. 2924.

SILVER DOLLARS - Highest prices paid, contact me before selling elsewhere. J. Giordano, Ext. 2324.

HOME - For snow white cat (female) who does not understand new puppy. B. Cartwright, Ext. 2543.

MATURE WOMAN - To care for school boy, 2-4 pm, own trans, my home in Shoreham. Ext. 2836.

SINGER SEWING MACHINE - Good working cond, must have straight stitch & zig zag, w/cabinet. Claire, Ext. 2131.

ALL TYPES OF CLOTHING ALTERATIONS - By experienced dressmaker, reasonable prices, prompt service. 289-1277.

GIRL'S BICYCLE - 16" or 20" frame, prefer w/training wheels, must be in usable cond. Bob, Ext. 7633.

HOMES - For white mice, male or female, in excel cond. W.E. Winsche, Ext. 2203, AT6-0517.

MATURE WOMAN - To care for child of working mother, 5 days, flexible schedule, Center Moriches area. V. May, Ext. 2449.

BUYER - For Wading River 2 bedrm ranch, w/w carpeting, baseboard hw heat, dble garage, full basement can be finished for add bedrms, etc, landscaped 130'x150', schools, churches, stores, ½mi. 929-4714.

HOME - For young female basset-beagle dog. M. Dohrman, Ext. 2169, HR3-2614.

BABY CARRIAGE & BATHINETTE - Phelan, GR5-4661.

LAWN MOWER - Ride type, reasonable. V. Abbruscato, Ext. 481.

RADIATOR - For Fiat 1100D(1963). 265-3982 after 6 p.m.

SNOW PLOW - For a jeep. Jerry, Ext. 2117 after 4 p.m., 475-5196 days.

BUSHEL BASKETS - You tell me where, I'll be there. Fred, Ext. 424.

Carpools

WANTAGH-MASSAPEQUA AREA - Carpool needs 1 more driver, meets at Bar Harbour Theater. Ext. 7103.

DRIVER WANTED - To complete existing carpool from Riverhead. Pat, Ext. 7691.

FORM - Flexible carpool from Huntington. M. Leopold, Ext. 2549.

4 MAN CARPOOL - Needs 2 drivers to complete, from Wantagh area. N. Schumburg, Ext. 2579.

STRATHMORE "S" SECTION - Existing, on-time carpool looking for additional members. Paul, Ext. 2337; Sid. 2583; Dave, Ext. 2824.

Classified Ad Policy:

1. The *Bulletin Board'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. Persons listing houses, apartments, or rooms for sale or rent, do so with the understanding that these must be available without regard to race, creed, color, or national origin.
4. Ads associated with a full- or part-time business cannot be accepted.
5. Ads should be restricted to 20 words or less and typed or printed on the form provided. (Additional copies of the form are available at the *Bulletin Board* office.) Twelve noon on Friday is the deadline for inclusion in the following week's issue.
6. Ads are run on a space-available basis; those not carried because of space restrictions will be held for inclusion in the next issue.
7. Ads are run only once and must be resubmitted if they are to be repeated.

☐ For Sale: Auto & Auto Supplies
☐ For Sale: Boats & Marine Supplies
☐ For Sale: Miscellaneous
☐ For Sale: Houses
☐ For Rent
☐ Wanted
☐ Carpools

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

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(Name & Phone No. To Call)

If this ad concerns housing for sale or rent, such housing is available without regard to race, creed, color, or national origin.

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

Send to: BULLETIN BOARD, 40 Brookhaven Avenue