



# BROOKHAVEN BULLETIN

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Volume 24, Number 45

November 19, 1970

## BNL Linac Makes High Energy Record

The AGS Conversion Group working on the 200 MeV (Million electron Volts) linear accelerator achieved full design energy of 200 MeV on Wednesday, November 18, at 1:44 a.m. The linac had reached 160.5 MeV during the late hours of November 16-17, surpassing the energy level of all other proton linacs, and, thus, became the most powerful proton linac presently in existence.

As the 200 MeV energy was approached in the early hours of Wednesday morning, many accelerator people came in to lend a hand at achieving the record. Dr. Fred Mills, Chairman of the Accelerator Department was joined by John Blewett, Jules Spiro, Jack Lancaster, and members of the Linac bowling team still wearing their "Sandbagger" shirts.

According to George Wheeler, in charge of the Conversion project, the linac was designed to deliver a beam current in excess of 100 milliamperes at 200 MeV. Earlier studies of the beam current showed that 200 milliamperes was actually attainable. This earlier measurement confirmed that the proper engineering decisions had been made during the early stages of design.

Delicate balancing of variables was necessary to permit acceleration through all the 9 main tanks of the 500 ft accelerator. The beam had been brought through 7 tanks when the 160.5 MeV energy level was reached.

Another 200 MeV linac of a similar design is being built at the National Accelerator Laboratory. On September 25, the NAL linac produced a beam of 139 MeV, and laid claim to being the world's highest energy proton linear accelerator.

Prior to the NAL achievement, the world's record was held by the 100 MeV proton linear accelerator used as the injector for the Russian Proton Synchrotron at Serpukhov.

According to Wheeler, the achievement of a high current (which has been demonstrated) could lead to better performance of the AGS and could also make the linac more useful when it is being used for purposes other than as an injector for the AGS. While the linac was being brought up to 200 MeV energy, the beam current was purposely kept low to minimize the unnecessary building up of radioactivity in the area. After the linac is producing 200 MeV, the beam current will be increased.

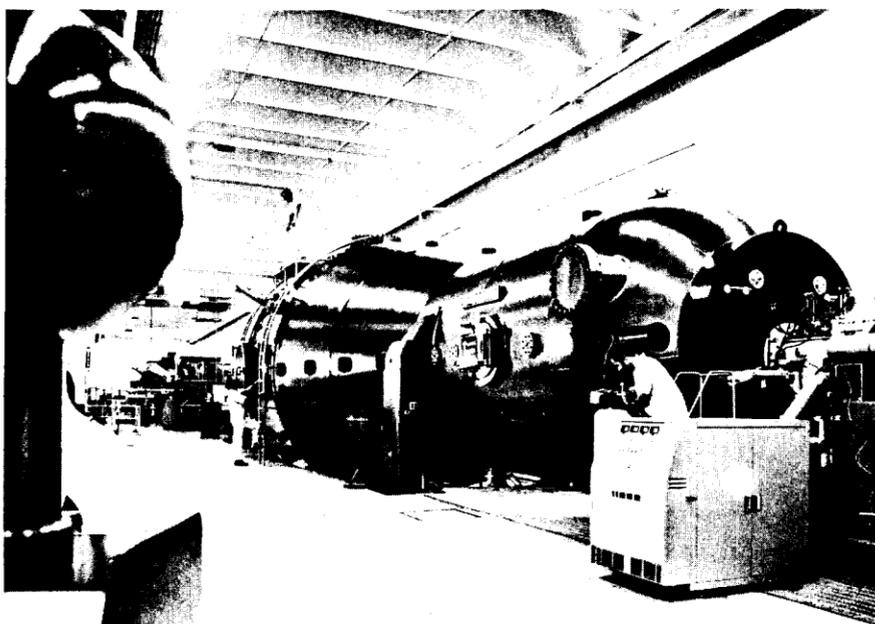
Although the target date for the installation and operation of all the 9 tanks comprising the linac had originally been scheduled for late December, the target date had been moved forward to just before Thanksgiving because of the rapid progress being made. However, despite the anticipated earlier completion date for the linac, it is not planned to connect the linac to the synchrotron ring until the planned AGS shut down in May, 1971.

Between the linac and the AGS a fast switching magnet will be installed to divert the pulses not used for AGS injection into a side tunnel. A beam analysis station will occupy the side tunnel and provide continuous monitoring. At the end of this same tunnel 200 MeV protons will be available

--continued on page 4

## World's Highest Energy Van de Graaff

## Is Dedicated



A view of the two accelerators as they appear today at the Tandem Van de Graaff facility.

The world's highest energy Van de Graaff system which is designed to accelerate hydrogen ions to an energy of 30 MeV (million electron volts) will be dedicated today.

AEC Commissioner Theos J. Thompson will deliver the Dedication Address at 2:30 p.m. in Berkner Hall. Other speakers at the ceremony will be: Denys H. Wilkinson, Director of the Nuclear Physics Laboratory, Oxford, England; D. Allan Bromley, Director of the Arthur W. Wright Nuclear Structure Laboratory, Yale University; and Harvey E. Wegner, Manager of the Tandem Van de Graaff Construction Project.

According to Commissioner Thompson, "Both Brookhaven National Laboratory and the High Voltage Engineering Corporation can be justly proud of the successful design construction, and operation of this accelerator system. The fact that a facility of this complexity, originally estimated to cost \$12 million in 1962, has been completed in 1970 at a cost of \$12,130,000, is a little short of miraculous. It should be a source of substantial pride not only for the Laboratory, but also for the Atomic En-

## Maurice Goldhaber Wins Bonner Physics Prize

Dr. Maurice Goldhaber, Laboratory Director, has been selected by The American Physical Society as the recipient of the 1971 Tom W. Bonner Prize in Nuclear Physics. Announcement of the award will be made in the January issue of the Bulletin of the APS. A ceremonial presentation of the prize, which consists of \$1,000 and an inscribed diploma, will be made at a Banquet in Washington, D.C. on April 28, 1971, in connection with the April Meeting of the APS.

The citation inscribed on the diploma reads: "... for his many ideas and dis-

coveries spanning the field of nuclear physics that have played vital roles in establishing the nature of nuclei, the electromagnetic interactions with nuclei, the weak interactions, and the validity of the conservation laws central to all physics."

The annual Tom W. Bonner Prize in Nuclear Physics was established in 1964 as a memorial to Tom W. Bonner by his friends, students, and associates. The original memorial fund was endowed for the purpose of establishing a prize of wide significance in the stimulation of research in nuclear physics.

## Linac Comes Into Design Power



Grouped around the control panel of Tank No. 9 are some of the men who worked to get the 200-MeV Linac into operation ahead of schedule. Since Monday night, power has been brought through successive tanks of the linac to reach the world's highest energy for a proton linear accelerator. Watching the 200-MeV come in are: Icarus Pyros, Ed Dexter, Joseph Klemish, Ron Dobert, George Wheeler (with pipe), Raven McKenzie-Wilson, John Bittner, Ronald Lankshear (foreground) and Ken Batchelor (seated at scope).

## Open House At Tandem

Come and visit BNL's newest large research tool. The Tandem Van de Graaff facility will be open to all members of the BNL staff on Friday, November 20, from 9 a.m. to noon for informal visits. The staff of the Tandem will be on hand to guide visitors and to answer any questions.

ergy Commission and for the AEC's Brookhaven Area Office as well."

Dr. Maurice Goldhaber, BNL's Director, describes the Tandem Van de Graaff facility as "... not only the newest and largest of its kind in the world, but the most versatile and one that brings a new dimension to the study of the micro-world of the atom."

The Van de Graaff accelerator can be used to accelerate almost any kind of negatively or positively charged particle man is capable of producing. The energy level can be boosted to over 300 MeV for heavier elements such as bromine, by using special techniques to strip large numbers of electrons from the atoms. During test runs oxygen ions in which all eight electrons had been stripped were accelerated to 98 MeV.

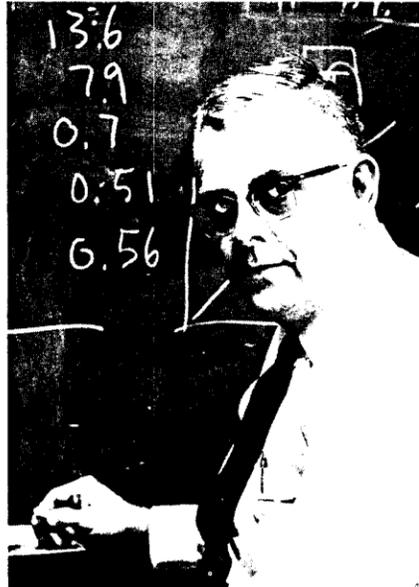
It is anticipated that up to 50% of the research time of this new accelerator will be used by scientists from universities and other laboratories. Brookhaven has consistently encouraged scientists to plan on using this unique facility. This is the tradition here, where large research installations have been constructed for the use of scientists from universities and other laboratories, as well as from Brookhaven. Some experiments have already started and there are at least a dozen more in various stages of planning or assembly. Scientists from other laboratories were on hand this summer planning additional experiments with

(continued on page 4)

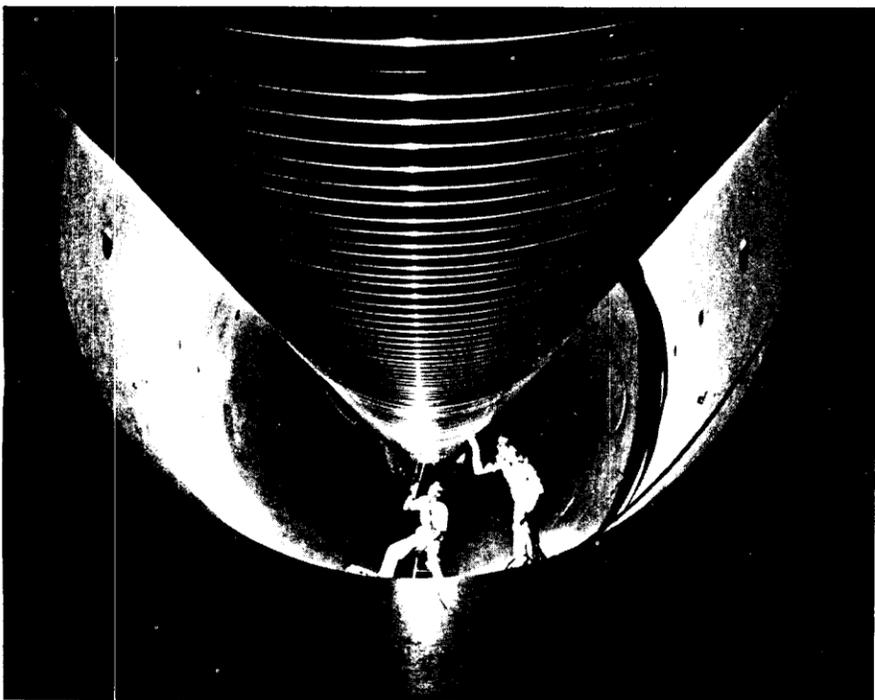
# Tandem Van de Graaff Picture Album



Harvey Wegner



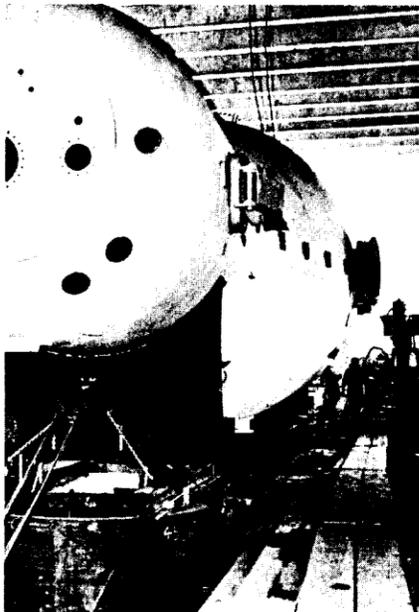
David Alburger



An engineer from the High Voltage Engineering Company works inside the accelerator pressure vessel to inspect components. Harvey Wegner (right) helps with the check-out procedure.



A 1967 picture (top) shows the first stages of construction work at the Tandem site. In 1968, the building lines began to emerge (center) as the tanks were delivered to the job. The present view of the facility shows grading and road work finished and the building already occupied.



Late in December of 1967, the two 140-ton tanks were moved into the still to be completed building. In order to place the tanks in their proper position, a 400-foot long rail line was built for the length of the building. After the tanks were installed, the tracks were removed.

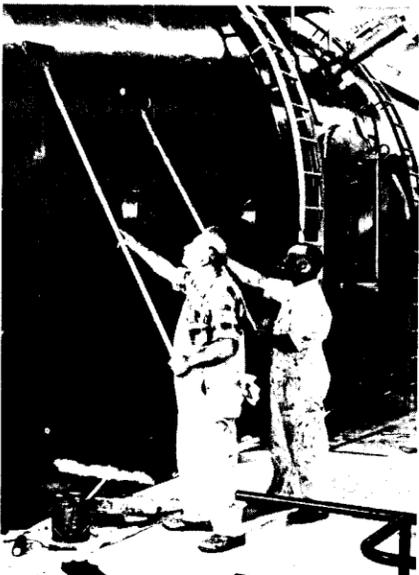
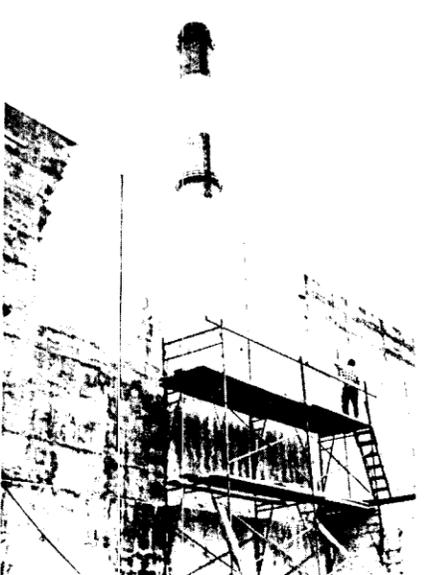
## The People . . . And The Machines



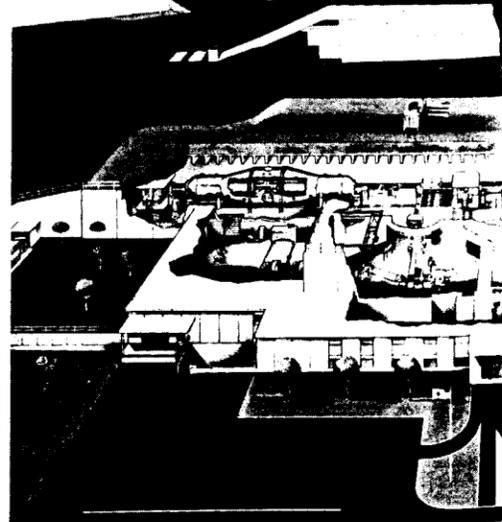
Machines, such as the Tandem completing research, but most in the machines work. Some of the staff of the Tandem project are: Benjamin Louise Solfaro Angelone, Elliot Clarence E. Barrett, John A. Barbara Brezisky, Robert Carciellman, Bernard Comfort, Julius L. Feigenbaum, Joseph Frank Goosman, William Henrich, George Lanzarotta, James D. Lee, Robert Lindgren, Mari Nagatani, John W. Olness, John Rapp, Edward Reilly, Rogers, Karl Rosenbaum, Frank Dirk Schwalm, George E. Schwab, Ernest K. Warburton, Harvey Wegner, Charles Zavesky.

### Tandem I

- 1962 - Tandem project initiated
- 1964 - Advanced planning completed
- 1965 - Construction of two Tandems contracted with High Voltage Engineering Company
- Building design finished
- 1966 - Contract for Construction let to Starrett Bros. & Eken
- Construction of building starts



The Tandem is big in every way, even down to the details of paint jobs necessary for either protection or beautification. At left, painters are putting weatherproofing compound on retaining walls - 8 men, 10 days work and 150 gallons of paint. At right, containment tanks are painted in metallic paint, one green and one bronze - each tank needed 11 gallons of varnish and 45 pounds of metallic powder.



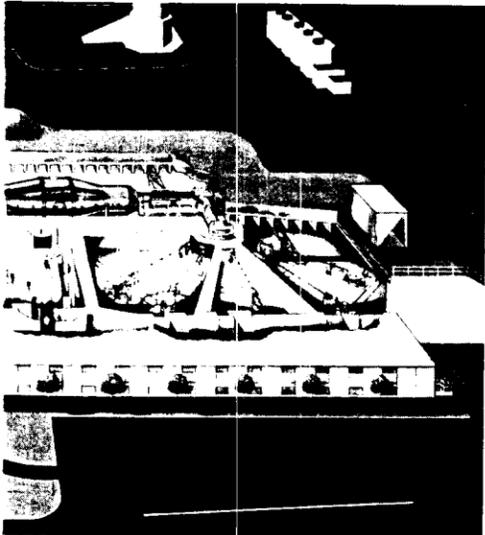
This cutaway drawing of the facility shows the Tandem accelerating a wide variety of ion species from magnets into the target rooms. The highest part of the building is the target room where the first accelerator injecting energy directly into the second accelerator. The accelerator control room which has direct access to the target room. The mechanical room contains the pumps and the control room for the storage area to each accelerator pressure vessel for resident and visiting scientific personnel.



de Graaff, are important for...  
 important are the people who make...  
 people responsible for the...  
 secured above. A complete listing...  
 Ackert, David E. Alburger,  
 Auerbach, Charles P. Baker,  
 Amin, William Bornstein, Bar-  
 Charles Carlson, Chellis Chas-  
 Diener, Ger Engelbertink, Irv-  
 s, G. Norris Glasoe, David R.  
 roy James, Keith W. Jones,  
 on, Michael J. Le Vine, Roger  
 Manni, Kurt F. Minati, Ken  
 h Pendergast, Martin Petruk,  
 odore G. Robinson, Paul C.  
 umph, Arthur Schwarzschild,  
 der, William Sorenson, Frank  
 s, Steven Wasky, Harvey E.

**Highlights**

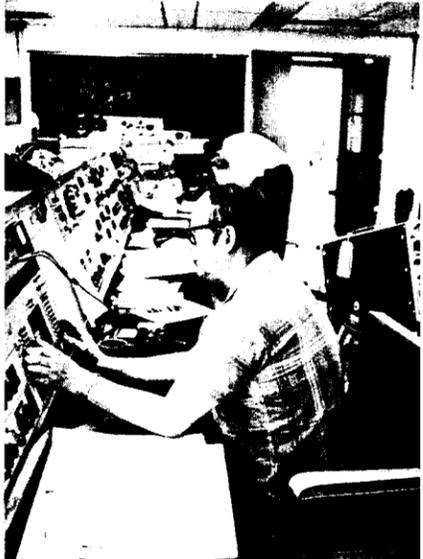
- 1967 - Part of Cornell Avenue closed for duration of construction
- Containment tanks delivered to site.
- 1968 - Tanks moved into building
- Retaining walls finished
- 1969 - Tandem Facility opened for Visitors' Days
- 1970 - Machines run at design energies



MP tandem accelerators which were manu-  
 poration. Each is independently capable of  
 sternal ion sources through beam switching  
 e energies are achieved in three-stage opera-  
 negative ions through the connecting link  
 tors are operated from the centrally located  
 tor rooms through one of the shielding doors.  
 npressors necessary to transfer insulating gas  
 essel. Laboratory and office space is available



G. Norris Glasoe



On June 28, 1970, a full-scale trial run of the Tandem was made. The design energy of 30 MeV was achieved with the two machines operating for the first time as a unit.



Barbara Brezisky and Marie Dorage man the Reception desk at the Tandem Facility.

**BROOKHAVEN BULLETIN**

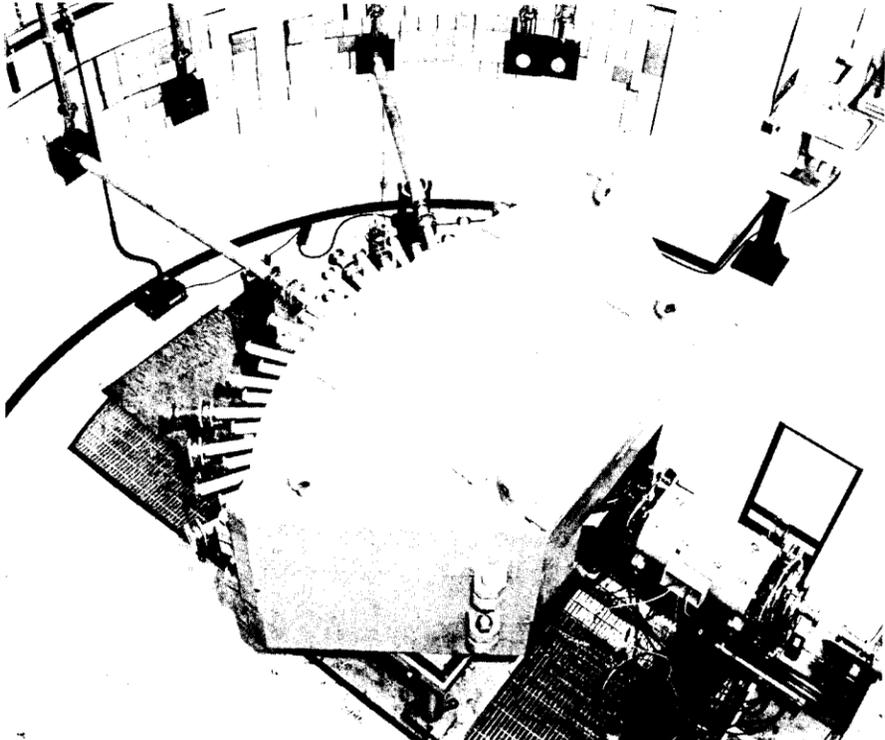
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CARL R. THIEN, *Editor*  
 CLAIRE LAMBERTI, *Editorial Assistant*

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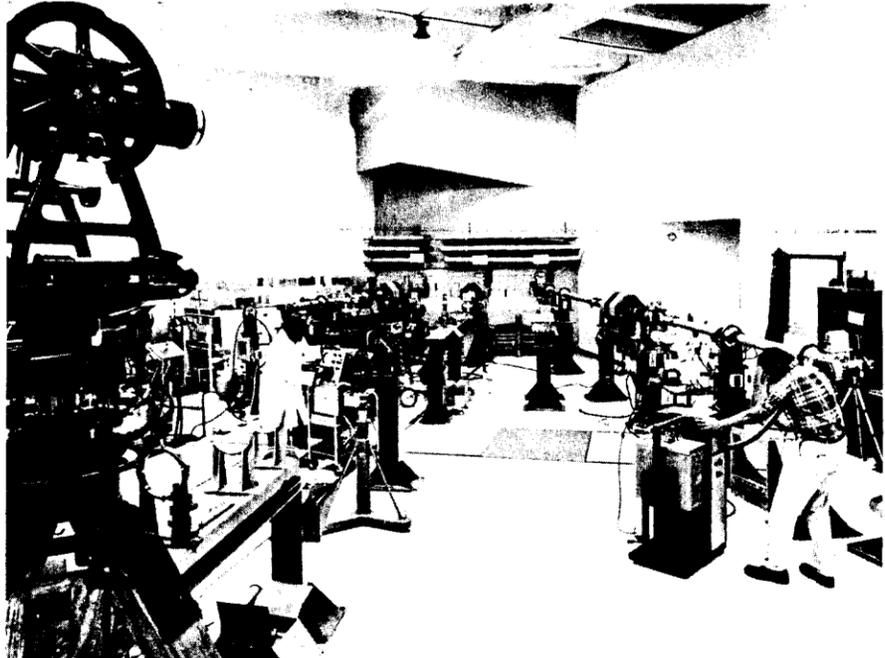
NORBERT J. DERNBACH  
*Public Relations Officer*

**Beam Switching Magnet**



The 70° beam switching magnet (foreground) distributes two- and three-stage beams from MP-7 to any of 29 beam ports serving three independent target rooms located behind the wall. At the wall penetrations remotely operable beam plugs (background) prevent unwanted beams and secondary radiation from entering target rooms which are not in experimental use.

**Target Room 4**



The larger target rooms accommodate more massive experimental apparatus. This room eventually will contain a beta-ray spectrometer (left background, partially obscured by transit), the MIT multigap spectrometer (left, behind camera) and a large goniometer turntable (right foreground, where technician stands). Meanwhile, interim gamma-ray experiments are being conducted on the partially implemented beam lines.



The Tandem crew went all the way in carrying out the theme of the building by purchasing with their own funds a tandem bicycle for use on the Lab site. Louise Angelone and Joan Russo rode the bike around soon after it was purchased by J.D. Larson.

## Tandem

(continued)

the Brookhaven staff to keep the three experimental stations in use plus the six more that will be completed in the near future.

The Tandem Van de Graaff project was initiated by Dr. E.E. Alburger in 1962. The AEC provided \$12 million for the project. A completion date of July 1970 was set in 1966 when the design was completed. The final cost was within one per cent of the original estimate, and the target date was met on schedule.

The Tandem facility is built into a hillside adjacent to the Cyclotron. A concrete roof topped by six feet of earth provides the overhead radiation shielding. The experimental target rooms are separated from the accelerator room by four-foot thick concrete walls, while the office space is shielded from the rest of the facility by six-foot thick concrete walls. Over 15,000 cubic yards of concrete were used in its construction. Radiation safety for persons both inside and outside of the building has been a prime consideration.

The MP-type Tandem Van de Graaff accelerator was designed and manufactured by the High Voltage Engineering Corporation, Burlington, Massachusetts.

Dr. Harvey E. Wegner, who served as project manager during design and construction, will manage the facility jointly with Dr. D.E. Alburger now that the research programs have commenced. Key personnel who worked closely with Dr. Wegner on the construction include Dr. Paul C. Rogers, Dr. G. Norris Glasoe, Dr. J.D. Larson, John A. Benjamin, Kurt F. Minati, George E. Schwender, Irving L. Feigenbaum and Robert A. Lindgren.

The Tandem facility was funded by the U.S. Atomic Energy Commission, with Mr. A. Marino of the Brookhaven AEC Office providing key liaison between the AEC and the project team. According to Dr. Wegner, "Many other people were and are involved, including BNL staff and visitors as well, and it is the overall team effort of the entire group that resulted in success on schedule and within the budget."

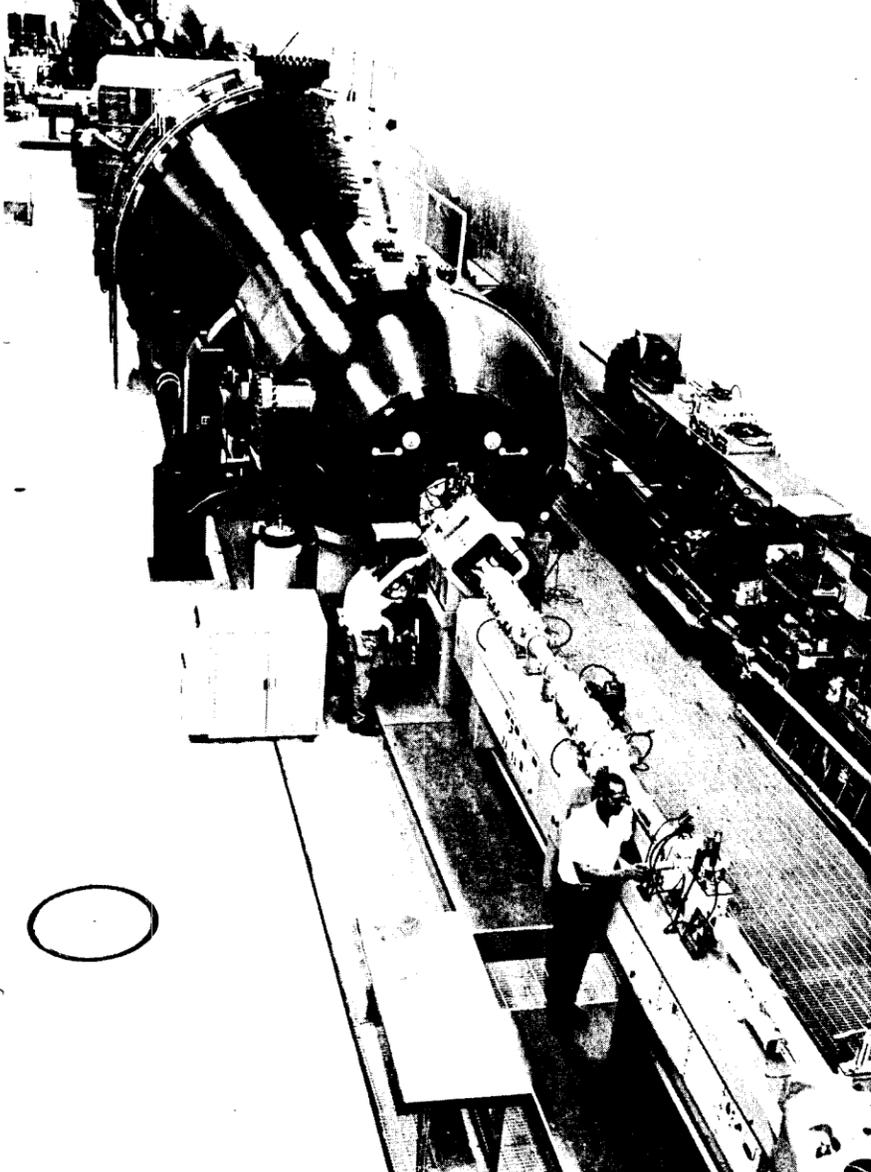
## Non-Profit Organizations To Be Covered By NY State Unemployment Insurance

A recent change in the Unemployment Insurance laws requires that non-profit organizations, such as the Laboratory, must subscribe to New York State Unemployment Insurance on January 1, 1971. This change will bring more than 400,000 employees of non-profit organizations throughout the State under this insurance program.

The law provides up to 26 weeks of Unemployment Insurance benefits to eligible discharged employees. The major requirement of eligibility is that the employee must have at least 20 weeks of insured employment during the 52-week period prior to filing a claim. This means that BNL employees, not previously covered, will not be eligible for New York State Unemployment compensation before May 24, 1971. The present law will not cover BNL Scientific Staff members until January 1, 1972.

At present the Laboratory has a severance pay policy in lieu of unemployment insurance. According to Deputy Director Dr. George Vineyard, a revised severance pay policy is being worked out to become effective at the time Laboratory employees become eligible for New York State Unemployment Insurance benefits. Details of this revised policy will be announced as soon as they become available.

## Accelerator Room



The world's highest energy Van de Graaff accelerator system, using two MP Tandem accelerators end to end, as seen from the discharge end of machine number two. The accelerators are inside of the two 140-ton steel tanks, each measuring 18 feet in diameter by 80 feet in length. Located at Brookhaven National Laboratory, the accelerators can each provide 20 MeV (million electron volts) of energy and when used together as a single machine, 30 MeV of energy for hydrogen ions. Several hundred MeV of energy can be achieved when ions from heavier atoms are used. The accelerators, which met design specifications the first time they were tested on June 28, can be controlled to within three one-thousandths of one percent of any desired energy level from almost zero up to the maximum. Because the energy gain with heavy ions is very large, it will be possible to fuse one type with another, thus producing new and previously unknown radioactive nuclei. It is expected that many of these new nuclei will have applications in biology, medicine and industry.

## Center Holiday Schedule

The Brookhaven Center will be closed on Thursday and Friday, November 26 and 27. The Snack Bar in the cafeteria will be open from 9 a.m. until 2 p.m. Thursday through Sunday.

## Family Campers Meeting

The BNL Family Campers Group will meet at the Recreation Building on Thursday, November 19, at 8:00 p.m.

New members are cordially invited.

## Camera Club Meets

The Camera Club will meet Tuesday, November 24th, at 8 p.m. in the Recreation Building. The main topic will be a practical discussion of black and white printing and use of our new Color-Val printing meter. We would also like to start the custom of briefly and informally viewing, and discussing, any color slides that members wish to bring along.

## IBEW Meets

Notice! Because of Thanksgiving, IBEW will meet on Monday, November 23, at 8 p.m., in the K of C Hall, Railroad Avenue, Patchogue.

## Linac

(continued)

for experiments in radio-chemistry and for isotope production. It is expected that 9 of 10 linac pulses will eventually be available to produce isotopes. As a sort of dividend, Curies of neutron-deficient isotopes can be made.

The Brookhaven Linac Isotope Producer (BLIP), will allow preparation of radionuclides. The 200-MeV energy is just right for practical purposes. This energy plus the high beam current and the continuous mode of operation of the LINAC will yield hundreds of radionuclides, most of them "new" in the sense that they will now be producible in amounts that are of practical utility and in forms that were previously unattainable.

In addition to Wheeler, others working on the linac phase of the AGS conversion project are Ken Batchelor, in direct charge of the linac project, assisted by Joe Sheehan, T. J. Sluyters and Pierre Grand, supported by a crew of dedicated engineers and technicians.

This new 200 MeV linac is part of the \$50 million conversion project (supported by AEC) to increase greatly the usefulness of the 33 BeV Alternating Gradient Synchrotron at BNL. The AGS is the largest accelerator currently operating in the western world and is the major research tool for US physicists studying the innermost secrets of the atomic nucleus (high energy Physics).

The new linac will speed up protons to one half the velocity of light and inject them into the AGS and will increase the output of the AGS by a factor of 10 which will permit the AGS to do more and better experiments in this most important and exciting field of research.

### Memo To Second Place

NAL where have you been?  
BNL has got their beam!

*From tank to tank the beam did pass*

*Each with more energy than the last*

*At the end of nine we had to stop*

*We found we'd reached the very top*

*We wish you well in your hour of need*

*We wish you all BNL's speed*

—Ken Doughty

## Here and There

Claire Lamberti

Frank Federman (AUI) attended a meeting of the AEC and Contractor Chiefs of Audit in Las Vegas on October 25-27; Mr. Federman was chairman of a technical workshop.

Meyer Steinberg (DAS) presented a paper on concrete-polymer at the Conference on Radiation and Isotope Techniques in Civil Engineering in Brussels, Belgium on October 28-30.

Allan Auskern (DAS) presented a paper on Some Properties of Polymer Impregnated Cements and Concretes at the West Coast Regional Meeting of the American Ceramic Society in San Francisco.

Joseph Forrest (DAS) presented an invited paper entitled "Use of Isotope Ratio Tracer and Sulfur Hexafluoride Simultaneously as a Dual-Tracer System for Sulfur Oxides in the Atmosphere," at the IAEA Symposium on Use of Nuclear Techniques in the Measurement and Control of Environmental Pollution held in Salzburg, Austria, October 26-30.

Leonard A. Baker, Jr. (I & HP) and Arnold A. Weintraub, AEC New York Office, were among the first 300 individuals to be accredited as "Certified Safety Professional" by the newly created American Board of Certified Safety Professionals.

## Second BERA Concert Coming December 2

The second in the series of BERA Concerts will be held on Wednesday, December 2nd, at 8:30 p.m. in Berkner Hall. The program will feature Saxophonist James Houlik.

Series tickets may be purchased at the Recreation Office or from any of the Department ticket sellers. They are priced at \$13 for employees and family members, \$15 for visitors, and \$6.50 for children under 18.

Individual concert tickets may be purchased at the door the night of each concert or in advance at the Recreation Office. Prices are \$3.50 for employees and family members, \$4.00 for visitors, and \$1.75 for children under 18.

## Coming Attractions

- 12/2 Navy Lecture - Dr. Edward Sayre on "Science and Art." Brookhaven Center - 7:30 p.m.
- 12/2 BERA Concert - James Houlik, Saxophonist Berkner Hall - 8:30 p.m.

**Bowling News**

Grace Fales

**Red League**

The Old Timers are still holding on to first place, but the rest of the League won't let them get too far out in front. 200 Club for the night were: R. Wilson 208, W. Kollmer 203, W. Reams 201, R. Nelson 201, J. Bunt 200, and T. Prach 200. The fellows were just tuning up for next week's Turkey Shoot - Good Luck to all!

**Green League**

No news this week.

**Pink League**

Still anybody's ball game here. Highs for the night were Grace Fales 194/502, Audrey Bangel 175, Anne Kirkpatrick 169/454, Kay Hunt 159, and Marge Stoessel 155. Nothing else exciting except someone won a bottle of champagne presented by the Lanes for high women's game two weeks ago.

**Black and Blue League**

Bob Eberbach reports that he would love to have a tape recorder to preserve for posterity some of the gems that make their evening so enjoyable even if they don't bowl well. If it is true that you laugh and get fat, they will be a real plump League in May. The Cellar Dwellers fizzled as the Omegas bombed them with a 2384 gross. Bob Gallagher contributed to the Omega cause with a 199/481. Bruce Quinn sprang with a "Solid Gold Cadillac" for Willie. Now if he can find the key to wind it up she will be happy. Helene Garrett was "prima ballerina bowler" of the ladies with a 411 series.

**Hospitality News**

The next Hospitality Committee coffee meeting will be held on Monday, November 23, from 10 a.m. until noon in apartment 10-C. Margarita Sastre will demonstrate the decoration of Christmas tree ornaments.

Everyone is welcome - bring the children.



Open Monday through Friday  
12:30 noon - 1:30 p.m. Employee Only  
3:00 p.m. - 9:30 p.m. Employee/  
Family/Visitor

Price Schedule:  
50¢ ea. Employee/Family Member  
75¢ ea. Visitor  
\$10.00 Employee Season Pass  
\$20.00 Family Season Pass

Pool is closed all BNL holidays

**Wise Owl Award**



Dr. Fred Mills, Chairman of the Accelerator Department (left) presents a Wise Owl Award to Alexander Park. Park was involved in a very serious accident last August that caused severe facial burns. Because Park was wearing safety glasses his eyes were protected from the hot vaporized metal and flying particles of molten metal caused by the arcing of heavy electrical equipment. At right is shown part of the glasses that Park wore when the accident occurred.



**Cafeteria Menu**

**Week Ending November 25, 1970**

<b>Friday, November 20</b>	
Manhattan Clam Chowder	
Deep Fried Filet of Sole w/Tartar Sauce & French Fries	.90
Sliced London Broil w/Mushroom Sauce & 1 Veg	.85
Broiled Halibut w/Lemon Butter & 1 Veg.	.90
<b>Monday, November 23</b>	
Puree of Split Pea Soup	
Round Roast of Beef & 1 Veg.	.80
Baked Chicken & Rice w/Mushrooms	.80
Chili Con Carne on Steamed Rice w/Tossed Salad	.80
<b>Tuesday, November 24</b>	
Vegetable Soup	
Short Ribs of Beef w/Barbecue Sauce	.90
Veal Pattie Parmigiana w/1 Veg.	.85
Rolled Stuffed Cabbage w/1 Veg.	.80
<b>Wednesday, November 25</b>	
Onion Soup	
Beef Hash & 1 Veg.	.80
Ham Steak Hawaiian w/Pineapple Ring & 1 Veg.	.85
Baked Lasagna w/Tossed Green Salad	.90

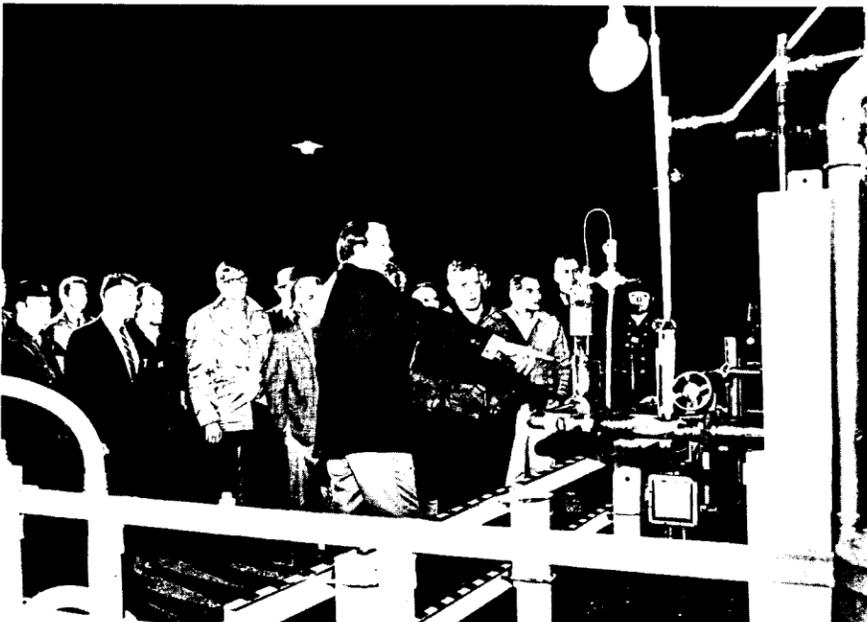
**Graphics At Longwood**

On November 20 and 21st, the Art Department of the Middle Island Central School district is sponsoring its fifth annual Graphic Art Sale. The Ferdinand Galleries supplies the prints.

The Art Department receives a percentage of the sales which is turned over to the Suzanne Vail Art Memorial Scholarship, which in turn is given to a graduating senior who will major in art. The exhibition includes over 100 original etchings, lithographs and woodcuts by such artists as Picasso, Chagall, Miro, Goya, Renoir, Rouault, Kollwitz and many others. Also on display will be a collection of outstanding Western and Oriental manuscript pages from the works of the 13th - 20th centuries.

Exhibition hours at Longwood High School in the Library will be from 5:30 p.m. to 9 p.m. on the 20th and from 10 a.m. to 5:30 p.m. on November 21, 1970.

**Fire Science Students Visit**



On Tuesday, November 10th, twenty members of the Suffolk County Community College Fire Science curriculum visited the Laboratory for a firsthand look at several of our cryogenic facilities. The students, all currently enrolled in the course entitled, "Fire Science of Gases," visited the hydrogen storage facility (above) on Brookhaven Avenue, the 7-foot bubble chamber and portions of the AGS. Course instructor, Bob Young escorted the group. Members include representatives from industry, local government and city and local volunteer fire departments.

**Arrivals & Departures**

**Arrivals**

Gary F. Davis.....Physics  
Martha K. McCartin.....Biology

**Departures**

Bobby E. Dickerson.....Medical  
Michael G. Holliday.....Chemistry

**Selected Reading**

Atomes 1, October 1970  
Des scientifiques émigrés, pionniers ou mercenaires? 410-13  
Les frontières de la biologie. J. Monod. 415-22  
Father Arithmetic: Numeration and counting in New Britain. M. Panoff.  
Ethnology 9, 358-65, October 1970

**Gymnasium Schedule**

The following Gymnasium Schedule is now in effect.

<b>Monday</b>	
5:00-7:00 p.m.	Volleyball League (Mixed)
7:30-9:30 p.m.	General Activities
<b>Tuesday</b>	
5:00-7:00 p.m.	Judo Club
7:00-9:30 p.m.	General Activities
<b>Wednesday</b>	
5:00-7:30 p.m.	Volleyball League (Men)
7:30-9:30 p.m.	Volleyball League & General Activities
<b>Thursday</b>	
5:00-6:15 p.m.	Judo Club
5:15-9:30 p.m.	Basketball League (4 games) 5:30, 6:40, 7:50, 9:00
<b>Friday</b>	
5:00-7:30 p.m.	Soccer League
7:30-9:30 p.m.	Tennis (by posted self-service reservation)

The above scheduled activities have first priority for use of the Gymnasium. Individuals wishing to play badminton, table tennis, lift weights, shoot baskets, etc., may do so whenever General Activities are scheduled or at other times when space is available and their activity does not interfere with the League and Club Programs.

**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.

MACHINIST APPRENTICE (2) - through Laboratory craft apprenticeship program. Applications accepted through Jan. 4, 1971.

ELECTRICIAN APPRENTICE (2) - through Laboratory craft apprenticeship program. Applications accepted through Jan. 4, 1971.

TOOL & INSTRUMENT MAKER (10) - Central Shops, Application Deadline: November 30, 1970.

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

**Autos & Auto Supplies**

2 VW RETREADS - Very little wear, replaced w/snows and do not want to store them, cheap. Claire, Ext. 7421, 744-5969.

67 PORSCHE 911S - Excel cond, extras. Ext. 641.

63 FORD FAIRLANE - White, 4 dr, r/h, ps, new brakes & tires, body in good cond. Asking \$200. Rimpler, Ext. 567.

SNOW TIRE - 8.25x14, used b/w. \$15. Ext. 2270.

65 RED SAAB - Needs some work, body good. \$125. YA4-8462.

SKI RACK - Lockable, trunk mount, 6 pr. \$15. Ext. 687.

67 DATSUN STATION WAGON - Borg-Warner auto trans, 33,000 mi, luggage rack, trailer hitch. \$950. Betsy, Ext. 2380, 265-3799 after 7.

2-15" RIMS - For Ford/Mercury. V. Ammirati, Ext. 358.

64 CHEVY WAGON - Auto trans, luggage rack, good cond, \$500; 66 Comet, auto trans, good running cond. \$500. 878-0141.

64 DATSUN - 4 cr sedan, "66" 1300 eng, std trans, good tires, fair body, mechanically excel. \$130. George, 924-3807.

SNOW PLOW - Hydraulic, for jeep, best reasonable offer. Nate, Ext. 7121, 924-3124.

65 PARILLA - 175 cc, new rear tire & batt, good for trail riding. \$175. P. Hichborn, 929-4133.

62 FORD FALCON - 4 dr sedan, fair cond. Asking \$220. Ext. 359.

65 BUICK LE SABRE - 4 dr, needs a little work. \$400. 588-4987.

67 1/2 VW BUG - 29,000 mi, larger eng, like new cond, must see. MO7-9218 after 6.

65 MUSTANG - Beige, 6 cyl, auto trans, 4 crinkled fenders due to recent accident, but motor, frame & int good. Bob, Ext. 2970, 692-8659.

SNOW TIRES - 2 w/studs, 6.45x14, 4-ply Goodyear Suburbanite, like new. \$30. 286-8945.

62 OLDSMOBILE - 4 dr, mechanically good. 281-7580.

61 MGA - New top, many new parts, side curtains, good running cond, & tires. GR5-7076 after 5.

RIMS - For Falcon, Comet. 2/\$5. Llacer, Ext. 618/7230.

2-15" DODGE CAR RIMS - 5 holes. \$5. O. Booker, Ext. 2411.

67 BUICK LE SAERE - White, 2 dr hdt, r/h, ps/pb, immaculate. \$1995. 289-5648 eves.

67 VW BUG - Red/blk int, r/h, sunroof, new brakes & clutch, good cond. \$950. 289-5648 eves.

66 PONTIAC TEMPEST - Excel buy. \$550. Herb, Ext. 2868.

69 MUSTANG - Maroon, hdt, r/h, 6 cyl stick, A-1 appearance. Asking \$1550. Geo., Ext. 7415, 924-3236.

SNOW TIRES - BF Goodrich, 8.25x14 w/w tubeless, some rubber left, make offer. Ben, Ext. 2588.

69 VW - Beige, radio, undercoat, trunk lock, Porche exhaust, studded snow tires, 15,000 mi. \$1500. Dan, Ext. 2430.

61 STEP VAN - Equipped w/4 steam tables & coffee urn or convert to camper. Dee, Ext. 7621.

FIBERGLASS HDTP - Fits '63 & '64 Austin Healy. \$75. J. Hamill, Ext. 7676.

64 CHEVY IMPALA SS - V8, auto trans, white/blk int. 286-0204.

66 DODGE MONACO WAGON - 9 psgr, ps/pb, auto trans, 383 eng, roof rack, good cond, priced to sell. HR3-1523.

58 FORD 392 - R/h, very good cond. \$325. Steve, 727-0920, 727-5816.

68 BENELLI MOTORCYCLE - 50 cc, 4 spd gear box, lights, horn, dual brakes, excel cond, 550 mi, helmet incl. \$150. Kirk, 924-4328.

64 DODGE DART - 6 cyl, r/h, good running cond, owner leaving country. Branko, Ext. 2954.

69 DODGE DART CUSTOM - 2 dr hdt, auto trans, ps, vinyl roof, balance of 5 yr-50,000 mi warranty, going into service. \$1900. LT9-5075 eves.

### Boats & Marine Supplies

30' CABIN CRUISER - 125 hp Chrysler Crown, excel fam boat & fishirg boat, extras. \$1200. 878-2810.

40 HP EVINRUDE MOTOR - Elec start. \$175. 928-3089.

18' AMERICAN FINN 1961 - W/1968-85 hp Evinrude, portable stand, 2-12 gal fuel tanks, teleflex steering, boat trailer, excel cond, many extras. \$1100. Ext. 2461, 325-0342.

19' FIBERGLASS SLOOP - Pearson "Resolute," keel type, Ratsey main & jib, 6 hp Chrysler, cradle, winter & mooring covers, very good cond. \$1500. 732-3296 after 5:30.

1962 -15' EARLY AM FIBERGLASS BOAT - W/'62 Mastercraft trailer, wheel, controls, 2 gas tanks, skis, tow rope, extras, good cond. \$300. W. Stars, 324-5692 eves.

### Miscellaneous

SCUBA DIVING FINS - X-small, yellow for safety, like new, great present for your son. David, HR3-2764.

SHERIDAN AIR RIFLE - W/700-20 cal pellets, very powerful. \$28.75. Don, AT6-1205.

ICE SKATES - Men's size 9, excel cond, \$5; boys' size 1, excel cond, \$2. Helen, Ext. 449.

ART WORK - Excel Christmas gifts, Nov 14 & 15, 1 pm-8:30 pm, Foster Ave, Sayville. Lynn, 281-4310 after 6.

WASHING MACHINE - Front loader, \$25; mixer & meat grinder, Dormeyer, \$15. 878-1719.

GOLD NYLON CARPET - Sculptured texture, 12'x20'6", orig cost \$250, used 1 yr, best offer. 581-7190 after 6.

FIREPLACE - Japanese carved Pagoda on front, ivory & gold, andirons & logs. \$25. 878-1719.

COMMERCIAL 1/2 BAG CEMENT MIXER - 5 hp gas eng, good cond. \$200. 281-4140.

PORTABLE TYPEWRITER - Royal Futura, w/case, pica type, good cond. Dietrich, Ext. 7317.

WOODEN STORM WINDOWS - 3 @ 27 1/2x47 1/2, 5 @ 27 1/2x55 1/2, 3 screens @ 25 1/2x47 1/2. \$1.50 ea. B. Lundgren, Ext. 7782.

POODLES - AKC reg, bred for temperament, blk. \$65. Carol, 928-0423.

COLEMAN HEATER - 3500-5000 BTU, used once, \$23; fan, 20", 2 spd, used 1/2 season, \$10. 928-0423.

CHICKENS, FREE! - John, 924-3528 after 5.

MAN'S SKI JACKET - West Wind, size XL, navy, very good cond. \$20. 286-0189 after 6.

ZENITH AM/FM RADIO - Good cond. Claire, Ext. 7421, 744-5969.

MAN'S LUGGAGE - 3 suiter & companion case, A.E. Wallstreeter, br leather grain; 100% human hair wig, brown, worn once. 473-1509 after 5:30.

ORGAN - Baldwin, walnut, w/bench, 2 manual foot pedal base, excel cond. Was \$1475 new, \$500 firm. Frank, Ext. 2805.

SM ELEC HEATER - \$5. Ext. 2492.

GARDEN TRACTOR - Heavy duty, w/plow, harrow, grass mower & riding sulky. \$50. Ext. 614, 878-4089 eves.

GIRL'S COAT - Teen size 12, green hound's tooth, very good cond. \$10. 286-0189 after 6.

WATER PUMP - W/115/208/220 volt motor attached. \$15. Ext. 614, 878-4089 eves.

SCOPE - Weaver 6 power for light recoil rifles, excel for beginners. \$10. 928-0423.

CAMERA - 35 mm Welta-Elmar lens 50 mm 3.5, Compur rapid 1/500, lightmeter, Weston II range finder. All/\$30. Petruk, Ext. 2142.

SKI BOOTS - Men's size 9, leather laced, \$12; child's size 3, rubber laced, \$3.50. Petruk, Ext. 2142.

ALUM JALOUSIE STORM DOOR - 36 1/2"x80", screen & all hdwre incl, should be seen. WCD, Ext. 7677.

METAL SKIS - Gerdau, excel cond, never used, 195 cm, no bindings, sacrifice, must sell. \$60. HR2-1243.

12 KW GENERATOR - Eng driven-V432 hp, batt start, 110/220 single & 3 phase. \$500. 727-3106.

COLONIAL LIV RM SET - 2 pc, 6 mos old. AT6-8718 after 6.

VACUUM BROOM - Singer, new, unused. \$20. Richard, Ext. 7267.

SEWING MACHINE - Kenmore, good cond. \$25. Richard, Ext. 7267.

KITCHEN CHINA CLOSET - \$25; formica table & leaf, \$7; crib, \$8; wicker sofa & chair, \$15; full size bed, \$8. AT6-9197.

CONVERTIBLE COUCH - Good cond, \$25; dbl bed, box spring & matt, lt grey, good cond, \$15. Ted, Ext. 2475, LT9-2470.

ARTIFICIAL FIREPLACE LOGS - W/2 elec red lights on andirons, \$5; elec refrig, \$40; Conn saxophone & case, \$125. AT6-9197.

CHAIN SAW - Elec, 10", 10 lbs, 10 amps, 110 volt, w/instruction bk, perf cond. \$35. Louittit, Ext. 7738.

ICE SKATES - Children's size 11, blk, perf cond, the right skate for beginners. Orig \$28, sell \$8. Paffrath, Ext. 2287.

SLIDE TRAYS - Sears, to fit Sears Automatic, A.O. Exec, Anscomatic, Bell & Howell, Eastman & TDC, 53 trays. \$10. Paffrath, Ext. 2287.

AC GENERATOR - 15 amps continuous, 24 amps surge, 4 hp Briggs & Stratton eng, almost new. \$180. Ed, Ext. 2137.

10' GOLD LINE CAMPER SPECIAL - '68 Ford 3/4 ton, sleeps 6, 8 ply & 10 ply tires, posi, oven, 3-burner gas stove & heater, extras. \$3500 firm. 924-3486.

HOHNER 120 BASS - 7 shifts, man size accordian, excel cond. \$175. Wm. Stars, 324-5692 eves.

6' ALUM CHRISTMAS TREE - Excel cond. \$8. Hank, Ext. 2407.

GO-CART - Good shape, no motor, \$25; dishwasher, needs fixing, \$25. 281-5205.

CONTENTS OF HOUSE - Everything, Nov 21-22, 10 am-5 pm, 41 N. Prospect Ave., Patchogue. Ext. 7125.

LATHE - Hendey 12" floor model. GR5-3255.

DRUM SET - 9pc, excel cond. Cost \$500, sell \$250. Marie, 878-2181.

ICE SKATES - Boy's size 7, blk; girl's size 3 & size 5, white; Canadian made, worn very few times, blade covers. \$3/pr. Ext. 7386.

BOWLING BALL & BAG - W/size 9 women's shoes, all for only \$18. Ext. 2784.

HI FI CABINET - 60" long, lt walnut, w/wo 2-12" speakers, excel cond. Ext. 7140, 286-0459 after 6.

PORTABLE DISHWASHER - Kitchen Aid, like new, will deliver. \$140. V. Drososki, 473-4471.

LEITZ FILTERS - For std size lens, UV, yellow, orange green, daylight. \$3 ea. Llacer, Ext. 618/7230.

FILTERS - For Rollei 35, yellow & daylight. Both/\$3. Llacer, Ext. 618/7230.

HONEYWELL FLASH - For flash bulbs, w/good batt, like new. \$5. Llacer, Ext. 618/7230.

1 IRON BED - Twin size, matt & spring, compl bed. \$35. W. Stars, 324-5692 eves.

DRAPES - Olive green ant satin, used 1 season, triple & dbl, 90"l, white sat tossel trim. Cost \$150, sell \$85. Steve, Ext. 7756.

GRAVELY TRACTOR - 6.6 hp riding sulky rotary motor, rotary plow, saw blade & other access, elec start. Tony M., Ext. 7525, 925-8225.

OLD PHONOGRAPH RECORDS - 25-1943 Lincoln lead pennies, foreign coins, best offer. O. Booker, Ext. 2411.

PIANO - Baby Grand by Cable, full keyboard, bench incl, excel cond. \$800. Dave, Ext. 2593.

TYPEWRITER - Old office type Underwood, as is cond. \$20. Dave, Ext. 2593.

ELEC BASS AMP - Marvel Combo, 20 watt, 12" speaker, can be used for other elec instruments, 3 mos old. \$65. Dave, Ext. 2593.

DANISH MOD COUCH - & matching chair, \$125; dbl bed matt & frame in very good cond, \$80. 475-6096 after 5.

STORM WINDOWS - Screens, wooden, good cond, need putty, 9-27x55, 5-27x37. \$1 ea. 744-2920 after 6.

BAR - Modern, walnut, all formica, white top. \$60. 924-4097.

2 SINGLE BEDS - Compl w/springs & matt. \$10 ea. Davis, Ext. 439, HR3-1523.

KENMORE SEWING MACHINE - Sews fwd & back, good cond, reasonable. Claire, Ext. 7421, 744-5969.

ST BERNARD PUPPIES - AKC, 1 male, 1 female, will be ready for Christmas. \$250. 732 2204.

CHRISTMAS TREE - 7', silver color, very full, w/multi-colored revolving spotlight, make offer. Ben, Ext. 2588.

BIRD CAGE - All chrome, glass sides all around 22"h, 15"l, 9"w, in like new cond. Ben, Ext. 2588.

FISH TANK - 30"l, 13"d, 12"w, slate bottom, heavy duty plate glass sides. \$15. Ben, Ext. 2588.

ELEC GUITAR - 2 pickups, fully adjustable, perf cond, w/case & strap. AT6-0295 after 6:30.

NEWLY CAINED ROCKER - Dk stained, \$12; wicker table, \$5; milk can, \$5; 2 old wagon wheels, \$8 ea. 929-4149 after 5:30.

ZUKII STEAM JENNY - Never used, fueled by propane gas. \$200. Rich, Ext. 635.

ROSEWOOD UNIT - 2 shelves (32"x12"), 1 record cabinet, mounted on free standing alum poles, mounting hdwre incl, excel cond, must be seen, best offer. 286-3742 after Nov 21.

### 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 Rent

UNFURN UPPER APT IN HOUSE - 2 bedrms, in village of Greenport, 1 mo security. \$150/mo, no util. Wm. Stars, 324-2100 eves.

SM 1 BEDRM APT - Center Moriches, priv entrance, near shopping. \$95/mo. M. Rosso, Ext. 7396.

SKI CHALET - 4 mi from Mt. Snow, has shares avail, sleeps 16, ladies free. D. Dunn, Ext. 7187.

### Wanted

BLOOD DONORS - For David Romano, age 7, a sufferer of leukemia, blood of any type urgently needed for whole blood transfusion. Call Bob De Gregorio, 928-1344 for details.

2 PINUP LAMPS - Cheap. Claire, Ext. 7421, 744-5969.

TYPING - Term papers, etc., to do at home. Claire, Ext. 2131.

HOME - For 5 wk old puppy, mother is Golden Retriever, suspect father is Labrador Retriever. 941-9282 eves.

BLDG LOT - North Fork, Jamesport or east, realistic price. Ext. 2216, GR5-7274.

BABYSITTING - Want to babysit for pre-schoolers in my home, yard, meals & other children to play with, days, nights, weekends. 878-1514.

MALE SIAMESE CAT - To borrow for stud. S.L. Comerford, Ext. 2919.

PORTABLE TV - Good working cond. J. Smith, Ext. 2797.

TAKERS - For free latest model animated mouse traps, fur clad, pan trained, M or F, asst colors, no restriction on quantities. Joyce, 732-3976.

GOOD SEWING MACHINE - Must sew zigzag (overcast seams) & make buttonholes. Claire, Ext. 7421, 744-5969.

HELP! - Boy Scout troop 287 Ridge needs donations of equipment, rope, canvas, uniforms, etc. George, Ext. 7204, 929-4818.

20 GAL FISH TANK - For fish, cheap. 265-3982 after 6.

14" SIDE SHAFT MOTOR - For Chiefa mini bike, 2 1/2 or 3 1/2 hp. Hank, Ext. 7104.

WILL SHARPEN ICE SKATES - T. Lehecka, LT9-2470.

HOUSE TO RENT OR BUY - 3 bedrms, kitchen, liv & din rm, 1 1/2 or 2 baths, 2 car garage. Roe, Ext. 2700, 286-2280.

SEAMSTRESS - To hem winter coat & fix lining. Ext. 2784, Tues or Thurs or after 6.

INEXPENSIVE BUREAU NEEDED - Ext. 2784, Tues or Thurs or after 6.

HOT WATER CIRCULATOR PUMP - W/wo motor. John, Ext. 7388, 744-5867.

HAVING A CHRISTMAS PARTY - W/live music? See & hear Donnie Dee, the one man band. 281-8044 after 5.

PETS - Going on a holiday, pet-sitting by day, wk, mo, reasonable & reliable. Tony, 924-8225.

### Carpools

DRIVER/RIDER - For Bellport Carpool. J.Staffetas, Ext. 657.

### Lost & Found

LOST - Raincoat, Cafeteria, Fri. the 13th, takes zip-in lining and has burn on left sleeve. P. Michael, Ext. 458.

### Classified Ad Policy

Deadline is 12 noon Friday for publication the following week.

- The Brookhaven Bulletin's classified section may be used only by active and retired Laboratory employees.
- All items for sale or rent must be the advertiser's property.
- Ads for material acquired for resale in association with a full or part-time business cannot be accepted.
- Firearms offered for sale or trade may not be brought on site.

- Ads not carried because of space restrictions will be held for publication in the next issue.
- Ads are run only once and must be resubmitted if they are to be repeated.
- Ads should be restricted to 20 words or less and typed or printed on the form provided, and must bear the employee's 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