

Lecturer To Report On Gamma-Ray Lines

Over a year ago, scientists from Bell Labs and Sandia Labs conducted an experiment in Australia which gives significant support to gamma-ray line astronomy. One of the scientists, Marvin Leventhal of Bell Laboratories, will present a Lab-wide colloquium on this project, "Gamma-Ray Lines from the Galactic Center," at Berkner Hall on January 8 at 2 p.m.

In a two-day flight, a balloon carried a high-purity germanium detector in a telescope and found a narrow 511-keV positron annihilation line coming from the direction of the Galactic center. As noted in *Physics Today*, "because positrons are produced in many of the high-energy processes believed to be occurring in the Galaxy - such as cosmic-ray induced interactions and explosive nucleosynthesis - the 511-keV annihilation is one of the most obvious gamma-ray lines to look for as evidence of these processes." Some astrophysicists believe that the Bell-Sandia evidence opens the door for the study of gamma-ray line astronomy, a hitherto fledgling field.

Solar Research: Earth Stores Heat In Experimental System

Water and heat are now flowing through more than half a mile of coiled polyethylene pipe buried underground in a field next to Brookhaven Avenue. It is being used for initial investigations on a ground coupled heat storage system which could make solar heating more economical for Long Islanders.

The experimental setup will use the earth itself as a long-term storage device for the excess heat which can be collected by a solar heating system during the summer months. During the winter, researchers feel, some of this heat could be retrieved from the ground to help heat the house, thereby reducing or even eliminating the need for auxiliary electric heating.

For the moment, however, no solar collectors will be installed and no house will be built. Instead, computer models will simulate the addition of solar energy to the system and will account for the heat needed to warm a moderate-sized, well-insulated house.

Philip Metz of DEE's solar group, a physicist by training, is principal investigator on the five-year project. It is funded by the Solar Heating and Cooling R & D branch of DOE's division of Conservation and Solar Applications.

The ground coupling system is designed to be used with a series solar-assisted heat pump system. Still in the developmental stage, this system shows promise of being an economical and efficient solar energy system for areas like Long Island.

Heat pumps, in contrast to furnaces and oil burners, do not just create heat, says Metz, they also move it from one place to another. They work on the principle that there is always heat available in air or water (no matter how "cold" it may seem to be) which can be extracted and used to keep a house at a comfortable temperature. The efficiency of heat extraction, however, depends on the temperature of the heat source. By warming water with solar collectors, the heat pump's efficiency can be greatly improved.

In most solar systems, collectors heat up water which is then used for direct heating of the house. But in a series solar-assisted heat pump system, the collectors supply water to a heat pump which extracts heat and delivers it to the house.

Since a heat pump can remove heat even from relatively cool water, the collectors do not have to raise the water temperature as high as in conventional systems. This results in minimized collector heat losses and so reduces the amount of collector insulation that is required. It also allows the use of inexpensive solar collec-

tors which are unsuitable for other heating systems.

For the current ground coupling experiments, water flowing through 1½" diameter flexible polyethylene pipes is used to transfer heat between the ground and the heat pump. The pipes were laid underground during the summer and are arranged in four different configurations, or "fields." Each field has a different pattern of loops and coils, located at different depths. (One field, for example, is 27' by 25', and contains pipes at three levels ranging from 4' to 12' below the surface.)

Four tanks, made of waterproofed precast concrete cesspool rings, have also been buried in the ground as part of the project. Computer models provide different simulations of heat input, based on hypothetical heating scenarios, for each of the tanks and each of the pipe fields.

The ground coupling system went into operation during the first week in December and is now pulling heat out of the ground. To do this, water is circulated through the underground pipes by a small pump. The ground temperature a few feet below the surface averages about 55°F, and as the water flows through the pipes, it absorbs heat from the ground. It is then piped to a nearby trailer where a heat pump extracts the heat and releases it into the air. The trailer also contains equipment for gathering and recording data on heat flow in the ground and within the system as a whole.

The addition of ground coupling to a solar-assisted heat pump system should result in two major improvements in the system, says Metz. First, the earth itself will act as an economical long-term storage device for the excess heat produced by the solar collectors during the warmer months. In this situation, the underground pipes would act like a giant hot-water radiator, distributing heat from the collectors into the ground. The heat could then be retrieved during the winter when it was most needed. This would permit the use of smaller solar collectors, resulting in substantial savings in the initial cost of a solar energy system.

The second improvement is that the ground can provide emergency heat transfer when it is needed. In conventional solar energy systems, it is not feasible to provide a storage capacity of more than a few days. During extended periods of cold, cloudy weather, expensive electric heating must be used to warm the house. In a ground coupled system, however, the water would be circulated through the ground at this point to pick up the required heat. The ground would thus act as a "buffer" to prevent severe drops in water storage temperature.



Phil Metz at the experimental site during last summer's excavation work.

—photo by Humphrey

"One of the big problems of solar energy systems is the use of auxiliary heat, which is expensive," says Metz. "This system has the potential for not requiring the use of auxiliary heat."

The pump used to circulate the water through the pipes, and the operation of the heat pumps, would require much less electricity than would electric resistance heating or an air-to-air heat pump, he notes.

The ground coupling system may also prove valuable for space cooling during the summer months. Since the ground is cooler than the outside air at that time of year, the heat pump would operate more efficiently if it transferred heat from the house to the ground, rather than from the house to the outside air. (The heat removed from the house during the summer might also be retrieved from the ground in the winter - an added advantage to the system.)

Currently, project staff are taking a variety of data, including measurements of ground temperature, water temperature and heat output. The data will be used to create improved models of heat flow within the system under a variety of conditions, such as winter emergency heat withdrawal or summer space cooling heat rejection. Researchers will then be able to identify the most promising ground coupling configurations for further development.

Wanted: Homes For Oil Burner Testing

Brookhaven has been developing high efficiency oil fired boilers and furnaces under the direction of DEE's Conservation Program Management Group. The units have been lab-tested and, as part of the ongoing development program, will now be installed in Long Island homes to analyze performance under actual field conditions.

Lab homeowners who are interested in participating in this program should contact Bud Woodworth on extension 2361. Homeowners would agree to keep the equipment for a minimum of one year and allow contractor personnel to come into their homes once every two weeks, at first, and, later, once a month, to monitor the equipment. Any repair problems that arise during this period would be taken care of by a service company, without charge to the homeowner. Funding for development and installation of the oil-fired units is supplied by DOE.

The Conservation Program Management Group would like to know how many Lab employees would be interested in the program before they open it up to other homeowners, and Woodworth will be glad to supply further details.

Federal Tax Change

Effective for wages paid after December 31, 1978, new Federal withholding tables have been issued, which, in most cases, reduce the amount of Federal income tax withheld from employees' pay. The impact of this change will be reflected in the net take-home pay of weekly employees on January 4 and monthly employees on January 31, 1979.

The reduction in withholding is reflected in the 1978 Revenue Act which increased the "zero-bracket amount" (previously known as the standard deduction) from

\$3200 to \$3400 for married taxpayers filing jointly and from \$2200 to \$2300 for single taxpayers including heads of households. The Act also increased each exemption from \$750 to \$1000. In addition, there were changes made to the individual income tax brackets.

The examples below illustrate the effect of the change on net take-home pay. The old and new withholding amounts are given to highlight the difference. The salaries indicated are for gross earnings.

	Single and Head of Household 1 Exemption		Married 4 Exemptions (2 children)	
	Old	New	Old	New
	Weekly Withholding			
\$200/wk.	28.38	28.09	13.32	11.56
\$250/wk.	41.01	40.33	22.33	20.44
\$300/wk.	55.01	53.64	32.10	29.84
	Monthly Withholding			
\$1500/mo.	300.42	292.22	184.71	171.26
\$2000/mo.	476.40	463.65	316.07	291.43
\$2500/mo.	656.40	658.65	473.07	439.42

If you have any questions, call Maurice DuBois, Ext. 2487.

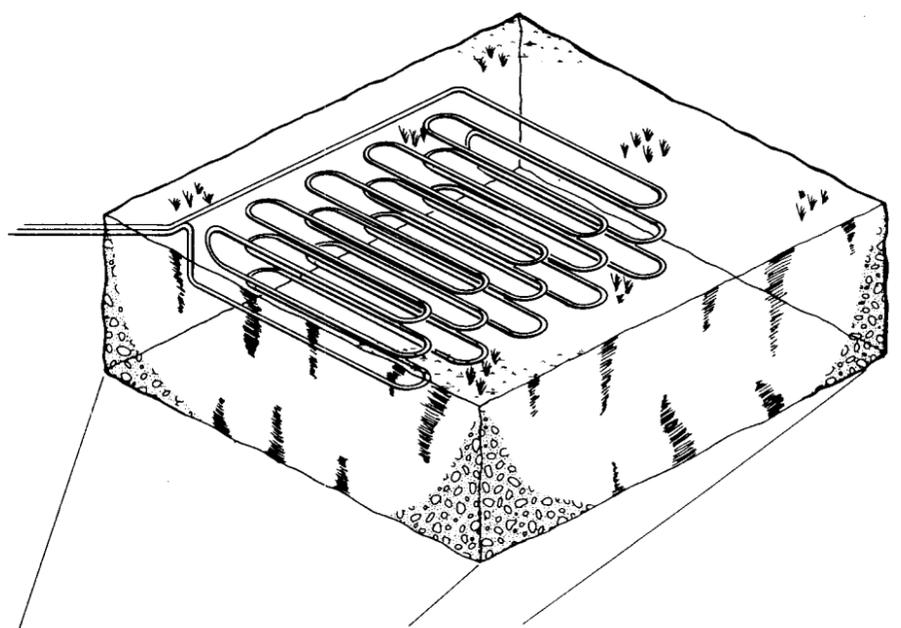


Diagram of an experimental "field." Pipes are located at three levels ranging from 4' to 12' underground.

18 Unnatural Laws

1. **MURPHY'S LAW**
If anything can go wrong, it will.
2. **O'TOOLE'S COMMENTARY ON MURPHY'S LAW**
Murphy was an optimist.
3. **THE UNSPEAKABLE LAW**
As soon as you mention something... if it's good, it goes away... if it's bad, it happens.
4. **NONRECIPROCAL LAWS OF EXPECTATIONS**
Negative expectations yield negative results. Positive expectations yield negative results.
5. **HOWE'S LAW**
Every man has a scheme that will not work.
6. **ZYMURGY'S FIRST LAW OF EVOLVING SYSTEMS DYNAMICS**
Once you open a can of worms, the only way to recan them is to use a larger can.
7. **ETORRE'S OBSERVATION**
The other line moves faster.
8. **SKINNER'S CONSTANT (FLANNAGAN'S FINAGLING FACTOR)**
That quantity which, when multiplied by, divided by, added to, or subtracted from the answer you get, gives you the answer you should have gotten.
9. **LAW OF SELECTIVE GRAVITY**
An object will fall so as to do the most damage.
- 9A. **JENNING'S COROLLARY**
The chance of the bread falling with the buttered side down is directly proportional to the cost of the carpet.
10. **GORDON'S FIRST LAW**
If a research project is not worth doing at all, it is not worth doing well.
11. **MAIER'S LAW**
If the facts do not conform to the theory, they must be disposed of.
12. **HOARE'S LAW OF LARGE PROBLEMS**
Inside every large problem is a small problem struggling to get out.
13. **BOREN'S FIRST LAW**
When in doubt, mumble.
14. **THE GOLDEN RULE OF ARTS AND SCIENCES**
Whoever has the gold makes the rules.
15. **BARTH'S DISTINCTION**
There are two types of people; those who divide people into two types, and those who don't.
16. **SEGAL'S LAW**
A man with one watch knows what time it is. A man with two watches is never sure.
17. **NINETY-NINETY RULE OF PROJECT SCHEDULES**
The first 90% of the task takes 90% of the time, and the last 10% takes the other 90%.
18. **FARBER'S FOURTH LAW**
Necessity is the mother of strange bed-fellows.

—from The Book of Lists, Copyright © 1977 by David Wallechinsky, Irving Wallace and Amy Wallace. Reprinted by permission of William Morrow & Company, Inc.

Retiring Today



Joseph J. Fedelem, Technical Associate in the Department of Energy and Environment, who has been with the Laboratory since December 10, 1962, retires today. He will live in Naples, Florida.

—photo by Rosen



BNL telephone operators (from lower left, clockwise) Grace Vestal, Marion Dorfer, Kay Whalen, Lorraine Harty. —photo by Reben

On Call At The Switchboard

"I remember one woman, calling from Queens," said BNL operator Kay Whalen "who wanted to speak to someone here about phone installation. I didn't understand her too well, but I told her we couldn't help with private phone installation and suggested a telephone office in Queens. 'You can't help me?,' the woman persisted, 'someone at the Lab must know something about foam insulation.' 'Foam insulation?,' Kay said, 'I'll connect you...'"

Kay, Grace Vestal, Marion Dorfer and chief operator Lorraine Harty are the BNL operators who, in a day's work, relay incoming and outgoing calls, contact parties in emergencies, arrange conference calls and place overseas calls by the dozen. "They're an excellent group," said Jim Vance, Telecommunication Coordinator, "but where they really shine is in placing overseas calls. They're more knowledgeable in this area than most of the operators they must deal with."

The Centrex switchboard with which the operators work is a loop system which identifies incoming calls and permits one call to come in per board. "Not many people realize that at most there are three operators on duty at any one time to handle all the calls which 3000 employees might generate," Lorraine said. Placing a person-to-person call to the Philippines or explaining the phone system to a guest not fluent in English requires both time and patience, but each of the operators says she enjoys her work. "We always manage to make ourselves understood," noted Grace, "and we end up with lifetime friends."

In addition, BNL operators (who are Laboratory, not NY Telephone employees) give out general Lab information and handle requests for telephone repair. They also maintain an index of all on-site residents. Because there are many guests and visitors throughout the year, keeping the index current is a challenge. "It's especially frustrating," noted Marion, "to try an employee's extension only to find they've moved to another. If there's no urgency, it's just a matter of re-dialing; but in some cases, contacting the person as soon as possible is important, and if the communications office isn't notified of a change, we can't act as quickly."

All four women, who are ex-Telephone Company operators, agree that their harried moments could be slightly alleviated if more people followed the advice of their

ex-employer — that is, "use the book."

"The directory doesn't make great reading," conceded Vance, "but a lot of the information requested of an operator can be found there. Pages 42 and 43, for instance, describe the kinds of calls that can be dialed from different treatment phones. The telephone directory change form is in the yellow pages. If that's completed and sent to the Communications Group when an extension is changed, the operators are notified and they can continue to place incoming calls."

The yellow pages of the BNL directory also give the extension of the guest house, mobile homes, apartments and dorms and list the pocket-page numbers. "Central telephone numbers for Lab departments are listed there, too," the operators point out.

"We consider incoming calls a challenge to all the facts an operator has to keep in her head," Lorraine mentioned. "I'm not sure of the scientist's last name," a caller might begin, "but he's a tall guy with blue eyes... could you just run over to his desk with a message?" There are some requests, however, that an operator just can't fulfill.

Museum Seeks Friends

The Friends of the Vanderbilt Museum, a group whose members represent various historical, educational and environmental interests, seeks to develop the potential of the County-operated Museum and Planetarium in Centerport.

According to BNL chemist, Garman Harbottle, a Museum Trustee, it is a long term goal of the Friends to develop the Vanderbilt so that it would be a center of scientific education for students in Suffolk County. In particular, they hope to preserve and expand the Natural History collections. Currently, the Vanderbilt consists of a fully furnished mansion, has a spectacular collection of minerals, retains a resident astronomer, offers laser light shows weekly, and is planning a special program in anticipation of February's total solar eclipse.

Employees who would like to become members of the Friends of the Vanderbilt Museum, should contact Harbottle on extension 4387 for further information.

In Memoriam

Joan Z. Redzinak, Sr. Administrative Assistant in the Department of Nuclear Energy, died December 31 at Central Suffolk Hospital, at the age of 48. She joined the Medical Department on March 13, 1967 and transferred to Applied Science in 1970. She later became secretary to DAS chairman, Joseph Hendrie. On his resignation to head the NRC and the dissolution of the department into DNE and DEE, she became part of the DNE organization. A resident of Center Moriches, she is survived by her husband, George, and her mother, Katherine Zielen. Funeral services were held Thursday.

Nils Anderson, a Technical Supervisor in the Accelerator Department, died December 20 at Mather Hospital. He was 54. Anderson, a Laboratory employee since December 1961, first worked in the Physics Department before transferring to the Accelerator Department where he'd been for the past seven years. He was a resident of Shoreham and is survived by his wife, Dorothy, a son, Donald, and a daughter, Margaret Maso.

Speakers Bureau

Bill Wilhelm (Accel.), Greenport Masonic Lodge, "Problems with making solar energy pay," September 20.

Maxwell Small (DEE), Institute of Environmental Sciences, "Lowlands Waste Water Treatment Project," September 28.

Martin Plotkin (Accel.), IEEE Aerospace Electronic Society, "ISABELLE," October 25.

Andrew Hull (S&EP), Committee on Jobs and Energy Independence, "Energy Policy and Nuclear Questions," October 26.

Martin Plotkin (Accel.), Temple Israel, "Careers in Science," November 21.

Edward Lessard (S&EP), East Islip Fire Department, "Radiation Hazards," December 5.

Edward Mac Dougall (DNE), Three Village Garden Club, "Solar Greenhouses," December 8.

Gary Carriveau (Chem.), Suffolk County Community College, "Thermoluminescence as an Aid to Art and Archaeology," December 13.

Harry Davitian (DEE), WBAU Adelphi University, "Energy Problems," December 13.

R.C. Anderson (DO), School Superintendent's Conference Day, "Energy Options for the Future," December 22.

Cafeteria Menu Week of January 8, 1979

Monday, January 8	
Navy bean soup	(cup) .30 (bowl) .40
Batter-fried steak w/1 veg.	1.45
Franks and beans	1.10
Hot Deli - Pastrami	(on bread) 1.15 (on roll) 1.25
Tuesday, January 9	
Cheese chowder	(cup) .40 (bowl) .50
Chopped steak & 1 veg.	1.15
Turkey tetrazzini	1.30
Hot Deli - Knockwurst	(on bread) 1.15 (on roll) 1.25
Wednesday, January 10	
Minestrone soup	(cup) .40 (bowl) .50
Saga's home-made lasagne & 1 veg.	1.35
Fried rice & pork w/Chinese noodles	1.30
Hot Deli - Italian sausages & peppers hero	1.25
Thursday, January 11	
Chicken rice soup	(cup) .30 (bowl) .40
Irish lamb stew	1.45
Beef liver & onions w/1 veg.	1.15
Hot Deli - Barbequed beef	(on bread) 1.15 (on roll) 1.25
Friday, January 12	
Clam & celery soup	(cup) .40 (bowl) .50
Pot roast & 1 veg.	1.40
Seafood cakes & spaghetti	1.10
Hot Deli - Smoked tongue	(on bread) 1.15 (on roll) 1.25

BROOKHAVEN BULLETIN

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Letters To The Editor

Letter to the Editor

On the occasion of my retirement, I would like to thank the many people at Brookhaven - too numerous to mention by name - for their great assistance in carrying out our medical program in the Marshall Islands during the past 23 years. The success of this project has been dependent in a large measure on the support of many people at the Laboratory and I am most grateful to all of you. I also appreciate so much the heartwarming retirement party, the memory of which I shall always cherish.

—Robert A. Conard

On The Air

James Sanford, ISABELLE Project Head, will be interviewed on the program "Island Assignment," WALK (97.5 FM) on January 5 at 7 p.m., and January 7 at 8 a.m.

Andrew Hull (S&EP) will be a panelist on the "Free Speech" program on Nuclear Power to be broadcast over WRCN, January 14, at 3:45 p.m. (1570 AM) and at 11 p.m. (104 FM).

Arrivals & Departures

Arrivals

Rana Abbas	Energy & Env.
Karl J. Apelskog	Plant Engrg.
Dibyendu Bandyopadhyay	Medical
Richard W. Biscardi	Accelerator
Eileen A. Chilton	Biology
Massimo Cornacchia	Accelerator
Robert I. Goldberg	Biology
James A. Grandi	Chemistry
Robert A. Jasaitis	Accelerator
Anne B. Katz	Biology
Theodore W. King	Accelerator
Ta-Yung Li	Energy & Env.
Kenneth J. Licata	Plant Engrg.
Judith B. Miele	Medical
Robert A. Moore	Ofc. of Mgt. Sys.
Stephen M. O'Kula	Plant Engrg.
Charles E. Pearson	Accelerator
Glenda G. Radich	Staff Services
Stephen P. Risotto	Energy & Env.
Thomas G. Rizzo	Physics
Andrew M. Sandorfi	Physics
Pooran Singh	Physics
Gregory J. Stefanelli	Accelerator
Wing T. Wong	Energy & Env.
Paula L. Vandenberg	Biology
Charles A. Zollo	Medical

Departures

Trevor J. Aggus	Physics
Clarence S. Campbell	Accelerator
Thomas R. Cessario	Safety & Env. Prot.
James M. Chen	Energy & Env.
Florence T. Cua	Safety & Env. Prot.
Israel Dostrovsky	Chemistry
Joel H. Goldman	Physics
Michaela B. Golin	Physics
Peggy W. Hanlon	Ph. & Gr. Arts
Drew W. Hazelton	Accelerator
Steven Lorenzo	Accelerator
Larry A. Lutz III	Physics
John F. Mosley	Safety & Env. Prot.
Edward V. Ohanian	Medical
Stuart M. Pulvirent	Energy & Env.
Cosmore D. Sylvester	Accelerator
Ronnie L. Stilson	Accelerator
Kunio Tanabe	App. Math.
Roger C. Young	Energy & Env.
Bruno W. Zotter	Accelerator

Have you checked your car's wheel alignment lately? Improper front wheel toe-in alignment can cost you as much as three-tenths of a mile per gallon.



Denise Dew-Hughes (left) as Jean Brodie, and Carolyn Henck.

— photo by Rosen

Theater Group To Present "Jean Brodie"

The BERA Theater Group will present "The Prime of Miss Jean Brodie" on January 12, 13, 19, 20, at Berkner Hall. Curtain time is 8:30 p.m. Tickets are available at \$3 for general admission, \$2 for senior citizens and students.

The play features Denise Dew-Hughes, a veteran of many recent BERA offerings, in the title role. Also in the cast are David Dew-Hughes, Philip Schewe, Connie Fuchel and Carolyn Henck.

"Jean Brodie" is a play by Jay Presson Allen, based on the novel by Muriel Spark.

It has been seen on Broadway and was adapted as a motion picture. The plot concerns a domineering schoolteacher in a girls' school in Edinburgh between the wars, dealing with her compulsive efforts to mold and direct the lives of her students, her various lovers, and her romantic flirtation with Mussolini-fascism. It is a gripping drama, with psychological, political and social themes, and should provide an entertaining evening.

Reservations may be made by calling Tony Fainberg at extension 2920.

English Lessons

The BNL Hospitality Committee will sponsor a series of English lessons for foreign-born individuals. The lessons are open to all employees and their spouses. The group will meet one evening a week for one and one-half hours.

Those interested should call Grace Schwaner, extension 2878.

Hospitality Committee

A morning coffee will be held on Monday, January 8, from 9:30 to 11:30 a.m., in the Brookhaven Center.

Please come and bring the children. Babysitting will be provided at no charge. It is suggested that you bring along a toy or two for your children to play with.

Cooking Exchange

Happy New Year to all from the Cooking Exchange!

On Wednesday, January 10, at 12:30 in the Recreation Building, an interesting display of Scandinavian dishes, from appetizers to desserts, will be presented.

Admission is 75¢ and babysitting is provided at 25¢ per child.

Selected Reading

- Nature 276, December 14, 1978**
How molecular biology won its place in the USSR. 662
On cave paintings and nuclear security. A. Weinberg. 663
- Science 202, December 22, 1978**
Conference on nuclear war not peaceful. D. Shapley. 1268

Traffic Hazard

Since the opening of the National Cemetery at Calverton, there has been a significant increase of funeral processions proceeding north on the William Floyd Parkway. In order for the processions to stay together, it has been observed that they often pass through red traffic signals. The Police Group notes that this situation poses a traffic hazard at the intersection of William Floyd and Princeton. Employees are, therefore, urged to be alert and proceed with caution at this crossing.

Stony Brook Events

Sunday, January 14

Concert: The Bartok Quartet, 3 p.m., Main Auditorium, Fine Arts Center. Tickets: \$10, \$8 and \$6. Call 246-5678 for more information.

Emergency Closings

The following radio stations will carry notification of BNL delayed openings and emergency closings:

Station	Area	AM	FM
WBAB	Babylon	1440	102.3
WGLI	Babylon	1290	-
WLIX	East Islip	540	-
WHLI	Hempstead	1100	98.3
WGSM	Huntington	740	-
WALK	Patchogue	1370	97.5
WBLI	Patchogue	-	106.1
WRIV	Riverhead	1390	-
WRCN	Riverhead	-	103.9
WLNG	Sag Harbor	1600	-
WWRJ	Southampton	-	95.3
WHN	New York	1050	-

Mountain Club

A meeting of the Mountain Club is scheduled for Monday, January 8 at 7:30 p.m. in the dining room of the Brookhaven Center. Under discussion will be a possible canoe trip in the Florida Everglades and some local cross-country skiing. All those interested are invited to attend.

Planning A Vacation?

Among the package tours being offered by Glantz Travel Service, Inc., Patchogue, are weekend, one week and two week vacations to Aruba, Hawaii, the Austrian Alps or Europe and Iceland. Depending on destination, length of stay and accommodations, costs vary between \$272 for a weekend in Iceland, and \$489 for eight days in Hawaii. Travel arrangements may be made by calling 289-6700. Glantz Travel is a member of the Long Island Recreational Association.

Volleyball

Mixed League

Division A

On December 18, Nuts & Bolts bolted over the Popovers: 15-7, 15-2, 15-10. Oceanography swept Lookin' Good: 15-6, 15-7, 15-2. Family Affair shone over the Diamonds: 15-5, 15-6, 15-2. No Names took over the Nuclods: 15-11, 15-10, 8-15.

Standings

(Beginning Of Second Round)

Family Affair	3-0
Nuts & Bolts	3-0
Oceanography	3-0
No Names	2-1
Nuclods	1-2
Diamonds	0-3
Lookin' Good	0-3
Popovers	0-3

Division B

Balls & Strikes beat the LeMufs: 15-3, 15-0, 15-8. Wisa's over Nads: 15-17, 15-4, 15-7. Medical took all three games from the Leftovers: 15-8, 15-10, 15-9.

Standings

Balls & Strikes	8-1
Medical	5-4
Nads	4-5
Leftovers	4-5
LeMufs	3-6
Wisa's	3-6

Employees' League

On December 20, Phoenix beat the Atom Spikers: 21-11, 21-18, 16-21. The Bumps bumped out Toga: 21-12, 21-15, 21-8. Spikers vs Cool Tools: Forfeit. Spikers vs Cool Tools: Forfeit. (Make-up - November 29).

Standings

Spikers	19	2	.905
Bumps	17	4	.810
Toga	10	11	.476
Phoenix	9	12	.429
Atom Spikers	6	15	.286
Cool Tools	2	19	.095

Bowling

Green League

With one week left to the first half, the Sparks have won first place by defeating the Dyno-Mites for eleven points. Bob Sick had a 201 and B. Kristiansen a 220. The Pinball Wizards could only take three from the Sandbaggers. M. Israel had a 204. The Blue Jays battled the Old Timers II and took eleven from them. The Cosmos, rolling against the Trouble Shooters, came up with seven points. N. Fewell had a 208.

Pink League

The next night of bowling (1/2) will be position night and the Lickety Splits will be bowling against the No Names for the first half championship.

Only three good games were recorded and they were Marge Stoekel's 188, Carol Beckner's 179 and Ellie Kristiansen's 167.

Red League

The 76'ers won 8-3 over the Freon Loaders to remain 10½ up going into position night. R. Larsen had a 202, J. Karczowski grossed 635 pins. The Old Timers also took 8 points from the Anachem team to remain in second place. J. Fontana had a 622 gross series.

The Sandbaggers took 8 from the Pinball Wizards. E. Meier (207-212) had a great series of 595-649. C. Bohnenblusch had a 203. This Isa Team won 7-4 over the Designers. W. Kollmer (201-203) had a good night with a 574-613 series.

Classified Advertisements

Placement Notices

The Laboratory's placement policy is to select the best-qualified candidate for an available position, with consideration given to candidates in the following order of priority: (1) present employees within the department, with preference to those within the immediate work group; (2) present employees within the Laboratory as a whole; and (3) outside applicants.

Each week, the Personnel Office lists new personnel placement requisitions. The purpose of these listings is, first, to provide open placement information on all nonscientific staff positions; second, to give employees an opportunity to request consideration for themselves through Personnel; and, finally, for general recruiting purposes. Because of the priority preference policy stated above, each listing does not necessarily represent an opportunity for all candidates. As a guide to readers, the listings are grouped according to the anticipated area of recruitment, as indicated below. Except when operational needs require otherwise, positions will remain open for one week following publication date.

For further information regarding a placement listing, contact the Personnel Placement Supervisor, Ext. 2882.

LABORATORY RECRUITMENT: Opportunity for present Laboratory employees.

867. OFFICE SERVICES ASSISTANT - Requires good typing and general office skills and working keypunch experience. Accelerator Department, ISABELLE Proj.

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

868. DRAFTER - AAS degree in Design or Art or equivalent capabilities. Experience with LeRoy lettering, paste-up work and preparing mechanicals required. Ability in rendering desirable. Photography and Graphic Arts Division.

869. WORD PROCESSING ASSISTANT (9 month position) - Requires excellent typing skills with high degree of accuracy. Must have experience on word processor or desire and aptitude to learn equipment. To be trained as dedicated operator. Department of Energy and Environment.

870. SENIOR MECHANICAL DESIGNER (4 positions) - To assist engineers and scientists in the detail design of experimental optical equipment. Requires experience in the layout and detailing of precision mechanisms, weldments, vacuum components and support structures. Knowledge of materials machine shop practices, mechanics and strength of materials highly desirable. National Synchrotron Light Source Project.

871. TECHNICIAN (monthly) - AAS or BS in Mechanical Technology or equivalent capabilities. To assist with the design, fabrication, installation and test of National Synchrotron Light Source vacuum system. Demonstrated experience in vacuum and mechanical technology and ability to interact and communicate with all levels of personnel required. National Synchrotron Light Source Project.

872. PATROL OFFICER TRAINEE - AAS in police science/criminal justice or equivalent capabilities. Familiarity with the operation of a security department. Excellent written and oral communications skills required. Must be willing to work shifts. Safety and Environmental Protection Division.

873. KEY PUNCH OPERATOR (Part time) - Applied Mathematics Department.

Autos & Auto Supplies

ANTENNA - 12 v, remote operated. \$8. Ext. 4058, 286-0436.

NEW & USED TIRES - rims, repairs, mag wheel service, reg, radial, Dunlop-Gillette, free instal, balance avail. Fred Usack, Ext. 4597 lunchtime, 475-4935 eves.

74 KAWASAKI - 175 cc, excel cond. \$350. 286-3606.

78 BRONCO - 4 w/d, a/t, ps/pb, seats 6, removable top, hd hitch, rear mounted spare, reg gas. Asking \$7950. Ext. 4451.

2 BATTERIES - good cond. \$20, \$10. Ext. 3992, 399-1257.

SNOW TIRES - (2) C78-13, new, \$50; (5) B78-13 tires, used, \$75; some Chevy & VW parts. 744-3968.

TIRE - 7:50-14 w/rim, \$10; E70-14; E78-14; D78-14. \$3-8 good for spares. Rich, Ext. 4172.

71 MAVERICK - 4 dr, good transp, needs body work. George, AT9-0599.

72 FORD STATION WAGON - ps/pb, roof rack, 2-way tail-gate, 68,000 mi, dent in door. Les, Ext. 4074.

64 VW CAMPER - new shocks, tires, clutch, rebuilt eng 8,000 mi, gas heater, luggage rack. \$650. Ext. 3698, 325-0363.

TIRES - (1) HR78-14 steel belted radial, \$10; (1) HR78-14 Uniroyal snow, steel belted radial; (1) Philco in-dash AM pushbutton radio, \$15. Chris, Ext. 3919, 929-4310 after 6.

71 DATSUN PICKUP - good running cond, hd rear susp. \$600. 286-3606.

71 FIAT SPYDER - model 850, spare eng incl. \$600. George, AT9-0599.

2 SNOW TIRES - (1) 8:55-14 & (1) H78-14 w/Chevy rims. \$15 ea. Don, Ext. 2043.

73 DODGE - V8, a/t, ps/pb, trailer tow pkg, hitch, adp air shocks, excel cond. \$1700. Leo, Ext. 4688, 475-4557 eves.

66 PONTIAC GTO - 389 eng, new brakes, exhaust sys. \$550. Frank, 732-4224.

71 PLYMOUTH ROAD RUNNER - 383, a/t, AM/FM cassette deck, ps/pb, many extras. Jimmy, Ext. 2534, 878-4506.

74 PONTIAC FIREBIRD - 6 cyl, a/t, excel. \$2250 firm. Ext. 7941.

72 VW SUPER BEETLE - sun roof, AM/FM, yellow, clean. Asking \$1200. Joe, 864-7814 after 7.

66 DODGE CORONET - good cond, new trans. Asking \$400. Jim, Ext. 4151, 744-2514.

TIRES - (2) F78-14, (1) snow F78-14, good cond. \$12 ea. Tim, Ext. 2060.

69 FALCON STA WAGON - p/s, a/t, good cond. \$600. Yoshiki, Ext. 4008.

73 DODGE VAN - B200, 6 cyl, a/t, new tires, exhaust sys, shocks, stock inside, 52,000 mi. Joe, Ext. 7961, 727-7450.

68 MUSTANG - low mileage, many extras, good cond. \$750. Jim, Ext. 4151, 744-2514.

74 VEGA HATCHBACK - new batt & tires, 28 mpg, runs well. \$750. 324-5589.

74 COMET - 2 dr, 6 cyl, p/s, a/t, Michelin radials, very economical, excel cond. \$2250. 283-6338 after 4.

WHEELS - (2) 8"x16.5, 8 lug, white, w/hub cap mts. \$50. Gerry, Ext. 4597.

73 CHRYSLER TOWN & COUNTRY WAGON - 9 psgr, ps/pb, a/t, low mileage. George, AT9-0599.

71 VW SUPERBEETLE - 12,000 mi on new motor, all new parts, tires, excel running cond. \$1000. 821-9419.

69 BMW 2002 - very good cond, sunroof, AM/FM, 2 new radials, recent tuneup. \$2700. Ext. 3326, 286-0497 eves.

SNOW TIRES - polyglas belted E78-14. \$10/pair. R. Horwitz, Ext. 4134.

73 CAPRI - red w/blk vinyl roof, AM/FM cassette, 4 new radials, low mileage. Asking \$1800. 732-1849.

73 FORD BRONCO - a/t, 4 w/d, new snows, FM/8 trk, roll bars, rear mounted spare, good cond. \$3500. Joan, Ext. 2090, 698-5787.

71 OPEL 1900 WAGON - a/t, p/b. Around \$750. Dave, Ext. 3403, 286-0703.

75 PONTIAC - blue, a/t, p/s, stereo, snows, new batt & muffler, good cond. \$1500. Hirano, Ext. 2305/3078.

74 AUDI FOX - new valves, rings, excel cond, gas mileage, 77,000 mi, owner returning overseas. \$1600 or nearest offer. Dennis, Ext. 4382.

SNOW TIRES - new Michelin X 165R15, 2/\$100; also used Goodyear 165-15, 2/\$10; 1 new Goodyear 165R-15 steel radial regular tire. Ext. 4727.

72 FIAT SEDAN 124 - new clutch, compl new exhaust sys, tune-up, batt, fuel pump. Asking \$700. Terri, Ext. 2927, 289-3684 after 6:30.

68 BUICK - V8, a/t, ps/pb, good dependable car. \$250 firm. Steve, Ext. 3100.

HUB CAPS - 2 ea 1975 Toyota Corolla. \$5. Gil, 727-6258 after 6.

Miscellaneous

270 WINCHESTER SHELLS - 2 boxes for \$10 or trade for 2 boxes 44 mag shells. J. Bush, Ext. 3284.

SURF POLE - 9' Diawia rod & reel w/monofilament cord, new, \$40; baby carrier seat, \$3. 475-0144 eves.

CANVASSES - for artists, 5x7, pk of 3/604; bowling ball, approx 15 lbs, \$4 & \$6; camping stove, \$7. Sue, Ext. 4207.

FIREWOOD - 4'x8'x18" logs, \$50; 4'x16'x18" logs, \$90. Delivered. 924-3919 or 924-4284 eves.

BICYCLE - girl's 16" Ross w/training wheels. \$20. Ext. 4030.

WATER PUMP - 1/2 hp deep well jet & 42 gal glass lined tank. \$50. Leo, Ext. 4688, 475-4557 eves.

SKI BOOTS - lady's 2 pr, leather, buckle, sizes 5 & 6. \$10 ea. Ext. 2318.

COMPUTER - TRS-80, 4K mem, can be upped to 36K, basic lang, video display, keyboard & cassette storage. Asking \$500. Chuck, 821-1525.

COTTON RUG - w/pad, 10x14, some spots. \$15. AT6-1253 eves.

REFRIG - 11 cu ft Westinghouse, old but still good. \$25. 732-7134.

SKIS - Northland, 182 cms long, wood, bindings, poles, boot carrier, excel cond. \$25. Ext. 4742.

WOOD BURNING KITCHEN RANGE - cast iron. W. Kane, Ext. 3841, 286-9450.

CB WALKIE TALKIE - 5w, 12 channel, has channels 2, 15 & 9, can be used on other than CB channels. \$55. Kay, Ext. 4605, 286-8957.

RUG - 2 tone gold shag, good cond, approx 12'x12'6". Best offer. Joan, Ext. 2090, 698-5787.

OPTIGAN ORGAN - excel cond, beautiful sounds, anyone can play. \$200. Richie, 289-5428.

HAM STATION - Kenwood TS520S w/spkr & mike, Dentron SS tuner, Swan WM2000, ant & more. \$800. John Jr., 929-4450.

20" BICYCLE - \$10; bicycle w/side wheels for 3-5 yrs, \$4; sleeping bag, \$5. Dennis, Ext. 4382.

FM-AM RADIO/STEREO PHONOGRAPH - Seville, good cond. \$55. Hirano, Ext. 2305/3078.

KODAK EK-4 INSTANT CAMERA - w/carrying case, like new, sacrifice. \$30. Terri, Ext. 2927.

AQUARIUM - 29 gal, w/stand, light, filter, heater. Best offer. Ext. 2906.

2 TICKETS - King Tut, Jan 15. \$15 ea. Gordon, Ext. 4075, 477-2269 after 6.

TATAY GUITAR - w/case, excel cond, new strings, \$85. Hull, Ext. 4210.

DARKROOM EQUIPMENT - Bookless, Ext. 4510.

18" ELEC LAWN MOWER - Black & Decker twin blade, w/grass catcher, excel cond. Cost \$100, sell \$60. 727-4859.

AM/FM STEREO RADIO - w/record changer, \$50; refrig, GE monitor top - working, \$40. Gil, 727-6258 after 6.

HANGING LAMPS - 2 blk wrought iron w/gold shade, \$15 ea; blk & gold custom drapes, quilted valance & traverse rod, 11'x96" L. Joan, Ext. 2090, 698-5787.

MACRAME SHIP BUMBERS - use for sea-going theme in home, office, den or restaurant, same bumpers avail at South St Seaport for exorbitant price, 4 avail. \$25 ea. Andy, Ext. 2948/3051, 722-3168.

WASHING MACHINE - Sears portable, like new. \$225. Ext. 3535.

PORTABLE ELEC DRYER - 110 v, gold. \$80. Ron, Ext. 4636, 281-6630.

DRAPES W/TRVERSE RODS - 2 dbl pr, 1 triple, green crushed velvet & gold sheers. Best offer, will sell separately. 928-0297 after 6.

BASS STEREO GUITAR - Rickenbacker 4001 w/case, blk custom color, & lifetime neck guarantee, mint cond. \$340. Ext. 3897.

PORTA-CRIB - \$20; bedrm set, \$90; dresser, \$20; pool table, \$15; camping cooler, \$10; rocking horse, \$5; bathinette, \$5; games & toys. Palais, 698-0576.

TYPEWRITER - portable Sears Tower (Best) w/carrying case. \$25. GR5-8658 after 6:30.

PHOTOGRAPHIC SLIDE DUPLICATOR - w/copy stand & spring loaded parallelogram. Asking \$50. Tom, Ext. 3535.

ASSTD CUTLERY - pieces, good for camping, \$1; exercise bicycle, \$10; slide projector, Airequipt, \$50; picnic cooler w/built-in blue ice packs, \$2. Kathi, Ext. 2913.

BOW - wood & fiberglass, 35 lb pull, quiver, arrows, rack, etc incl. \$30. Laurence, 744-5079.

BEDRM DRESSER - \$15; baby scale, \$10; camping ice chest, \$7; traveling sprinkler, \$10; bathrm scale, \$5. Palais, Ext. 2913, 698-0576.

PORTABLE CATALYTIC HEATER - 5000 btu, brand new, never used, \$15; Royce Single side band CB, 120 channel w/3-range pwr/SWR tester & remote spkr, like new, \$150. Kathi, Ext. 2913.

OLD TYPEWRITER - needs minor adjustment, asking \$20; Arborite table & 6 chairs, usec, asking \$25; metal frame rocking lawn chairs, asking \$15 ea. Tom, Ext. 3535.

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

MASTIC BEACH - long-line ranch, 2 over-size bedrms, cabinet-lined kitchen, formal D/R, den, full bsmt, baseboard heat, 1/4 acre. \$27,995. 281-5498.

BROOKHAVEN HAMLET - near bay, 3 bedrm ranch, att garage, ex lg fin bsmt, bar, 2 fireplaces, screened porch, new appliances, extra insulation, on beautifully landscaped 0.83 acre. (212) 831-6157 after 6.

SHOREHAM - N of N Country, 4 bedrm cape in established neighborhood, deeded beach rights, 1/2 acre, fireplace, deck, fin bsmt, extras. 744-5801.

EAST PATCHOGUE - La Bon Vie II, 3 rm apt to sublet, adults only. H. Morris, 475-2260.

MATTITUCK - secluded 3 bedrm, 2 bath ranch in priv wooded area w/deeded beach rights, w/w car-peting, drapes, appl, fam rm w/wp, low taxes. 298-4592 or 298-4324 for appt.

CALVERTON - 3 bedrm ranch, oil fired heat & water, s/s, fin bsmt w/bath & kitchen, 1 acre prop. \$34,000. 727-9058.

SHOREHAM - custom colonial, 3 bedrms, formal D/R, den, fp. .43 acre, deeded beach rights. \$65,000. 744-1081.

CENTEREACH - lg 4 bedrm col, 2 yrs old, cathedral ceiling, 2-car gar, 1 block to school, relocating, must sell. \$37,990. Ext. 3987, 698-5475 after 6.

For Rent

MT SINAI - 1 rm furn efficiency apt, priv entrance, female preferred. \$185/mo, util incl. 331-2779.

RONKONKOMA - 4 bedrm house w/barn & gar, 1 acre. \$400 + util. 265-8827.

MILLER PLACE - 4 bedrm house, furn, Feb-Aug. Ext. 4521.

CORAM - 1 bedrm, lg L/R, furn, w/w, a/c, f/p, sun-roof, patio, priv ent, no pets, single person only. \$250/mo incl util. 928-8071.

BELLPORT - 3 bedrm, fp, water view. \$300/mo + util. Ext. 3482.

Wanted

KING TUT TICKETS - for any date Feb, March, April. Gail, 929-4450.

PIANO STOOL - oak, claw legs. John, Ext. 2501, 751-6390.

AUTO REPAIR SHOP MANUAL - for 69 Ford Torino. Laffer, Ext. 3354.

VW SQUAREBACK - any yr, for body & front end parts, eng not needed. Ext. 4058, 286-0436.

HOUSEKEEPING QUARTERS - for family to rent near skiing, for some wk in Feb. Marlene, 744-5801.

BABYSITTER - Jamesport-Aquebogue area, 16 mo old boy toddler would love to join others in play-group, 8:30-4:30, 3 days/wk. Will pay top wages for dependable, quality care; references required. Andy, Ext. 2948/3051, 722-3148.

OCCASIONAL BABYSITTER - for 4 yr old in Rocky Pt area. References desirable. Eva, 744-4838.

TO TRADE - 2 tickets for King Tut Exhibit on Jan 19 for same on later date. 473-8426.

USED ANTENNA ROTOR - reasonable. Ext. 4058, 286-0436.

ENGINE - sm block Chevy V8, low mileage or rebuilt recently. Richie, Ext. 4254, 734-7342 after 6.

SUNLAMP - preferable 600-800 w. Ext. 2493.

DOLLS - old bisque, china; also old parts, toys, for cash. GR5-4199.

CAP - fiberglass truck cap to fit Ford pickup. Ron, 732-6712.

BABYSITTER - on-site for infant for occasional afternoons & eves. 331-1203.

TO RENT - sm apt or rm, reasonable, for single Lab employee. Scott, Ext. 4364/4525.

TRAINS - Lionel, any "0" or "027" gauge, cars, track & equipment. Frank, Ext. 4212.

HOME - for Irish Setter, pure bred w/papers, loves children. Moving - must sacrifice. Bonnie, Ext. 2902, 929-4885.

Car Pools

PT JEFF - want to start or join a car pool. Rose, Ext. 4430.

JAMESPORT-AQUEBOGUE AREA - need car pool to Lab, willing to do my share of driving. Andy, Ext. 2948/3051.

SOUTH HUNTINGTON - wish to join or start car pool, my car seats 4. Ext. 2365.

SOUTHAMPTON - start or will join car pool, conveniently located at Squaw Hill Motel. John, Ext. 2070.

RIDE - paying rider from Mid Island to Stony Brook, Spring semester, class MWF 9-10 am, flexible. 924-7756.

Lost & Found

FOUND - 1 pr of gloves between 902 & cafeteria. Ext. 7941.

Services

LIGHT HAULING-TRUCKING - messenger service, moving, reasonable, insured. 727-5912.

EXPERT TUTORING - reading, math to grade 12, French, German, English, in my home. \$10/hr. 941-4328.

TV REPAIR - free est on all carry-in TV's. F. DiCrescio, lunchtime Ext. 4597, 399-1803 eves.

BABYSITTING - mother (from India) w/preschooler in Ridge to care for your child/children any time; also, regular basis. 929-6493, 744-4615 eves.

Classified Ad Policy

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

5. Ads not carried because of space restrictions will be held for publication in the next issue.

6. Ads are run only once and must be resubmitted if they are to be repeated.

7. Ads should be restricted to 20 words or less and typed or printed on the form provided, and must bear the employees signature.

For Sale: Auto & Auto Supplies
 For Sale: Boats & Marine Supplies
 For Sale: Miscellaneous
 Wanted
 Carpools
 Lost & Found
 Services

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

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

(Name & Phone No. To Call)

Employee's Signature Life No. Ext.

Send to: Brookhaven Bulletin, Building 460, 40 Brookhaven Avenue (Ext. 2345).