



Brookhaven is the Northeast coordinator of DOE contractors in oceanography. Recently, the Lab hosted a conference on Ocean Thermal Energy Conversion (OTEC). Forty biological, chemical and physical oceanographers from the United States and Puerto Rico were invited to discuss potential environmental effects of OTEC. Among the participants were: (l-r) Helen McCammon, Director of the Ecological Research Division, Office of Health and Environmental Research, DOE; John Walsh, Head of Oceanographic Sciences Division, BNL; George Saunders, Aquatic Ecologist, Ecological Research Division, DOE; and Tom Hopkins, Oceanographer, BNL.

Tapping The Ocean

Three-quarters of the world is covered by ocean. And a swath of water about 25° latitude on either side of the equator captures enough solar heat to provide an unusual alternate form of energy.

Ocean Thermal Energy Conversion (OTEC) is a new technology that makes use of ocean thermal gradients (temperature differences between solar heated surface water and very cold deep water).

The idea is not new. It was first proposed in 1881 by a French physicist who envisioned using warm, surface waters to cause a working fluid such as ammonia to evaporate, which forced the rotation of a turbine attached to an electrical generator. The ammonia vapor would then be reliquified by cold water pumped up from the deep, and the cycle could be repeated continuously.

Since ocean thermal gradients are caused by the sun, they are a renewable energy resource. Today, OTEC is being examined to see if it is technically, economically, and environmentally feasible.

Floating OTEC plants would be located within the band of ocean where the thermal gradient is greatest. Their most obvious product is electricity, which could be cabled ashore or stored in fuel cells and barged ashore. Other possibilities are aboard-ship manufacture of metals and chemicals such as aluminum, chlorine and magnesium. Also, some marketable by-products might be fresh water, shellfish, kelp, and other crops that could be grown utilizing nutrients upwelled in cold water.

Technicalities and Economics

A key cost factor in OTEC plants is how well heat exchangers work. Large quantities of water must be circulated past heat exchangers to produce significant amounts of electrical energy. For example, a 400 MWe (400 megawatts of produced electricity) OTEC plant would require a mixed flow of warm and cold water of about 300 million cubic meters (80 billion gallons) of water each day. One problem is that water pumped up from the deep is rich in nutrients, which causes organic growth (biofouling) on heat exchangers and cuts down on their efficiency. Another problem is corrosion. When a heat exchanger corrodes, it becomes coated with an oxide or inorganic salt, which also reduces efficiency.

Various metals for heat exchangers

have been considered and all have drawbacks. Titanium corrodes very slowly, but is very expensive. Aluminum is fairly cheap, but reacts with sea water and scales (as most small boat owners have observed). Copper-nickel alloy resists biofouling, but reacts chemically with ammonia.

Environmental Effects

What kind of environmental effects will OTEC have? This question was addressed by scientists at a recent conference hosted by the Lab. In general, they concluded that OTEC would not have a significant environmental impact with just a few small plants in operation away from the coastal zone. If more plants came on line, however, the situation would have to be reevaluated.

An OTEC plant would discharge a plume of water, similar to the plume of air put out by a coal-fired plant. Environmental effects would depend on how far the plume spread, how fast it sank, and how it diffused. The reasons for concern about movement of the plume are: 1) it would be carrying upwelled nutrients, which could

(Continued on page 2)

Committee Named

As a follow-up to his announcement last November of the establishment of a committee to examine personnel policies for all non-bargaining-unit employees (except scientific and senior administrative staff), the Director has now appointed a committee, under the chairmanship of Jerry Hudis, to perform a similar service for the scientific staff. Working with Hudis on the committee are Donald Borg, Horst Foelsche, Bernard Manowitz, Nicholas Samios, R. Christian Anderson (ex officio), Richard Schonberg and Gail Williams, Staff to the Committee.

The committee which has been working for the past two months on personnel policies for other non-bargaining-unit employees is headed by Arthur Schwarzschild. It includes Robert Aronson, William Casey, Ralph Cerbone, Donald Davis, Bernard McAlary, Richard Schonberg, Julius Spiro, Joseph Washburne (ex officio) and Virginia Brown, Staff to the Committee.

The first recommendation of the Schwarzschild committee to be acted upon by the administration is discussed elsewhere in this issue under the heading "Snow Pay Policy."

New Plan For TRANSVAN

The Lab's pilot vanpooling program has been in operation since last May and, from all accounts, the three vans carrying passengers from Patchogue, Stony Brook, and the Nassau/Queens area, have proved an effective way to save money, gas and provide safe transportation for employees.

As promised, a Laboratory committee has been working on ways to expand the program, now that it has shown merit. And what they have come up with, is a form of private enterprise. The AUI contribution for the purchase of the first three vans was to test the acceptability of vanpooling at BNL, but there is another type of program that has been successful at over 250 companies across the nation, and that is where the employee acts as owner and operator.

In short, the employee buys the van, operates it, collects the fares, and the vehicle is his or hers for unlimited personal use after commuting obligations have been fulfilled. But it is a non-profit operation. In other words, the owner recovers his costs, but cannot make money off the passengers by charging fares that would provide a tidy nest egg.

To make it as easy as possible for employees to join this energy conservation enterprise, the Laboratory has been able to eliminate three major stumbling blocks, and these negotiations are what have delayed announcement of the expanded program. They are in the areas of insurance, registration or licensing requirements, and bank loans.

As a non-profit operation, and not a "van for hire" (like a taxi), the Lab has obtained in writing from the New York State Insurance Department that the insurance rating structure will be the same for employee operated vans, as for employer operated vehicles. This means that insurance rates are substantially less than for profit-making vehicles.

The Lab has also received a letter from the Motor Vehicle Bureau which rules that as the vans are not for hire, they will not require special registration or licensing requirements, and consequently such fees are considerably less.

Employees who decide to purchase vans, will be given copies of the above letters which they may present to their insurance companies and to the Motor Vehicle Bureau.

Now it would seem that with the

purchase of the van, and the cost of insurance, registration, etc., the employee might have a rather heavy financial burden to carry initially. To ease this burden, the Bankers Trust Company has agreed that purchasers who pass a normal credit check, will not be required to make a down payment and may finance the vehicle over a four or five year period at a 10.74% interest rate. This is the same rate currently charged for the purchase of an automobile over a 4-year period.

Consequently, the purchaser should be very little out-of-pocket, as the passengers will be paying off a large portion of the cost.

Attractive quotes have been obtained from several automobile dealers for would-be van purchasers, who would be charged the cost to the dealer, plus from \$100 to \$250 more. In fact, one dealer has also said that if there were enough interest in the program, he would provide a replacement van when the owners come in for a warranty check, so there would be no break in the commuting schedule.

The fare structure will be established on a break-even basis, in accordance with the non-profit status of these vehicles. To this end, Bill Webster, Staff Services Manager will be glad to sit down with van owners, review their costs and recommend a fare to be charged. Since the beginning of the pilot program, the fares have been adjusted upward about 5%, and are due for another increase. For instance, the 35-mile round trip from Stony Brook is currently \$27/month, up from \$25.82. If you are still driving your own car, and have checked your gas bills, you will realize that this is a lot less than you are paying now.

Personnel will work with van owners in providing them with listings of employees from their area who wish to be passengers. Over 700 employees expressed interest last year and their names are on file. **To bring the listings up-to-date, employees who now wish to participate in TRANSVAN, and have not yet so indicated, should complete the form below and return it to Personnel.**

In the event of rationing, the White House has suggested "issuance by the Department of Energy of a proposed rule to assure bulk users sufficient gasoline to maintain

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TRANSVAN Interest Survey # 2

(Complete this form only if you did not respond to the survey last year)

I am interested in becoming a passenger in a commuter van pool.

Name

Address

Nearest major cross streets

Bldg. No. Office Ext. Start Work Leave

Return form to Peter Paige, Personnel, Bldg. 185.

TRANSVAN

Same Time This Year

Brookhaven concert lovers will remember that last year, German pianist Justus Frantz was forced to cancel his performance at the Laboratory because of an accident.

Mr. Frantz will perform this year on Tuesday, February 19 at 8:30 p.m. in Berkner Hall. His concert is the fourth in the current series sponsored by BERA.

The program will include Eight Klavierstücke, Op. 76 by Brahms and the Waldstein and Appassionata Sonatas by Beethoven.

Mr. Frantz made his U.S. debut in 1975 with six performances of Dvorak's rarely-heard piano concerto. He performed with the New York Philharmonic under Leonard Bernstein, and was the first artist honored by the Philharmonic with so many concerts.

He has made solo appearances with other major orchestras, including the Royal Philharmonic, the Berlin Philharmonic, and the Boston Symphony. He has also performed at summer festivals in Aix-en-Provence, Flanders, Salzburg,



Justus Franz

and Tanglewood. In joint recital, he has appeared with major artists, most notably Christoph Eschenbach and Pinchas Zuckerman.

Tickets are \$5 general admission, \$3 for students and senior citizens, and \$2 for those under 18.

TRANSVAN

(Cont'd)

operation of vanpools during periods of shortage, together with efforts by the Department of Energy to encourage the states to give priority consideration to the fuel requirements of vanpools and other high occupancy vehicles through the state set-aside programs." This proposal has not yet been mandated but does indicate which way the winds are blowing.

The Lab has done all the preliminary work for potential van buyers, particularly in getting rulings on insurance and licensing requirements. With the cooperation of Bankers Trust Company it will be possible for employees to purchase vans for vanpooling without assuming an overwhelming financial load. They will be able to recover their initial costs through passenger fares, they will ride free, the vehicle will belong to them, and help will be available from Fiscal on setting up records.

Employees who are interested in participating in the vanpooling program as van owners are requested to contact Barney McAlary on extension 2494.

Snow Pay Policy

As a result of a recommendation by the Schwarzschild Committee, the Laboratory has recently reviewed and revised its policy on attendance and compensation during severe weather or other special conditions. The new policy, which became effective February 4, 1980, is outlined below.

The Laboratory will now operate in one of two modes only: Normal status and Excused Period status. As in the past, the Director's Office will determine and announce all Excused Periods (formerly known as Emergency Operations Status).

The general compensation policy during an Excused Period is that all employees who are scheduled to work, but not required to work, suffer no loss in pay. All nonexempt employees, who are scheduled and required to work, receive additional straight-time pay for the hours actually worked which fall within their regularly scheduled workday, and are within the Excused Period. Monthly salaried exempt employees receive no additional pay when required to work during the excused period.

When an Excused Period covers only a portion of an employee's scheduled shift and the employee is absent for the balance of the shift, the unworked hours outside the Excused Period are charged to vacation or leave without pay, at the employee's option.

Employees who report to work, but are not required to work, receive no additional pay.

Employees absent on pre-arranged vacation, sick leave, death leave, etc., are not eligible for Excused Time pay and will continue to have their time charged to the originally announced reason for the absence.

If the Excused Period falls on an employee's nonscheduled day, no time is accrued or extra compensation paid.

Ocean

(Cont'd)

stimulate plant growth; 2) it would be about 10° C colder than surface water, which might affect the growth of organisms; and 3) a small amount of chlorine, an anti-fouling agent, would be discharged, which could inhibit phytoplankton growth in the area immediately surrounding a plant.

Test Facilities

In Hawaii, an experimental 50 kilowatt electric plant called Mini-OTEC went into operation in 1979. Funding is being shared by the State of Hawaii and three corporations. Mini-OTEC can produce 10 kilowatts of net power. That means 10 kilowatts of energy beyond what is required to run the plant.

Sometime this year, OTEC-1 is scheduled to begin testing, also in Hawaiian waters. Funded by the Department of Energy, it is being built from a converted Navy tanker. OTEC-1 will not generate electricity. Instead, it will be used to evaluate equipment under ocean conditions.

Also supported by DOE, a pilot plant of 10/40 MWe is planned for construction in fiscal year '83. A fully operational plant, it will be used to check out different heat exchangers and the production of electricity. Based on data from OTEC 10/40, more accurate cost projections can be made for commercial plants in the 100 to 400 MWe range.

Going Commercial

During fiscal year 1979, the U.S. government budgeted \$38 million for the OTEC development program. A bill before Congress provides for long range commercial plant building, projected out to 1999. Three sites are being considered for the first commercial plants: Hawaii; Puerto Rico; and off the coast of Tampa, Florida. All locations have ideal thermal gradients.

Although the idea for OTEC is a century old, the technology is untried and the economics unknown. And while the environmental consequences of one plant can be scaled, it is difficult to predict the effects of a large number of plants. As one alternative to fossil fuels, OTEC may eventually be a major source of energy for island-based societies in the tropics.

Consumer Info

For the benefit of BNL employees who own Chim-A-Lator air dampers, we are reprinting the following article from the December '79 issue of *U.S. Consumer Product Safety Memo*.

The Chim-A-Lator Company, of Minneapolis, Minnesota, has announced a voluntary program to modify approximately 15,000 of their air damper systems for fireplaces and wood burning stoves. The announcement was made in cooperation with the U.S. Consumer Product Safety Commission.

Excessively hot chimney temperatures could cause the air damper to close unexpectedly and force smoke or flames back into the room. According to the company, such a heat build-up is caused primarily by overfueled fireplaces, burning dangerous materials, or failing to have the chimney cleaned.

Since 1977, the firm has received a report of one minor burn injury, which occurred when the damper closed accidentally.

The damper systems, which have been manufactured since 1969, are marketed as energy-saving devices to reduce heat loss from air drawn up fireplace and stove chimneys when not in use.

The company is offering a device, which consumers can install themselves, which will ensure that the damper maintains an adequate opening even in extreme temperatures.

Consumers can obtain this free device by writing to the Chim-A-Lator Company, 8824 Wentworth Avenue South, Minneapolis, Minnesota, 55420, telephone: 612/884-7274. Be sure to include a warranty card or some other proof of ownership of a Chim-A-Lator air damper system.

Speakers Bureau January

William Sims (Accel), Longwood High School, A look at Liquid Nitrogen, Jan. 4.

Edward Murphy (PE), Faculty of Bay Shore Jr. High School, The School's Role in Energy Conservation, Jan. 8.

Irvin Meyer (Chem), Quogue Elementary School, Glass and Glassblowing, Jan. 11.

William Graves (DEE), Hofstra University, Solar Energy Economics - Residential Heating, Jan. 15.

William Graves (DEE), Architects Club, Long Island Energy Costs, Jan. 16.

John Usher (DNE), King's Park High School, Nuclear Fusion, Jan. 17.

R.C. Anderson (DO), Kings Park Jewish Center, Energy Options for the future, Jan. 17.

Eva Bozoki (Phys); **Rosemary Cohen** (TID); **Betty Heldman** (Med); **Marion LeFevre** (Med); Wantagh High School Career Day, Non-Traditional Careers for Women, Jan. 18.

Irvin Meyer (Chem), Shoreham-Wading River Middle School, Glass and Glassblowing, Jan. 23.

Per Dahl (Accel), Kiwanis Club of Sayville, ISABELLE, Jan. 24.

R.C. Anderson (DO), Rotary Club of Rocky Point, Energy Update and News from BNL, Jan. 29.

No Valentine? Try A Chocolate!

February 14th is almost here. Next Thursday, many of us will present, or receive, the traditional Valentine's Day gift: a large, heart-shaped box of chocolates.

We had always assumed that the custom of giving chocolates at Valentine's Day was the result of effective marketing efforts by the candy industry. But according to a recent article in *The New York Times*, the tradition may actually have a scientific basis. Sadly, though, it appears that those of us who have no sweetheart to give us candy may very well be the ones who are most in need of the chocolate.

"It is superfluous to send chocolates to a loved one," wrote *Times* reporter Dava Sobel. "Love is enough. Or rather, it produces the same response. Better to send chocolates to a rejected lover, since love lost may drain the body's store of a potent mood-altering chemical that chocolate has in rich supply."

"In love, 'chemistry' has always had a mystical connotation, but there is apparently a real laboratory-bench chemistry to love as well, involving compounds now being studied by Dr. Donald F. Klein and Dr. Michael R. Leibowitz at the New York State Psychiatric Institute.

"'Love brings on a giddy response comparable to an amphetamine high,' Dr. Leibowitz said. 'And the crash that follows breakup is much like amphetamine withdrawal.' The reason for the similarity, he and Dr. Klein postulate, is that the loving brain pours out its own chemical correlate to amphetamine--phenylethylamine--while the spurned or disillusioned brain halts production of the substance and immediately begins to suffer from its absence.

"While studying a group of 'love junkies' with a life pattern of forming disastrous love relationships, Dr. Leibowitz noted that many of them went on chocolate binges when depressed. 'Chocolate is loaded with phenylethylamine,' he said. 'The binging may be an attempt at self-medication.'"

According to the article, Dr. Leibowitz suspects that his patients' levels of phenylethylamine fluctuate wildly because of an "unstable control mechanism" caused by an inherited and/or acquired defect. In treating them, he uses a combination of psychotherapy and drug therapy.

In the meantime, however, those of us who are Valentine-less this year might do well to treat ourselves to a big heart-shaped box of candy.



BROOKHAVEN BULLETIN

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Dance! Into Leap Year

With a jazz waltz feel



Put on your dancing shoes February 29, and you'll have an up-beat time at old-fashioned prices.

BERA Activities is organizing a Leap Year Dance for all employees and their guests at the Berkner Hall Cafeteria. The doors open from 8:30 p.m. to 1 a.m. Music by the Newporters will cue the dancing, anything from disco to fox trot... whatever your pleasure.

To give your twinkle toes a rest, a special show is planned from 10:30 to 11:30 p.m. More on that later.

An inexpensive cash bar will be open throughout the evening, offering liquor, wine, beer and soda.

Tickets are \$3 each and are on sale now at the BERA Sales Office in Berkner Hall and from Activities Committee Chairmen. So conga to get yours soon.

Stony Brook Events

Jazz Workshop: On trumpet and other brass instruments, Feb. 11, 7-9 p.m., Stony Brook Union Auditorium. Limited to 15 participants. Information: 246-6128 or Jazz Club Office, C-3609 Library.

International Folk Dancing: Every Monday, 8:30-11 p.m., Tabler Cafeteria. Students, senior citizens, \$1; others, \$2. Information: 935-9131.

Recital: New Music Ensemble, Feb. 12, 8 p.m., Recital Hall, Fine Arts Center. Information: 246-5672.

Speaker: Artist Rackstraw Downes, "Painting Your Surroundings," with slides of his own work, Feb. 13, 7 p.m., Art Gallery, Fine Arts Center.

Recital: Bassoonist Craig Vandewater, Feb. 14, 8 p.m., Recital Hall, Fine Arts Center.

Speaker: Earth & Space Sciences Prof. John Caldwell, "Titan, the Most Interesting Satellite," Feb. 15, 7:30 p.m., 001 Earth & Space Sciences Bldg. Telescope viewing to follow, weather permitting.

Joint Recital: Pianist Andre Watts and violinist Charles Treger, Feb. 15, 8 p.m., Main Auditorium, Fine Arts Center. \$11, \$9, \$7. Part of the Inaugural Season Series B. Information: 246-5678.

Recital: Percussionist Dominic Donato, performing music of John Cage, Feb. 16, 8 p.m., Recital Hall, Fine Arts Center.

Hockey Fans Note

The Recreation Office has been notified that the game time for the Islanders vs. Detroit Red Wings on Saturday, March 1, will be at 2:05 p.m.

All employees holding tickets for that game please take notice.

Selected Reading

BioScience 30, January 1980
Women Ph.D.'s in industry fare poorly.

Sat. Rev. 7, February 2, 1980
Let them eat junk: The triumph of food processing. W. Serrin. 17-18+

Semester Students



The Brookhaven Semester Program has begun its 24th semester with the arrival of ten students. The program involves BNL and a consortium of predominantly black colleges. The students work with advisors in assigned departments and take courses taught by BNL staff. From left to right, they are: James Jefferson, Al-

corn State; Duane Hill, Alcorn State; Melvin Trotter, Tougaloo College; Alma Trinidad, Jarvis Christian; Aaron (Juan) Pile, Norfolk State; Marachal-Neil Brooks, Norfolk State; Jefferson McCowan, Alcorn State; Thomas Sanders, Jackson State; Willie Myles, Alcorn State; and Barbara Easterling, Tougaloo College.

—photo by Humphrey

NYC Train Trip

The Hospitality Committee is planning a group railroad trip to the city on Wednesday, February 20. Departure will be at 7:55 a.m. from the Patchogue LIRR station. Round-trip fare for adults is \$2.45, children under six years ride free.

Reserve a ticket by sending your fare through the U.S. mail to P.O. Box 322, Upton, New York, 11973 no later than Thursday, February 14. Make checks payable to "Brookhaven National Laboratory." Your tickets will be given to you on the train. Refunds will be made only if cancellations are received by the Friday preceding the scheduled trip.

Arrivals & Departures

Arrivals

James R. Bethin.....	Energy & Env.
Lois E. Caligiuri.....	Chemistry
Michael A. Chambers.....	Accelerator
Anthony A. Di Lullo.....	Biology
David G. Keil.....	Energy & Env.
Gerald G. Kleinstein.....	Nuclear Energy
Judy L. Liu.....	Tech. Info.
Donna R. Mc Cambridge.....	Ph. & Gr. Arts
Joseph G. Masarich.....	Accelerator
Peggy A. Rosado.....	Energy & Env.

Departures

Margaret A. Gallitelli.....	Energy & Env.
Doreen A. Hallinan.....	Fiscal
Knud D. Knudsen.....	Medical

Volleyball

Mixed League

Standings 28 January 1980

A:	No Names	10-2
	Nuts & Bolts	9-3
	Family Affair	8-4
	High Society	6-6
	Thrints	3-9
	Deegenerates	0-12
B:	Diamonds	11-1
	Le Mufs	9-3
	Leftovers	8-4
	Nads	5-7
	Underalls	3-9
	MNL	0-12

Open League

Standings 30 January 1980

A:	Toga	4-2
	Moles	4-2
	Spikers	2-4
	Bumps	2-4
B:	OTHG	6-0
	Eddie & Phoubars	4-2
	Players Pool	1-5
	Monday Terrors	1-5

Cast Call

The BERA theater group will hold tryouts for their spring production "Harvey" by Mary Chase, on February 11 and 12 at 6 p.m. in Berkner Hall. All those interested in working on this production, whether or not you are a member, are invited to participate. Newcomers are always welcome!

The next meeting of the BERA theater group will be February 15 at 8 PM in Berkner Hall. For further information call Liz Russell ext. 3940.

Cafeteria Menu

Week Ending February 15, 1980

Monday, February 11

Tomato vegetable soup	(cup)	.35
	(bowl)	.45
Poached egg supreme & 1 veg.		1.30
Spaghetti & Italian sausage & garlic bread		1.45
Hot Deli - Pastrami	(on bread)	1.40
	(on roll)	1.50

Tuesday, February 12

French onion soup	(cup)	.35
	(bowl)	.45
Macaroni & cheese & 1veg.		1.25
Meat loaf w/mushroom sauce & hot German potato salad		1.45
Hot Deli - Corned beef	(on bread)	1.40
	(on roll)	1.50

Wednesday, February 13

Scotch broth	(cup)	.45
	(bowl)	.55
Mexican goulash		1.35
Southern Fried chicken w/corn fritter		1.35
Hot Deli - Veal pattie & peppers hero		1.35

Thursday, February 14

Chicken noodle soup	(cup)	.35
	(bowl)	.45
Pork & cabbage crisp		1.45
Eggplant parmigiana w/meat sauce		1.30
Hot Deli - Baked Virginia ham	(on bread)	1.35
	(on roll)	1.45

Friday, February 15

Manhattan clam chowder	(cup)	.45
	(bowl)	.55
Fish filet cheese melt w/1 veg.		1.45
Beef Hash & 1 veg.		1.40
Hot Deli - Sandwich steak	(on bread)	1.45
	(on roll)	1.55

Cooking Exchange

Join "The Fiddler on the Roof" gathering at the Cooking Exchange on Wednesday, February 13. Watch while we cook "Tradition"-al recipes from the long history of Jewish cooking.

We meet at 12:30 in the Recreation Building. A charge of \$1.00 will be collected and babysitting will be provided at 25¢ a child.

For further information call Bunny Pietrzak, 751-1866 or Wendy Green, 878-8952.

Diners Note

The Cafeteria will be closed on Saturday, February 16th. On that day, Snack Bar service will be available from 9:00 a.m. to 2:00 p.m. at the Brookhaven Center.

Motorcycle Club

Plan on meeting Monday, February 11, at 5:15 p.m. in the Recreation Hall. We need your voice and vote on the constitution and by-laws.

Also on the agenda: Motorcycle Safety Foundation Riders Course.

Bowling

Red League

The 76'ers took the Trouble Shooters 11-0. R. Larsen (212) had a 588/642 series. J. Petro (209) had a 600 gross. The Sandbaggers won 11-0 over the Strangers. R. Meier, Sr. (207) had a 633 gross, R. Meier, Jr. 606 gross. The Freon Loaders (3001 pins) won 7-4 over the Pinball Wizards. R. Marlow (202) had a 646 gross, T. Rudolf 646 and V. Bilms 600. This Isa Team took 3 against the Phoubars. J. Sauls had a 617 gross. The Designers split 6-5 in a match with the Old Timers II. The Old Timers lost all 11 to the Blue Jays.

Blue & Gold League

Rick Murgatroyd had three close games for a 574 series. Walt Milian came through with a 213/569. The Aquanauts took all 7 with Larry Musso's 513 and Dru Hanrahan's 158. Audrey Bangel rolled a 178, Karen Jacobs 162 and Mike Milian a 161.

Green League

The Blue Jays are in first place after taking the Old Timers for 11. H. Marshall had games of 200/203 for a 573 scratch series. The Old Timers II took 5 from the Designers with G. Gales bowling a 202. The Sparks took 8 from the Light Source and the Phoubars took 8 from This Isa Team. The Pinball Wizards could only salvage 4 and the Trouble Shooters were dumped for 11.

Purple & White League

The Sick Six are in first place by 5 points. High series and game for the women was rolled by Caryl MacDougall with 213/189/194-596. Jim Griffin had high series for the men with 204/182/209-595. Charlie Zavesky had high game for the men with a 223. Other good games were Ken Riker 221, Carl Murray 215, Ted Erickson 200, Bill Lebitski 200, Gerrie Riker 201, Pat Manzella 180, Jeanne D'Alsace 179, Sharon Smith 178/188.

Entry forms and rules for the Scotch Doubles Bowling Tournament on Sunday, March 2 are available at the BERA Sales & Service Office in the Cafeteria.

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.

The determination of the best-qualified candidate for available positions will be based upon education, experience and other job-related criteria. Such factors will be evaluated and measured against the demonstrable requirements of the available vacancy, as well as the Laboratory's Affirmative Action objectives.

The Laboratory is committed to a policy of Equal Opportunity in its selection and placement of personnel. Its objective is equality of opportunity in employment, training, and promotion without regard to race, color, religion, national origin, sex, age or handicap.

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.

1245. SECRETARIAL POSITION - Requires an AAS degree in secretarial science or equivalent experience performing diverse secretarial duties. Skills must include excellent oral and written communication skills as well as excellent typing and shorthand. Statistical typing and word processing experience is highly desirable. Personnel Division.

1246. SECRETARIAL POSITION - Requires AAS degree in secretarial science or equivalent experience performing diverse secretarial duties for scientific and professional staff. Excellent typing skills and ability to respond to changing priorities (frequent rush jobs) is essential. Should be willing to work overtime as the need often arises. Will supply secretarial assistance to Economic Analysis Division, under the direction of division secretary. Department of Energy and Environment.

1247. CLERICAL POSITION - Requires ability to organize and process technical reports utilizing MICOM Text Editing equipment. Working knowledge of the MICOM or other related word processing systems is essential. Will supply typing assistance to Economic Analysis Division, under the direction of division secretary. Department of Energy and Environment.

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

1249. SR. STAFF ASSISTANT - BS or MS in computer science, accounting or business management or equivalent and substantial background in the design and coordination of MIS. Will be responsible for coordinating, supplementing and/or tailoring Laboratory MIS to meet the needs of the High Energy Physics program and will act as main liaison between the Department and MIS. Re-posting of position number 1159. Accelerator Department.

1250. COMPUTER SCIENCE ANALYST - Requires MS or equivalent in a scientific area with substantial scientific programming experience. Good knowledge of data base systems and mini computers is essential. Will work in the applications programming group of the Computational Assistance Division. Applied Mathematics Department.

1251. SYSTEMS/DP ANALYST - Requires a bachelor's degree or equivalent capabilities, experience in COBOL, and an accounting and financial background. Responsibilities will include design and implementation of on-line business applications. Experience with structured design and data base concepts highly desirable. Good written and oral communications skills are required. Administrative Systems and Data Processing Division.

1252. MATHEMATICS ASSOCIATE (part-time, temporary) - Requires BS or equivalent capabilities in statistics with ability to prepare and run computer programs for the solution of statistical problems. Will provide assistance to research group responsibility for preparing statistics, mathematical analysis and optimization for the U.S. Geological Survey. Applied Mathematics Department.

Autos & Auto Supplies

75 AUDI 100LS - am/fm stereo, 30+ mpg reg, std, good cond. \$2500. 924-7610.
75 FIAT X19 - 4 spd, 45,000 mi, good cond. \$1600. Arlene, Ext. 3173.
71 CHRYSLER STA WGN - very good cond. Asking \$600. Ext. 2403/3206.
65 BUICK LE SABRE - very good cond throughout, orig owner. Sue, Ext. 3675, after 6 473-6570.
78 MONTE CARLO - blk/saddle int, rally wheels, bckts, console, am/fm cassette, a/c, low mi, excel mpt. \$4900. Ext. 4701, 757-5991.

(2) 14" RIMS - 5 lug, 2 1/4" center hole. \$5 ea, \$9/both. Frank, Ext. 4659.

78 SUBARU - 5 spd, 4 dr sed, 23,000 mi, reg gas, 32-38 mpg, rustproofed, front w/d. Ext. 4607, 368-0452.

68 DODGE VAN - 6 cyl, a/t, new eng, int like new, many new parts, 23,000 mi. Frank, Ext. 3254.

70 HORNET - 2 dr sed, a/t, gold/blk, good running cond, reg gas. Ext. 2933, 473-2764.

73 CADILLAC COUPE DE VILLE - runs excel, new tires & batt. Asking \$995. 281-8044.

TIRES - Ridgerunner 11-15LT, 6000 mi, turbo rims, Chevy 6-lug, compl set (4), \$350; conv soft top, fits 69-72 Blazer, like new, \$150. Don, Ext. 3397, 289-0265.

67 DODGE DART - new batt & alt, rusted but dependable, excel mpg. Ext. 3612.

INSULATED "RANGER" CAP - for pickup, int light, jalousies, slider, boat rack. \$350. Kurt, Ext. 4698, 744-2097.

72 DODGE STA WGN - p/s, a/c, 318-V8, uses reg gas, good mpg. \$800. Jim, Ext. 2485.

SNOW PLOW - Fisher pwr angle, 7 1/2', all hdwre. \$725. 588-5833.

TIRES - (1) 185x14 SR radial, used 1 season, \$20; new 855x14 General Jet w/w on Pontiac rim. \$30. Ext. 2972.

71 MACH I - 351-C eng, many new parts, good cond, needs minor work. \$1000. Steve, 277-2655.

69 VW BUG - excel cond, new paint, batt, must see. \$1500 firm. 234-9087.

TRAILER HITCH ASSEMBLY - heavy duty, for AMC car. \$18. 286-0795.

78 HONDA HAWK - 400cc, cover, grz-hal light, lug rack, sissy bar, 60 mpg, 90 day warranty. Gail, Ext. 2902, 928-2954.

(2) SNOW TIRES - Michelin steel radial w/w on Ford rims, 205-15XM + S. \$80. Ext. 4008, 821-0686.

55 STUDEBAKER - runs, new brakes, radiator & motor, must sell. \$800. 732-3073 after 5.

71 VW SQ BACK - runs very well, chassis shot, good seats; 74 Mazda, excel cond, eng not running, best offer. Ext. 4592.

78 CHEVY NOVA - 6 cyl, a/t, a/c, ps/pb, am/fm stereo tape deck, 22,000 mi, mint cond. \$4500. George, Ext. 2982, 588-1713.

70 MUSTANG - 302 eng, a/t, p/s, radio, reg gas, good mpg, good cond. \$750. Vesso, Ext. 3501.

78 RABBIT - like new, low mi, warranty w/20 mos left. \$4900. Ext. 2916, 331-2298.

78 CHEVY VAN - custom int, wheels, am/fm 8 trk, 250ci, 22 mpg, paneling, sunroof. \$5500. Bob, Ext. 3050, 581-0291.

75 CHEVY IMPALA STA WGN - excel cond. \$1600. Ext. 3134.

77 CHEVY PICKUP - Silverado 3/4 4x4, camper sp, a/t, all pwr, windows + locks, cruise, tilt wheel, dual exhaust, 10" 16x5 all terrain, 22,000 mi, many extras, excel cond. 878-0516.

72 FORD - 351 eng, a/c, runs great, needs exhaust pipe, 4 dr, excel rubber. \$575. Hugh, 281-3988.

65 CADDY - clean in & out, excel running cond, all pwr. \$200. 842-9035.

77 MATADOR STA WGN - w/pwr. \$2000. George, 286-1716.

TIRES - (4) Armstrong Tru Track tires, brand new, labels still on 12-16.5, \$260; 66 Chevy sedan, 4 dr, 6 cyl, a/t, good tires, good on gas, \$350. Rich or Bob, 475-2075.

74 TOYOTA CELICA GT - 5 spd, silver, a/c, am/fm, cassette, Michelin tires, good cond. \$2,150. Must sell. Ext. 2008, 928-5875 eves.

75 RABBIT - 30 mpg, new tires and brakes, good mi. 981-6704 or 286-3333.

Boats & Marine Supplies

GAS TANK - 18 gal lay-flat type, w/sending gauge & mounting straps. \$40. Bill, Ext. 3399, 281-0557.

20' 1978 O'DAY SAILBOAT - must sell, prime cond, fully equipped. 289-0925 eves.

14' STARCRAFT SEAFARER - Cox trailer, 10 hp Evinrude OB, excel cond. \$695. 589-4363.

22' GARVEY - oak ribs, glass over wood, self bailers console. Dennis, Ext. 3050, 654-2076.

1936 CLASSIC ELCO - 32' Cruiser, Palmer 6 cyl. Excel cond. Must sell. Roger, Ext. 2384, 737-7474.

77 MERCURY OUTBOARD - w/pwr trim, tank, controls & prop, excel cond. 281-6325 after 5.

Miscellaneous

ACCORDION - w/case, never used, \$60; organ, \$90; twin bed w/spring & matt, \$40. 399-1952.

COCKTAIL TABLE - rectangular shape, \$15; matching side table, \$15. Ext. 7503, 924-5507.

FRANKLIN STOVE - w/grate, screen & stove pipe, good cond. \$100. John S., Ext. 2819, 744-9677.

PORTABLE DISHWASHER - top of sink, \$20; Kenmore sewing machine in cabinet, drop-in cams, \$75. 422-1422 after 6.

DINETTE SET - smoked glass, chrome, 4 chairs, \$600 new, excel cond 40" round. \$200. 698-8086.

TREES - you cut & carry, good for firewood. \$75/cor. \$150/pickup truck/load. 732-3073.

STUDENT DESK - \$10. 744-5096.

CAMERA - Polaroid Square 2 Land camera, \$15; National Geographic Magazines. 727-5912.

MOVING SALE - brand new set of sofa bed, end tables & lamps, sewing machine & table, beds, etc. Ext. 3911.

METAL TOOL BOX - for pickup; (4) 20 lb propane gas tanks. 325-0447 after 6.

CRIB & MATT - \$15; infant seats (2), \$4 ea. 698-0013 after 6.

MIRRORS - 1 framed, 1 unframed. Asking \$15 ea. 289-0687.

TRANSFORMER - Warner electroplating, 115 VAC input, 8 VDC 10 amp max variable output. Best offer. Bill, Ext. 3399, 281-0557.

TRUMPET & CASE - excel cond. Asking \$100. 878-1803.

ORGAN - 22 key, 3 chord, good cond, w/bench & bks. \$230. Chuck, Ext. 4095.

CHIMNEY PIPE - 8" triple-wall, (1) 2' & (1) 3' section, never used. \$55. Ted, Ext. 4163, 286-0065.

SCOOTER MIRROR - \$2; wig holder, 50¢; bowling balls, \$4 & \$6; mandolin strings, 50¢. Susan, Ext. 4267.

HAIR DRYER & STYLER - Salia, Ext. 3192.

ORGAN - Wurlitzer Funmaker Adventurer, like new, excel cond. Sacrifice at \$700 or best offer. 878-1803.

TOUR-A-BED - \$9; baby bouncer, \$6; 10 gal tank w/ slate bottom, \$9. Sue, Ext. 4207.

STEREO RCVR - Pioneer SX727, pr L.W.E. 3-way spkrs. Orig cost \$900, sell \$400. 744-5009.

POTTERY MUGS - (7) Lowenbrau. \$12. R. Wieser, Ext. 3080.

ELEC RAZOR - Lady Schick, nearly new, \$8; Kodak "Hawkeye" camera, \$4; sled, 36" Flex-Flyer, \$5. Ext. 4324.

CONTENTS OF HOUSE - L/R, D/R, bedrm, Snapper rider mower, gas BBQ, plus, mo of Feb. 588-2596.

BOWLING BALL - 13 lb red & white. Betty, Ext. 3605, 744-2097 eves.

STEREO TURNTABLE - Pioneer PL-117D w/t Empire 2000 E/III cart. \$120. Hwang, Ext. 7732, 744-0481.

SKI BOOTS - 2 pr ladies size 6 & 7 Caber & Nordica, \$20 ea; ski racks, (2), 1 trunk style, 1 top of car, \$10 & \$15. R. Wright, Ext. 3418.

TV ANTENNA - UHF & VHF, color or b/w. \$15. J. Zahra, Ext. 2301, 727-4515.

FURN - couch, chair, rocker, kit set, a/c, very good cond. Best offer. Jim, 289-7470.

ADDING MACHINE - paper record, SCM, Rem Rand, etc. \$10. Bob, Ext. 2819, 289-0357.

SKIIS - 2 sets boots, size 10. \$35 ea. J. Carroll, Ext. 3280.

FIREPLACE SCREEN - 50x33 (lg). \$10. Jim, Ext. 3372.

GAS HEATER - good for garage, \$30; Heil oil burner motor at right side. Vinnie, Ext. 2951.

TUB ENCLOSURE - dual sliding glass doors 60"x55" + frame, \$10. Nick, Ext. 3458, 286-1816.

(2) OLYMPIC TICKETS - for men's spd skating, Feb. 23. \$22 ea. Ext. 7717.

COUCH & CHAIR - Medit, red & gold, \$200; 3 tables, \$150; 2 lamps, \$100; like new 732-4821 eves.

OIL BURNER - Sunray mod DSP, 3 yrs old, shell head, excel, removed due to gas conversion. Asking \$100. B. Cook, Ext. 4592, 928-9359 eves.

19 1/2' TRAVELMASTER TRAILER - 1965, fully contained, good cond, \$1400. 11:00x15" Ridge Runner tire, \$30, new. 399-4988.

3 SPD MAN'S BIKE - frayed but reliable. \$20. Ext. 3688.

CAMERA - Cavalier MSTL f1.8 1000 interchangeable lens, excel cond, \$60; flash zoom, Vivitar 265 Thyristor, excel cond, \$25. Jiri, Ext. 3589.

ELEC STOVE - GE 30", gold, window, door, excel cond, 4 yrs old. \$150. 331-2779.

HANGING LAMPS - 2, same design, very pretty, cheap, \$35/both. Ext. 7503, 924-5507.

VALENTINE - pillows, heart-shaped w/lace edging. Sharon, Ext. 3793.

BUFFET - oak, circa 1930's, \$75. 289-0687.

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 - 3 bedrm ranch, corner lot, roofed patio, pleasant location near water. Low 30's. 281-7531.

SHOREHAM - prime loc N of 25A, 4 bedrm ranch, DR/LR w/fp, country kit, den, ent hall, 2 baths, lg deck, 5 appl, 2-car gar, 1/2 acre, beach rts, must sell. Low 60's. Ext. 3462, 744-8449.

BELLPORT VILLAGE - 3 bedrms, lg eik, att gar, patio, stockade fenced rear yard. \$37,000. 286-0795.

MEDFORD - close to LIE, mother/daughter, all newly remodeled on 1/4 acre incl buildable lot, upstairs 3 bedrms, DR/LR w/fp & ww, downstairs, eik, 1 bedrm, L/R, sep elec & heat. \$53,000. 475-2769 after 5.

PORT JEFF STA - 3 bedrm split level, lg playrm, oak floors, gas hot air heat, copper plumbing, 1 1/2 car gar 15x26', prop 75x100, must sell. Sacrifice, \$28,000. Ext. 3354, HR3-3328.

SOUND BEACH - investor special, mother/daughter house, scenic location. Priced low to sell quick. Ext. 2926, 281-0268.

PORT JEFFERSON - Harbor Hills, 3-4 bedrm ranch, possible mother/daughter, fp, treed 1/2 acre, dead end street. Reduced to \$69,000. Ext. 4504, 473-1523, 928-0483.

GLEN FALLS, NY - 1 1/2 story colonial style, 3 bedrms, 2 baths, country kit, gas heat & hot water, near downtown. \$24,500. Ext. 2501, 765-2953.

MT SINAI - 3 bedrm ranch, cath ceiling L/R w/fp, w/w, 5 appl, 2 baths, gar, approx 11 mi from Lab. \$39,000. Bill, Ext. 3369, 929-6442.

BELLPORT - 5 bedrms, 3 baths, inground pool, fam rm w/fp, L/R, D/R, eik, 2-car gar, full bsmt, corner lot on 1/2 acre treed lot. \$59,900. Jocelyn, Ext. 4779, 286-3672.

For Rent

SHIRLEY - apt, furn, prvt, util, security, 5 min to Lab, \$250/mo. 281-8044.

E. PATCHOGUE - sale/rent, avail March 1, 3 bedrm ranch, Durkee Lane, near bay, Scr porch, all appl. \$350/mo + util, security. Sale price \$40,000. 734-6633.

RIDGE - 3 bedrm L-shaped ranch, lg L/R, eik, full bsmt, 5 min from Lab, will rent for 6 mos, immed occupancy. \$400/mo + util. 981-5993 after 6.

PORT JEFFERSON VILLAGE - furn 4 bedrm colonial, 2 1/2 baths, econ gas heat & range, DR/LR w/fp, fam rm, gar, full bsmt, treed 1/2 acre, garden plot, less than 1 mi to ferry, train & prvt beach, avail Aug for 1 yr. \$500/mo + util. Ext. 2925, 331-3445.

Wanted

METRONOME - for student. Dick, Ext 7520/4220, 473-4558.

HOUSE SITTER(S) - month of March, North Shore, 10 min from Lab. Hull, Ext. 4210, 821-1759 nights.

HEAVY DUTY MIXER - for dough, etc, old or new. Ext. 4058, 286-0436.

TRAINS - old toys, also wind-up, top prices, collector. Al, Ext. 7772, 751-8462 after 6.

ANIMAL LOVER - to care for sm poodle Feb 15 thru 25. Ext. 2883.

TOASTER OVEN - or 4-slice toaster, good working cond. Ext. 3319.

HOME - for mature, Morris-type male, neutered cat, house-broken, very good mouser. 345-4061, 475-9046.

TO BORROW - back issues Mother Earth magazines, from No. 1, guaranteed return. Herb, Ext. 4035 noon.

LABELS - Campbells or Franco-American, for grade school equipment. Send to Tom Gangwer, Bldg. 815.

SLIDE PROJECTOR - reasonable. Ext. 4380.

CHILD CARE - adult required for infant, 8-5, M-F, Wading River/Shoreham area. 399-5095.

TRAINS - Lionel, any "O" gauge or "027" gauge cars, track & equip. Frank, Ext. 3120.

TRANSMISSION - for Craftsman (Sears) 24" riding mower 131.8100 circa 1952 (gear case assembly). Ext. 3267.

HOUSE TO BUY - price less than 50K w/assumable mtg, min 2 baths, 3 bedrms, multi-level, within 15-20 min of Lab, reasonable taxes, all appl. S. Moss, Ext. 4043.

Car Pools

FARMINGVILLE - form or join, 8:30-5. Pete, Ext. 3397.

SETAUKET/PT JEFF STA - to join existing car pool. Bob, Ext. 3784.

BRENTWOD AREA - Exit 56, form or join existing on-time car pool. Ext. 2905.

RIDE TO SCCC FROM BNL - & return from SCCC, class hrs Mon & Wed 8-10 pm, Tues 6-9 pm. M. Hurt, Ext. 2050.

COMMACK/E. NORTHPORT - form or join, 8:30-5. Ted, Ext. 4030.

PATCHOGUE - driver needed to compl existing car pool. Bob, Ext. 3309.

BELLPORT - 8:30-5:00, need 5th driver, Bill Graves, Ext. 3326 or 286-0497.

Services

TAXES - prepared by tax consultant, your home or mine. Reasonable. John, 732-2472.

PROF INCOME TAX SERVICE - by experienced preparer. Jack, Ext. 7942, 864-2236.

ELECTRICAL WORK - appl hook-ups, supplemental elec heat, bsmts, extensions, wired. 363-6940 after 5:30.

JEWELRY REPAIR - gold & silver, repaired & polished. Dan, Ext. 3289.

BABYSITTING - teenage girl, experienced, wishes to babysit, Wading River/Shoreham area. Lois, Ext. 2921; Gina, 929-4753.

WE CUT WOOD - to fit your stove. \$139/cord. Ken, 924-3756.

TYPING - letters, reports, etc. Ext. 3199.

PHOTOGRAPHER - for your club or organization, PR photos. Nick, 286-9249.

Firewood - split, seasoned oak, 4'x16'x18". \$110 delivered. 924-4284 after 5:30.

TIRES - new, used, rims, repairs, Gillette, BF Goodrich, mag wheel service. F. Usack, Ext. 4798 lunchtime.

Classified Ad Policy Deadline is 4:30 p.m. Friday for publication Friday of the next week.

