

No Frills Energy Info

The general public never reads most of the research papers written by Brookhaven scientists. Many are too technical for anyone but a specialist.

So when Harry Davitian was asked to write some articles about energy for *The Village Times*, a local newspaper in his community, he welcomed the chance to put the energy picture in perspective for the lay person.

Davitian is an energy policy analyst in the National Center for Analysis of Energy Systems. He says that in spite of the fact that so much has been said and written about this country's energy problems, public misconceptions still abound. For example, he cited a recent poll in which 50% of the people interviewed didn't know that the U.S. imports oil.

Davitian wrote a series of eleven articles, starting with general background information and then getting into more practical advice for homeowners. Most of his writing was an outgrowth of his association with the National Center, although he did not describe in those articles any of his specific research.

Davitian is group leader of the Utilities and Decentralized Technology Group, which analyzes the impact that privately owned, utility interconnected energy technologies

are likely to have on electric utilities. His research covers three different technologies: residential solar heating and hot water, cogeneration, and residential photovoltaic. According to Davitian, they are called decentralized because energy is generated and used on-site.

These technologies can be either independent of or connected to utilities. When they are connected, new questions arise, such as "what should be the cost of back-up power?" and "what is the value of excess electricity sold back to the utility?"

The second question is closely tied to cogeneration. As Davitian explained, cogeneration refers to on-site generation of electricity and collection of waste heat for further use (for example, generation of additional electricity). On Long Island, the IRS building in Holbrook has cogeneration. "Even Brookhaven is looking into its feasibility," he said.

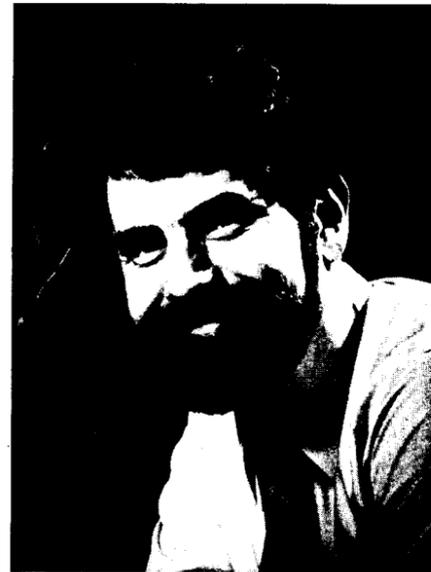
The aim of Davitian's group is not to advocate the use of these technologies, but to research mainly the economics to the utility and to the private plant or homeowner.

"We also interact a great deal with utilities and public service commissions," said Davitian. "We are getting lots of positive feedback. I think that's because we try very hard to work in

the context of which they think."

And that gets back to the articles Davitian wrote for his local newspaper. His concern about working "in the context" of a particular group was carried over in the writing of those articles. As Davitian said, "Most of my work at Brookhaven goes straight to a small group of energy specialists in Washington. In writing this series on energy, I hoped that people in my local community might profit from some of the things I've learned in the course of my work."

Beginning with this issue, the Bulletin will reprint three of the articles written by Harry Davitian.



Harry Davitian

Doug Humphrey

The Current Mess

The energy outlook in the United States is poor, and it is likely to get worse. Twice within the past decade we saw interruptions in imports result in chaotic gasoline lines. Shortages of natural gas, once casually flared as a useless by-product, have curtailed industrial production, shut schools, and even threatened the supply to residential consumers in the middle of winter. The price of oil and gas has increased so much over such a short period of time as to be almost unthinkable for such major commodities.

Domestic sources of petroleum and natural gas, once abundant and inexpensive, can no longer meet the demand for high quality energy. We depend on other countries to supply 25 percent of our energy. While the development of new energy supplies here will take decades, foreign supplies can be cut off in a matter of weeks. Consequently, for at least the next decade, the balance between energy supplies and demands in the U.S. is likely to remain precarious with gasoline lines and interruptions in industrial activity more likely to occur than not.

Long-term Outlook

Even the long-term outlook for the U.S. is cloudier today than at any time in the past. This is true despite the United States' vast deposits of energy rich minerals - coal, shale oil, and uranium - and the availability of large amounts of renewable resources such as solar and wind. These resources could supply us with energy for hundreds of years and are the envy of energy-poor Europe and Japan. However, the costs and the side effects of extracting these resources and converting them into easily moved and easily used energy forms are proving to be serious obstacles to their development.

How did we get into this mess and why is it proving so hard to do anything about it? The answers are not simple. Perhaps the largest contributing factor was that until the establishment of the federal energy agencies in 1975, no institution was responsible for analyzing the U.S. energy problems and developing energy policy. With no one responsible for following the national energy situation, the significance of various developments in the 1960's which were to have a devastating effect on the U.S. energy supply, was not generally appreciated.

Once energy shortages were experienced here in the 1970's it was no longer possible to ignore the begin-

ning of a new phase in U.S. energy supply availability. Why, after six years of constant attention (in a country that, it is frequently noted, put a man on the moon in little more time than that), is little, if any, progress apparent in solving energy problems?

Time and Money

The primary reasons relate to time and money, both of which are needed in ample quantities to fully develop alternative sources of energy. New industries, especially those that are capital intensive, take decades of growth before they play a major role in a mature industrial economy. Difficult though it may be to believe, even if we began today, we could not build a new energy supply industry which would provide more than a small fraction of our energy needs by the end of this century.

The investment needed to build new energy facilities is mind-boggling. New electricity generating power plants cost over a billion dollars each and supply only one-hundredth of one percent of our current energy consumption. To replace all our crude oil supplies with "synthetic" fuel production plants (which convert coal to a "synthetic" product similar to the fuels we now consume) would require well over a trillion dollars. This is about three times the total annual private capital investment in the U.S.

(Continued on page 2)

Mystery Rock



What is this solid sphere sitting squarely in an unknown palm? It's not a base, golf, or mothball. Need some clues? It was found in Little Fresh Pond on the North Fork with hundreds of others almost exactly the same. Many have small circles etched in them, and by their feel, they're very hard. If you want to view one of these mystery rocks, one will be on display in the Public Relations Office during the week. Stay-tuned. Next week the *Bulletin* will give you the hard facts.
—photo by Humphrey

Symposium On Neutron Sections

A Symposium on Neutron Cross Sections from 10-50 MeV was held at Brookhaven last week. It was organized by Mulki R. Bhat and Sol Pearlstein of the National Nuclear Data Center, and sponsored by the Division of Basic Energy Science and Fusion Energy of the U.S. Department of Energy. Approximately 93 physicists from the U.S. and abroad attended the symposium. This is the second in a series of symposia, the first of which was held in May 1977.

Nuclear fusion may someday provide a clean source of unlimited energy for the future. To help make this dream a reality, research is done on effective containment of plasma. A containment vessel will be subject to an intense bombardment of high energy neutrons. One of the design problems is to study the materials damage to the wall of the vessel and

changes in its physical characteristics. To carry out these studies, DOE has approved the building of the Fusion Materials Irradiation Test (FMIT) Facility at the Hanford Engineering Development Laboratory in Washington. Interpretation of the results of these experiments needs neutron data up to about 50 MeV.

The Symposium was held to discuss the status of this type of data, the problems of obtaining them by measurements or the prospects for calculating them by nuclear model codes. These high energy neutron sections are also of use in cancer therapy.

Close to 43 invited review and contributed papers were discussed. In addition, workshop reports summarizing the present status of the data as well as recommendations for future course of action were assembled.

Force Reduction

Laboratory employees learned from the *Brookhaven Bulletin* dated March 21, 1980, that a reduction in force of approximately 100 employees would occur this fiscal year because of the President's budget for FY 1981.

The details of the RIF announced by Dr. Vineyard have now been determined. Individual employees have been notified, and the majority of those terminating will do so by June 13.

The RIF statistics are as follows: The staff reduction will total 105. Of these, 86 will take place by attrition and 19 by layoff. In addition, 62 employees are being transferred within Brookhaven from programs with inadequate support to programs with growing needs.

Although Congress has not completed its actions on the FY 1981 budget, the numbers given above do take account of the President's March amendments.

Energy

(Cont'd)

Short-term Hope

Our only short-term hope is "energy conservation," which is what the more careful and efficient use of energy has come to be called.

In some cases, simple modifications to energy management procedures and small additional capital investments in energy conversion equipment can dramatically reduce energy consumption and save the consumer substantial amounts of money. Energy conservation can almost be thought of as a newly discovered, clean, inexpensive supply of energy which can quickly begin to displace our use of conventional resources.

—Harry Davitian

Next week: *How three developments in the 60's set the stage for our current energy problems.*

Arrivals & Departures

Arrivals

Edwin Casanas.....	Applied Math.
Robert C. Heimerle.....	Accelerator
John H. Lane, Jr.....	Accelerator
Lily Liu.....	Ph. & Gr. Arts
Anna Marie C. Findley.....	Chemistry

Departures

Joseph A. Curtiss.....	Accelerator
Patricia A. Holtje.....	Applied Math.
Arthur P. Tomasino.....	Accelerator

CREF Values

September	44.60	October	41.18
November	42.56	December	43.19
January	45.37	February	44.59
March	40.33		

April \$41.82

Pumping Iron To The Top

Frank Vadola isn't green and menacing like the "Incredible Hulk" — and he smiles quite a bit more. But anyone who can lift a total of 1869 pounds brings to mind the Hulk's herculean strength.

The 1869 pounds is the championship lift Vadola achieved en route to capturing the Senior East Coast Power-Lifting Championship this February (he took second place last year). Vadola bench-pressed 501 pounds, did a 735 pound squat, and dead lifted 633 pounds for that total.

That wasn't Vadola's first taste of a championship. At the University of Florida, he won two NCAA Championships and was scheduled to represent the United States in the 1972 Pan Am games, but couldn't compete because of a training injury.

Now a 12 year veteran of weight lifting, the 30-year old Vadola is planning to retire after the National Power-Lifting Championships in July. The constant strain of staying in top competitive form has taken its toll on his 240-pound frame. Once, a torn thigh muscle kept him out of action for 18 months. When Vadola is in training he lifts weights four times a week, twice a day — rising at 5 a.m. to sandwich the duel workouts around

his position as a Nuclear Engineer for Reactor Safety.

"When I'm not in training," said Vadola, who has won more than 17 trophies during his career, "I work out with 250 to 300 pounds. Nothing heavy."

Despite the intense workouts and weight lifting, Vadola doesn't consider himself a bodybuilder — the most popular aspect of the various weight lifting sports. Vadola, like many other power-lifters, feels that body builders are too obsessed with how they look rather than how they feel, and added that many youngsters attracted to body building start lifting weights too soon.

"A youngster shouldn't begin lifting until late in his teens," said Vadola, "because, strength-wise, a man matures most during his 20's — peaking at about age 28."

Misconceptions which persist about weight lifting equally irritate Vadola. Myths such as weight training stunts growth, and muscle turns into fat with old age draw groans of disapproval from Vadola.

"I don't know how that idea got started," said Vadola. "Weight lifting can't stunt someone's growth any more than another sport, and fat is fat. It's impossible for muscle to turn into fat. What often happens is an athlete will retire or stop training and continue to eat as much as when he trained, developing layers of fat over muscle."



Power-lifter Frank Vadola, once scheduled to represent the United States in the 1972 Pan Am games, will retire this July after 12 years of competition. —photo by Humphrey

Vadola doesn't plan to totally stop working out after his retirement. He's built a gym in his garage and his wife is learning to train with him. His final goal is to be rated an Elite-Four (he is now a three) — the highest rating a power-lifter can receive from the Amateur Athletic Union (AAU).

"I'll really miss the competition," said Vadola about his imminent retirement. "I'll miss seeing the guys, and the parties afterwards, but the time has come. I want to retire as a constant competitor at the top."

—Jerry Mikorenda

Call For Ideas

The Department of Energy welcomes your advice on ways this country can reduce oil imports over the next five years. Submit your proposals in writing by June 1, 1980, to the Assistant Secretary for Policy and Evaluation, Room 7E-088, Forrestal Building, 1000 Independence Avenue, S.W., Washington, D.C. 20585.

Ersatz Erudition: The Ten Rules

Like any art, conversational counterpoint has its code. The general principles have been handed down — orally, of course, until now — by the masters. In what follows, you will find a modern manual. There are comments on both *content* and *delivery*.

Here are the first three rules.

1. Be dogmatic

This, like our other instructions, may be disturbing at first. We are all trained in modesty. One must never appear to be a know-it-all. But when pretending to a knowledge you do not have, you must sound totally sure.

If you mispronounce a French word, do it in such a way that the other person will wonder if *he* has been saying it incorrectly all these years. If you combine dogmatic mispronunciation with bold assertions of fact, you are in still stronger shape. Declare that "the St. Emilion '69s shipped poorly" and make it sound like revealed truth. There are not four men on earth able to contradict that line properly delivered.

II. Spotlight the obscure

Obviously, avoid the obvious. Know the little-known. Everyone knows that Napoleon blew his cool and his empire at Waterloo. Almost nobody knows that Napoleon may well have lost the day's battle because his hemorrhoids — and an old kidney complaint — slowed him down that morning. The fact must be obscure but arresting.

Everyone is always offering opinions, or arguments, about which Chinese restaurant is the best in town. Mention a restaurant that serves North Korean food and you have put yourself above most competition. When you are ready for the next level, propose the restaurant that serves the *best* North Korean food — and now you're talking.

On Elizabeth Taylor's abilities as an actress, comment that she would be just right for Kitty Warren (a character in Shaw's *Mrs. Warren's Profession*). If Hugh Hefner's name or, worse, his "philosophy" comes up, say that "he's just the poor man's Cagliostro" (calyóstro). About a new book by Joyce Carol Oates (you need something new every season), suggest that characterizations of women were better handled by Sarah Orne Jewett.

The scandalous behavior of some notorious character — say Gabriele D'Annunzio,

the Italian writer-patriot — has been dissected in a new book, and someone who has read it is holding forth. Your line is: "Morally speaking, he was by the Marquis de Sade out of Ninon de Lenclous." Thus, in one line, you have stopped traffic in several directions. Of course, a person can overreach. We heard one man's response to a conversation about Jack Nicklaus' failure to win the U.S. Open. He said: "His quiet desperation on the fifteenth was like Saladin's after the fall of Acre."

III. Call upon the past

You are too busy and it is too exhausting to keep up with all that's going on. Besides, everyone reads the same stuff. Turn to the past, therefore, where all is murky and more usefully intimidating.

Someone praises the current Wagnerian soprano's Brünnhilde; you say that Flagstad's was superior — which is probably true anyhow. The Administration's efforts to centralize power in the White House come up every term. Plug in with: "They've got the greatest concentration of power in that basement since Andy Jackson."

"Not since" is standard. "Not since the fourth Lincoln-Douglas debate has there been such a lucid clarification of state's rights." (Note that "fourth"; there were seven of them, dummy.) And the rhetorical grandeur of "not since" sets you apart from the crowd before you even complete the sentence:

- "Not since the fall of the Second Temple has there been such a debacle."

- "Not since the Edict of Nantes has there been such an advance in religious freedom."

You can "not since" endlessly. Yes, there are problems. You can't use the Edict of Nantes unless you know that it refers to religious freedom. But if you learn one or two of them, just a little background, even at the risk of really knowing something, you'll find use for "Not since the Missouri Compromise" or "the Council of Trent" or "the Oath of the Tennis Court" or "the Battle of Crécy" and so on.

—Excerpts from the book *THE PHRASE DROPPER'S HANDBOOK* by John T. Beaudouin and Everett Mattlin. Copyright© 1976 by Richard F. Dempewolf and Benjamin R. Hefner, Trustees for Lisa K. Beaudouin, Stephanie B. Piper, John C. Beaudouin & Mark T. Beaudouin. Published by Doubleday & Company, Inc.

What Was Fashionable When



—photos by Reben

People who attended the Hospitality Committee's Tea and Sherry Party last week were treated to a parade of beautiful and historically interesting clothing from the 18th century through the 1930s. The fashion show was presented by Mrs. Lesley Balazs de Teledg-Bacon, a fashion consultant here and in Europe. Her collection included clothing and accessories from Europe, the Middle East, and the Orient.

Left, Shizue Iwai and Phyllis Vineyard are wearing finely embroidered Chinese costumes. Below, a group of models are dressed in an assortment of Victorian peignoirs and petticoats.



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Angels In Flight

A Navy "Blue Angels" Flight Team film "Threshold," will be shown at Berkner Hall on Tuesday, June 10 at 7:30 p.m. Tickets will be sold at the door: \$2.00 for adults and \$1.00 for children. The BNL Aviation Club is sponsoring this event and has extended an invitation to the public. Refreshments will be served at intermission.

Blue Sky hours earned by the Aviation Club will be awarded at the next two meetings. Winners will be selected from the list of paid-up members. One winner will be drawn from the list of those attending; a second winner will be selected from the complete list of members. This method will allow those present two chances to win at each meeting. You need not be a pilot or student to win, but be sure your dues are paid for 1980. Call Audrey, Ext. 3962, to pay dues or to check membership.

Concert Memo

Tonight at 8:30 in Berkner Hall, there will be a BERA-sponsored concert. Rebecca Rust and Jeffrey Marcus will play a series of cello and piano sonatas. Admission is \$2 for adults and \$1 for persons under 18.

Diners Note

The Center Club will be closed Sunday, May 25, the day preceding Memorial Day. It will be open on Monday evening, May 26.

The Cafeteria will be open from 9:00 a.m. until 2:00 p.m. on Saturday, Sunday and Monday, May 24, 25 and 26.

The Vended Food Service in Building 912 is in operation continuously.

Cafeteria Menu Week Ending May 30, 1980

Monday, May 26	
Snack Bar Service - 9:00 a.m. to 2:00 p.m.	
Tuesday, May 27	
Beef noodle soup	(cup) .40 (bowl) 1.45
Roast chicken w/stuffing	1.45
Beef liver & onions & 1 veg.	1.35
Hot Deli - Barbequed beef	(bread) 1.40 (roll) 1.50
Wednesday, May 28	
Cream of tomato soup	(cup) .45 (bowl) .55
Broiled filet & 1 veg.	1.45
Chopped steak & 1 veg.	1.35
Hot Deli - Grilled Reuben	1.45
Thursday May 29	
Navy bean soup	(cup) .40 (bowl) .50
Manicotti & 1 veg.	1.40
Sauerbraten & potato pancake	1.45
Hot Deli - Smoked baked ham	(bread) 1.40 (roll) 1.50
Friday, May 30	
Fish chowder	(cup) .45 (bowl) .55
White clam sauce over shells w/garlic bread	1.35
Breaded pork chop w/applesauce & 1 veg.	1.50
Hot Deli - Fried filet hero	1.45

Out On The Ol' Sandlot

Softball games are like dandelions; every spring they seem to find their way onto any open pasture or field. Over the last 30 or so years at BNL the urge to get-up an old-fashioned softball game (complete with aluminum bats and nylon hats) has developed into a highly organized 36-team league. This season 258 regular season games are scheduled between May and September. Coordinating the five divisions, or league, rests on the shoulders of Charles Bohnenblusch, league president for the past two seasons.

Bohnenblusch, a veteran BNL softball player for the last 14 years, is pleased with the way the league has expanded from 18 teams only a few years ago to the present 36 involving more than 500 employees. In addition, two new playing fields have been added for 1980. Perhaps one of the biggest factors in the growth of the league is the participation of women. Until the early 1970's softball was exclusively a male sport at BNL.

"Back then we used to beg women to come out and play," said Bohnenblusch. "We couldn't even field four teams. But the mixed teams are really

competitive now - some of the women are even as aggressive as the men."

There are 16 mixed (male and female) teams this year covering two divisions, plus three men's divisions. Each league is designated by the quality of its ballplayers, with League I the most competitive and League III the least.

According to Bohnenblusch this allows each individual to seek his or her own level of competition. To further insure a consistent quality of play among teams before the beginning of each season Bohnenblusch and his four-member board review won-and-lost records and drop the poorer teams to a lower level of competition, and try to bring the better teams up a notch.

The games are governed by the United States Softball Slow-Pitch Association and are officiated by non-Lab umpires. Some of the contending clubs expected to make a run at the title in their respective leagues are: the Blue Jays and Phoubars (League I); Deegenerates and Titans (League II); with the Big Sticks, New Powers and Binary Bombers expected to battle it out in League III.

—Jerry Mikorenda

The 1980 BNL softball season opened on May 12. Here are the scores for the first week of play:

League I

Blue Jays - 14 Deegenerates - 5
Six Pax - 11 Phoubars - 8
Light Source - 9 Ravens - 7

League II

Moles - 15 Titans - 4
Dirty Sox - 10 Cardinals - 6
Roga - 9 AMD - 6

League III

Binary Bombers - 12 Lights Out - 5
Huff & Puff - 9 Medical - 8
Brewmasters - 8 Big Sticks - 6
Ice Pops - 12 Nuke Powers - 11

League IV

Balls & Strikes - 13 EZ Riders - 12
Survivors - 16 Nads - 7
Diamonds - 10 Thrids - 8
Random Sample - 12 Turkeys - 10

League V

Who Cares - 11 Underalls - 9
Source III - 7 No Feedback - 5
No Names - 15 Mudville Sluggers - 8

Theater Group

The BERA Theater Group will hold its annual election meeting on June 6 at 8 p.m. in the North Room of the Center. The slate of nominees is as follows:

President	Anthony Fainberg
Vice-Pres. & Treas.	Sandi Lane
Secretary	Liz Russell
Advisory Chairman	Joe Skelly
Program Chairman	Jane Love
House Chairman	Clarence Pittenger

Garage Sale

The Brookhaven-OXFAM Committee is holding a garage sale (household items, clothing, etc.) at 68 Christian Avenue in Setauket on Saturday, May 31 (rain date, June 1) to raise money for Cambodian famine relief. For information and/or directions, call Chip Balzer, Ext. 2256 or Tony Fainberg, Ext. 2920.

Swimming Pool

The pool will be closed on Monday, May 26 (Laboratory holiday).

Golf

The second tournament of the BGA golf season will be held on Monday, June 9 at the Bellport Golf Course. There will be a \$7 green fee and a \$1 entry fee. Assigned tee off times will begin at 11:30 a.m. Send your entry fee to Rich Mobley, Building 923, Ext. 4652, by June 6. In the event of rain, the tournament is tentatively scheduled for Monday, June 16. BGA tournaments are open to all BNL employees, their spouses, and retired employees.

Forty-seven golfers took part in the first tournament held at Pine Hill's Country Club. Tom Iarocci won low gross, 18 holes, with an 86 and Bill Sampson won low net, 18 holes, with a 70. Other winners were: low net-front 9, Mike Iarocci (33), low net-back 9, Bob Glasmann (33), low gross-front 9, Steve Heald (42), low gross-back 9, Bob Feindt (42) and longest drive, Tom Romano. Frank Lepera won the closest to the pin contest when he put his tee shot 6 inches from the pin on the 143-yard third hole.



Binary Bombers George Malcolm "lines a double" against Lights Out in a League III game. This year there will be more than 500 employees involved in BNL's 36-team league.

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.

1344. P&GA OFFICE SPECIALIST - Requires excellent secretarial and communication skills. Will have primary responsibility for diverse office duties i.e., typing administrative reports and correspondence, processing purchasing and personnel reports, coordinating quick copy pick-up and delivery, arranging travel and meeting times. Photography and Graphic Arts Division.

1345. P&GA SPECIALIST C - Requires formal word processing training and/or work experience on shared logic word processing editing and printing typewritten material in a centralized word processing center. Photography and Graphic Arts Division.

1346. SECRETARIAL POSITION - Requires AAS in secretarial science or equivalent experience performing diverse secretarial duties including typing of technical reports. Good communication and language skills are essential. Will primarily be responsible for typing correspondence, technical reports and various administrative forms utilizing word processing equipment. Department of Nuclear Energy.

1347. ACCOUNTING/CLERICAL POSITION - Requires accounting or bookkeeping experience, analytical skills in working with numbers and detailed procedures and good typing and communication skills. Familiarity with BNL accounts payable procedures and experience with computer data input are desirable. Physics Department/National Synchrotron Light Source Project.

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

1348. AUTO TRUCK MECHANIC - Responsibilities will include performing repairs, maintenance, service for gas and diesel engine vehicles (automobiles, trucks and material handling equipment). Must have demonstrated ability and experience in standard transmission rebuilding and use of electronic diagnostic equipment as well as experience in limited welding, brazing, painting and other body and fender repair work (re-posting of Job No. 1334). Staff Services Division.

1349. REFRIGERATION AND A/C ENGINEER - Requires competence with troubleshooting, repairing, installing and operating commercial/industrial air-conditioning and refrigeration equipment including steam absorption, centrifugal and helical screw refrigeration machines. Successful completion of refrigeration and A/C apprenticeship program or related coursework is highly desirable. Must be available to work shifts as required. Plant Engineering Division.

Classified Advertisements

OPEN RECRUITMENT: (Cont'd)

1350. TECHNICAL POSITION (part time/20 hours) - Requires manual dexterity and machine orientation with capability to learn to operate manual drilling equipment and prepare various chemical solutions. Will assist experienced technician in the preparation and handling of non-standard printed circuit boards for ISABELLE Project and National Synchrotron Light Source Project. Physics Department.

1351. SECRETARY (part time/20 hours) - Requires excellent secretarial and communication skills. Will provide all-around assistance to central division office. Duties will include typing, filing and answering telephone and in-person inquiries, and processing mail. Safety and Environmental Protection Division.

1352. STANDARDS INSPECTOR - Requires AAS in mechanical technology or equivalent experience in non-production machine shop. Will perform routine inspection and assist senior standards inspectors with complete inspections, involving nondestructive testing and optical tooling (re-posting of Job No. 13.15). Central Shops Division.

1353. ELECTRICAL ENGINEER - BSEE or equivalent with professional experience in power supply design. Responsibilities include analysis, detailed design and test of high precision, high current switching and linear supplies. Candidates must be knowledgeable in feedback control systems analysis. Accelerator Department/ISABELLE Project.

1354. TECHNICIAN POSITION (mechanical) - Requires AAS degree or equivalent in mechanical technology. Will participate in construction, testing of magnets and associated equipment. Must be familiar with precision measuring devices, operation of machine tools and have strong mechanical skills with an aptitude for careful, precise work. Working knowledge of vacuum technology required. Accelerator Department/ISABELLE Project.

1355. TECHNICIAN POSITION (electrical) - Requires an AAS in electrical technology or equivalent. Should be experienced in the construction and testing of prototype analog circuits and systems. Background in digital circuitry and power supplies is desirable. Work in electrical components group. Accelerator Department/ISABELLE Project.

Autos & Auto Supplies

77 TRANS AM - garaged, many options, must see. \$5250. Jill, 924-7677, 581-9707.

76 FORD CHATEAU WGN - a/t, a/c, full pwr, capt chairs, 44,000 mi, must sell. JU8-1713.

71 BUICK SKYLARK - 2 dr hdtp, a/t, p/s. \$275. Ext. 2602.

79 CHEVY C10 PICKUP - AM/FM-8 trk stereo, 2-tone, 3 spd, sm V8, rear step bumper, 17 mpg. 585-8390 after 5.

76 PINTO WGN - a/t, a/c, 6 cyl, 16 + mpg. \$2400. Kevin, Ext. 4901; Paula, 924-7283 eves.

73 FORD GALAXIE 500 - 4 dr, r/h, a/c, ps/pb, AM/FM-8 trk stereo radio, body ext cond good, 58,000 mi. \$1350. Ext. 4532, 277-4091.

TIRES - (2) Delta Trans-AM H60-15, never used, raised white letters. \$65. Kevin, Ext. 4261, 654-8553 after 6.

48 DODGE - 2 dr sedan, running, good cond, sound body. Don, Ext. 3284, 928-3756 after 6.

TIRE - 6.00-14, 6-ply rating H.T. nylon for Toyota/Datsun pickup. \$11. Tim, Ext. 7982, 727-7741 after 6.

76 GRANADA - excel cond, std trans, 24-28 mpg, economical. \$2550. Lou, Ext. 4615.

69 PONTIAC - 4 dr hdtp, well maintained, good cond, recent valve job, great family car. \$400. Kinne, Ext. 4061.

TIRE - Goodyear LT8-15 belted, used for spare. \$20. P. Dempsey, Ext. 2901.

(5) 14" CHAIRGERS - (4) tires, (2) 60's & (2) 70's, good. \$200. Ed, Ext. 7943, 589-3992.

68 CHEVY PICKUP - 4 w/d, 4 spd, 72-350 motor, with 10 1/2" slide-on camper, sleeps 5, new 12:00-16x5 tires, extras. \$3000. 758-9825 after 6.

79 MONZA - 4 spd, V6, 22-29 mpg, med blue, low mi, excel cond. \$3800. Sue, Ext. 7669, 744-7679.

1225 VOLVO SEATS - for sale or trade. Cliff, Ext. 3965, 281-8318.

76 NOVA CONCOURS - 4 dr, 6 cyl, a/c, p/c, r/d, AM/FM-8 trk, 38K, radials, excel, leaving country, must sell. Ext. 4410, 924-0581.

74 LE SABRE LUXUS CONV - a/t, full pwr, AM/FM, a/c, rear defrost, mags. Best offer. Ext. 4113, 289-0753.

77 CADILLAC COUPE DE VILLE - low mi, fully loaded pwr sun roof, excel cond. Gary, Ext. 2350, 589-3506.

64 CORVAIR - runs well. \$275. 981-4419.

64 VW BUS - running cond. \$350. 286-0315 after 6.

72 PONTIAC LEMANS - a/c, ps/pb, AM/FM, runs well, rubber good. \$500 or best offer. 281-2186.

68 FURY III - leaving country, must sell. \$175. Lou, Ext. 2034.

TIRES - (4) brand new F78-15 mounted on Ford rims w/hubcaps. \$100. Frank, Ext. 4709, 281-4607.

71 PONTIAC LEMANS - 6 cyl, rebuilt motor & carb, clean. \$500. Ext. 3254 after 5:30.

77 KZ400 - crash & sissy bars, lug rack, blue, 2 helmets, very well maintained. \$1200. Bill, Ext. 7611.

70 TOYOTA - 2 dr Corona Mark II, excel mech, great mpg. \$990. Ext. 3922.

MOTORCYCLE HELMET - w/face shield, \$10; service manual for Honda 175cc motorcycle, \$5. Bill, Ext. 3397, 281-0557.

15" WHEELS - GM type, \$5/pr; 13", 4-hole type, fit Toyota, \$6/pr. Bob, Ext. 2819.

TIRES - (5) Goodyear custom radials, steel belted G78-15. Ext. 3392, 475-8330.

67 DODGE DART - new batt/alt. Best offer. Kale, Ext. 4224.

75 PONTIAC LEMANS WGN - a/c, fully pwr, some rust but very clean, 59,600 mi. \$1200. 289-0791.

TIRES - (2) new 5-ply nylon 7.75-15 (F78-15) Firestone. \$25 ea. Gary, Ext. 2491.

71 BSA - 650cc, low mi. \$975. Ext. 4133, 698-9116.

66 CHEVELLE - good cond, reliable. Jerry, 475-8440.

1976 PONTIAC LEMANS SPORT - a/t, p/s, p/b, a/c, AM/FM 8 track, sunroof, white letter radials, new vinyl roof, good mpg, 33,000 mi, excel cond. \$3550. Frank, Ext. 2907 or 289-3830.

MOTORCYCLE - 1972 Norton Commando, 750 cc, 7500 mi, excel cond. \$1200. Bumstead, 472-0750.

Boats & Marine Supplies

11' SAILBOAT - Sea Snark, fiberglass inside & out, 2 sails, weighs 60#. \$125. Ext. 2206.

19' GRADY WHITE - outboard, sleeps 2, fiberglass, 115 Evinrude. \$1500 as is. 286-0497.

OUTBOARD MOTOR - 1975 Chrysler 45 hp long shaft, very good cond. \$325. Richie, 744-2504.

12' SHARPIE - wood/glass, rowing or motor, fuel tank, sturdy. \$275. John, 286-0799.

12' SAILBOAT - Kolibri W. German built, fiberglass w/mainsail, jib & trailer. \$775. Ext. 3974, 929-4068.

14' SEAMAC - w/trailer, 40 hp Evinrude, 2 gas tanks, anchor, very reasonable, 815 Roanoke Ave, Riverhead. 727-1278.

OUTBOARD MOTOR - British Seagull 40 plus 3 hp. \$100. Frank, 698-1176.

Yard Sales

SETAUKET - 9 Thornwood Way, May 23 & 24, 100's of items, great bargains.

RIVERHEAD - 92 Woodhull Ave, Sat May 24, 9 a.m.

E. PATCHOGUE - 83 Lyman Rd, May 30-31, super duper yard sale III, leaving state, lots to sell.

SHOREHAM - all of Miller Ave, weekend of 5/24, 10 a.m.-5:00 p.m., rain date 5/31, 6/1.

WADING RIVER - Stephen Dr, May 24-26, 10:00a.m.-4:00 p.m., furn, household, baby items, more.

Miscellaneous

MOD KITCHEN SET - needs glass top, 6 white vinyl chairs w/chrome legs, very good cond; also other furn. 281-1364.

20" BOY'S BIKE - good tires, fancy seat. \$20. Ernie, Ext. 3357, 281-7873.

LEICA M-3 - w/50mm f-2 Summicron & 90mm f2.8 Elmarit. Ext. 2041.

VENDING MACHINES - (22) Column National Cigarette, w/coin mechanism adjustable to \$1.00. Contact Cafeteria, Ext. 3541.

BICYCLE - ladies' full size, coaster brake. Jack, Ext. 3397.

RCA COLOR TV - 19" table model, plays well. \$175. Alan, Ext. 2252.

FREEZER - United upright, 19 cu ft, white, mint cond, 2 yrs old. \$175. 399-2798 after 6.

KITCHEN SET - 48" round table w/4 captain chairs. \$95. J. Cochrane, Ext. 3284.

PARSON DIN TABLE - Burl finish, 6 brever chairs, brand new. \$700 or best offer. 281-0843.

MOVING - selling many useful household items, lacps, bookcase, stereo/phono, records, elec appl, bedspreads, curtains. 744-2332.

RUG SHAMPOO MACHINE - Shetland-Lewyt, good cond, \$10; mech digital clock, excel cond, \$5. Ext. 4324.

WATER PUMP - Burks 2 hp high volume, excel for underground sprinkler. Ext. 3392, 475-8330.

LG ROUND TOP TABLE - \$250; victorian bed frame, \$100; child's dresser, \$35. Ext. 4420. 744-8015.

LASSIE SUIT - tight fitting, worn once, perf for child. Bepo, 924-6515.

FOR ADOPTION - male blk poodle, housebroken, friedly, playful. Bill, Ext. 3355, 472-4684 after 6.

FIREPLACE - wood or coal red porcelain/metal, new in carton. \$200. Ext. 3319, 581-9707.

UNICEF CARDS - & stationary. 399-1963.

2 BEDS - w/boxspring & matt, 2 dressers. Cheap. Ady, Ext. 4531/7152.

AIRTIGHT WOOD BURNER - 13 1/2" W x 28 1/2" x 30H, 6' of inside pipe, w/damper. \$100. Ken, Ext. 3354.

BASEBALL GLOVE - 1st baseman mit. Pat, Ext. 4432. 929-6003.

CANOPY BED - white, like new. Cost \$125, sell \$55. 281-8274.

DINETTE - 42" round table, formica top, 4 vinyl chairs, cast iron frame; baby items. 821-9365.

BICYCLE - Vista 3 spd, good cond. \$50 or best offer. Karen, 473-7546.

FISH AQUARIUM - compl set-up w/metal stand, fluorescent lamp & chrome cover, filter, heater, etc. \$25. Ext. 3771, 878-1471.

BEER MUGS - (7) 12 oz Lowenbrau pottery mugs + some asstd. \$15. R. Wieser, Ext. 3080.

PACHYSANDRA - good ground cover. 50 plants/\$5; 100 plants/\$9. Adams, 744-5448.

DINETTE SET - green & white, \$40; traveling sprinkler, \$30. Ext. 2251.

CANNEL COAL - \$2/40 lbs, you haul; fp grate for coal, \$10; fp glass door, \$40. 286-0247.

BOY'S HUFFY BIKE - 5 spd, \$20; single bed frame, \$5. Bob, Ext. 4317 or 289-8167.

COFFEE TABLE - very good cond, Medit style. \$20. Maria, 924-3756 before 5.

WET SUIT - US Divers 3/4", top & bottom, excel cond. \$40. Dave, 286-3235.

DBL WINDOW - 67 1/2"x38 1/2", excel cond. \$125. Bob, Ext. 3309.

SUN LAMP - Sperti Mark III, 400 watt w/auto timer, floor model, stand, folds for storage, goggles, like new, in box. \$45. Ext. 3771, 878-1471.

TREES - you cut & carry, good for firewood. \$40/car, \$60/pickup truck/load. 732-3073 after 5.

ATLANTA COAL STOVE - never used, all cast iron. \$120. Ext. 2012.

EVERGREENS - yews 4-5', you dig \$5, we dig \$8; mountain ash, \$10 you dig, we dig \$3 extra. Jim, 286-0024.

AIR COND - Westinghouse 9000 BTU, 220V, wall install type, very good. \$75. Ext. 2491.

SEARS AIR COND - 11,000 BTU. \$50. 924-4749.

TOY POODLE - male, 5 wks old, apricot, AKC. \$225. JULI-5726 eves.

CORDLESS WEED WHIP - True Temper Mod 7700, used 1 season, excel cond. \$25. Bob, Ext. 4551.

CASTRO CONV COUCH - 878-4474.

WATER PUMP - Burkes high volume, 2 hp, excel for sprinkler system. Ext. 3392, 475-8330.

FULTON TRAILER JACK - rubber wheel, ball-bearing casters, self-locking, 30-1 mech adv, new in box. \$28. Bob, Ext. 3386.

AUTO PISTOL - S&W Mod 59, 9mm dbl action 14 shot, w/2 magazines, like new. \$225. 289-8155.

REFLECTING TELESCOPE - w/4" mirror. \$19. Richard, Ext. 4396, 325-8158.

COLOR TV - (2) consoles; playpen; washing machine, \$75; dryer, \$50. J. Johnson, Ext. 4173.

ENCYCLOPEDIA BRITANNICA - 1958 Ed, also 50 vol 5' shelf of Harvard Classics, very good cond. Best offer. Ext. 2602.

RCA COLOR TV - 19" table model, plays well. \$175. Alan, Ext. 2252.

BOY'S NAVY SUIT - new, 3 pc, 5 slim, \$10; trench coat, 3T, \$4; much more, excel cond, cheap. Judy, 698-4882.

ALUM SLIDE WINDOW - s/s, 47"x58" outside dimension, good cond. \$30. 399-0586.

THERMAL DRAPES - w/matching panels, \$20; bedrm lamp; humidifiers; vaporizer; punch bowl set; tummy flattener; dumbbells. Ext. 2386, 924-3072.

BICYCLE - 20" girl's hi-riser, very good cond, \$25; 18" tricycle, \$6. 744-5553.

GOULD PUMP - 1 hp, \$75; 3-stage Jacuzzi 1 hp deep well, \$90. 924-3565.

COMPOUND BOW - Browning Explorer, plus 13 arrows & extras. All/\$175. George, Ext. 2048, 288-5697.

HANGING LAMP - Medit, brass & glass, \$18; 19" Sears color TV, needs some work, \$10. Ext. 4463, 929-4923.

AIR COND - 6100 BTU, 7.5 amp window unit, good cond. \$75. Ron, 4082.

PUPPIES - wire hair Fox Terrier, AKC, excel bloodlines, sweet & spunky. 286-0422 eves.

RECLINER CHAIR - \$10. 727-5912.

ENGINE - Kohler 12 hp single cyl, w/elec start. \$150. Tom, Ext. 2613, 281-4080.

CORBIN GENTRY SEAT - Honda 69-76 K model, dbl bckt tuoring saddle, excel cond. \$50. 475-2090.

DUTCH RABBIT BABIES - \$2.50 ea. 878-2372.

CHAIR/BED - naugahyde blk, \$45; sewing machine console, \$65; din rm, 6 chairs, breakfront, gray ash. Ext. 2462, 727-7515 eves.

STOVE - airtight Gibraltar #3, almost new, w/glass front. Cost \$500, now \$350 cash & carry. 588-0805.

KODAK SUPER 8 - sound camera, projector, excel cond. \$250. Jerry, Ext. 7611.

SOFA - 2 pc, good cond, \$50; din rm light fixture, \$10. 744-9822.

BABY CAR SEAT - like new, \$8; rocking horse, \$2; tricycle, \$2; ironing board, \$1. 821-9365.

BICYCLE BUILT FOR 2 - Columbia 5 spd, brand new, never used. \$175. 744-5214.

TENOR SAXOPHONE - Selmer Mark VII, perf cond. 475-2873 after 6.

FENCE - 200' California redwood white picket, 3 1/2"x8" sections, posts & 3 gates. Tom, 589-5837.

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

BELLPORT SOUTH - 4 bedrm, 2-story colonial, full bsmt, carpeting, hard wood floors, inground pool, 0.4 acre, 10 yr old. \$48,000. A. McInturff, Ext. 4845, 286-8890.

CORAM - \$12,000 C/O, 10 1/2% assumable mtg. 4 bedrms, L/R, D/R, eik, 2 baths, 2-car gar, 15x20 den w/fp, gas heat, 1/4 acre, fenced, mint cond. 698-4966.

MANORVILLE - 3 bedrm ranch, 1 acre, 32' country kit, cathedral ceiling, 1 1/2 baths, appl, bsmt, gar, assumable mtg at negotiable rate. \$45,000. Pete, Ext. 3868/4574, 878-1225.

BRENTWOOD - 5 rm low ranch, excel location, \$5000 C/O + \$12,000 second hold owner mtg, over \$11,000 remaining mtg, \$222/mo pays all. 924-0960.

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

CENTRAL ISLIP NORTH - 1 acre, hi-ranch, 8 rms, 1 1/2 baths, 24x28 sunken patio, possible M/D, many extras. Yani, Ext. 2514, 234-8564.

WADING RIVER - north of 25A, exclusive area, lovely wooded building plot, slightly under 2 acres. Owner asking \$20,000. 928-0158, no brokers.

BELLPORT VILLAGE - 3 bedrm ranch, lg eik, att gar, patio, stockade fenced rear yard. \$36,500. 286-0795.

CENTER MORICHES - L-ranch, full bsmt, fp & wood stove, w/w, a/c, D/W, refrig, dbl oven, newly decorated, fenced yard, pool, landscaped, s/s, near beach & marina, 20 min to Lab, 8 1/2% mtg. \$48,500. 878-4984.

For Rent

BROOKHAVEN HAMLET - furn apt, lg L/R, 2 bedrms, kitchenette, bath, oil heat provided, 1 or 2 mature working adults. 286-0129.

BELLPORT - split level house located on prvt road near bay, 3 bedrms, 2 baths, D/R, kit, L/R, 2 fp, den on lower level, gar, avail about June 15. 286-2251.

VT. CHALET - beautiful furn, stone fp, pond, lake canoeing, woodland trails, fishing, nearby tennis, antiques, theater, music festivals, horseback riding. 757-5599 after 4.

MASTIC BEACH - 5 rm cottage, suitable for business couple. \$250 + util. 281-8538 after 4.

Wanted

ROOMMATE - to share house in Rocky Point. John, Ext. 3443, 744-2116.

2-BEDRM APT OR HOUSE - furn, June 1-Aug 31, near Lab. 878-8668.

VIDEO GAME - "Atari," good cond; also 19" b/w TV, reasonable. Bob, Ext. 3565.

3 OR MORE BEDRM HOUSE - w/bsmt in S. Huntington/Melville area. Bill, Ext. 7688.

HOUSE SITTING JOBS - needed by single female, June thru Sept. Yona, Ext. 3403.

DOG HOUSE - for lg dog, reasonable. Ext. 3514, 265-1072.

TRAILER - for 19' boat. 722-4679 eves.

HOUSE - 1-2 wk summer rental, South Shore, pref Fire Island. Brian, Ext. 4990.

USED REFRIG - in good working cond. 728-2100, 9-11 p.m.

USED TIRES - (2) H78-14, good cond. Bob, Ext. 4672, 929-4753 after 6.

HOUSE - mother/daughter, 3 bedrm main house, apt att or sep. 286-8166 after 5 & weekends.

BABYSITTER - reliable, loving, needed for 20-mo old infant. Ext. 2625, 732-8724 eves.

UNFURN APT - 1 or 2 bedrm. 345-2841.

FURN 3 BEDRM HOUSE - in Bellport for mo of July. Ext. 7637, 286-4639 eves.

HOUSE - Pt Jefferson, Setauket, Stony Brook, quiet area, 3-4 bedrms, D/R, eik, bsmt, \$50,000-\$65,000, lg down payment. Jim, Ext. 3501, 92