BROOKHAVEN BULLETIN
Vol. 38 - No. 42 October 26, 1984
BROOKHAVEN NATIONAL LABORATORY

Green Light for Bright Ideas

A good idea is just a good idea. To make it effective, the idea must be nurtured and its originator encouraged. The Laboratory has always supported new ideas, but now, for the first time, a formal incentive program has been established. It is known as the Exploratory Research Program.

This program provides "seed money" to scientific projects which show promise, but need further development. To be eligible, the project cannot already be receiving funds from other sources. The money for this exploratory research comes out of the Laboratory's overhead, and the amount available each year will vary with the state of the Lab's finances.

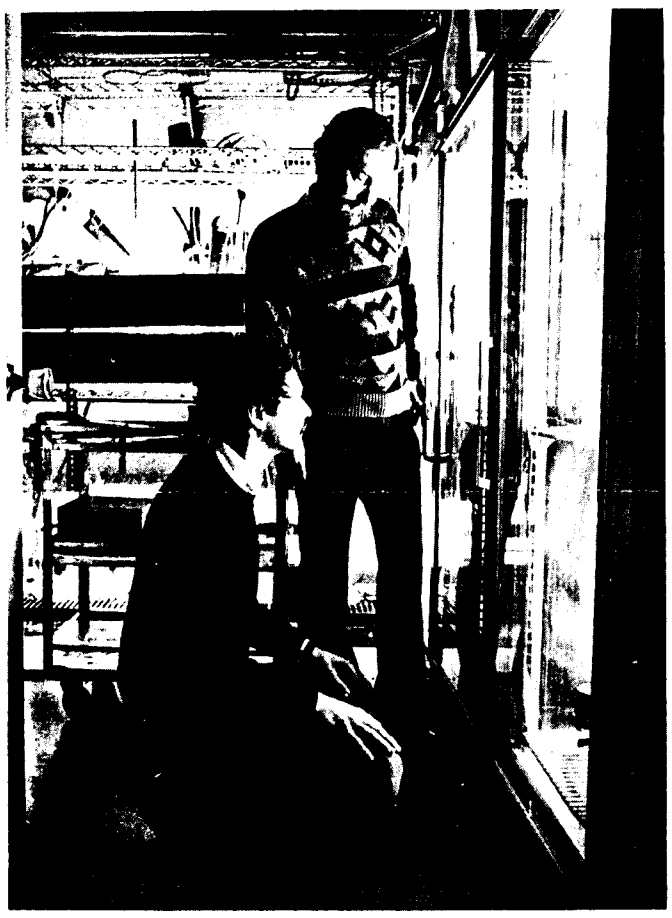
The plan was announced in May and the first awards were made as of October 1. Of the 20 proposals received to date, seven have been approved by the Exploratory Research Advisory Committee. This committee is composed of the Associate Directors for Scientific Programs and is chaired by Martin Blume, deputy director. The program is ongoing, and the committee meets quarterly to select attractive ideas which could lead to even more attractive projects.

Projects are funded for one year, to a limit of two years. Most of the awards are under $100,000. "By the end of the award period," says Blume, "it should be obvious whether or not the idea will work." If it does, he continues, "it is hoped that funding agencies will become interested after the preliminary work has been done and some attractive results obtained."

Included in the first wave of bright ideas, which the committee has approved, are:

- Dynamic Simulation of PWR Power Plants for Accident Mitigation. Wolfgang Wulff, DNE.
- Technical Development of the Application of Nuclear Magnetic Resonance Spectroscopy to Basic Medical Research. Joseph Kehayias, Kenneth Ellis, Stanton Cohn (all of Medical), William Sampson (Accel.) and Meyer Garber (DAS).
- Determination of the Molecular Basis for Somaclonal Variation and Comparison with Spontaneous Mutations in Plants. Daniela Sciaky, Biology.
- Enhancement of Energy Transfer Efficiency in Photosynthesis. Paul Falkowski (DAS), John Bennett (Biology).
- Metastatic Harding-Passey Melanoma. Brenda Laster (Medical).
- Laser Linac. Robert B. Palmer, Director's Office.
- Relativistic Heavy Ion Collider. Harald Hahn, High Energy Facilities.

The idea for the program arose out of recommendations from various committees who were looking at the national laboratories. DOE has now established a formal policy that enables most national labs to pursue exploratory research by taking the money out of overhead.



Alex Reben

In the Biology lab Paul Falkowski (foreground) and John Bennett check algal cultures growing under conditions where the light, temperature and nutrient supply are controlled.

A Case in Point

How a proposal is developed can be illustrated by the Falkowski/Bennett project.

Paul Falkowski is an oceanographer who studies photosynthesis in marine algae at the Department of Applied Science, and John Bennett, a biochemist in the Biology Department, is interested in photosynthesis in higher plants. They want to use genetic engineering to improve photosynthesis in species of algae which are of commercial importance, either as sources of chemicals, or as sources of biomass for the production of fuel. Their desire to collaborate was sparked by the realization that the techniques each had developed in his own laboratory would be complementary on such a project. To date, the collaboration has been informal, but now they have a "legitimate marriage," says Falkowski.

Briefly, the problem they are tackling is the self-shading of algae which are grown in large ponds with sunlight as their energy source. Only the cells at the surface receive adequate sunlight. Falkowski and Bennett first want to identify the biochemical mechanisms by which algal cells control the balance between their pigment composition and their capacity to photosynthesize. They then propose to "tamper" with these mechanisms by mutation or genetic engineering to produce cells which maintain high rates of carbohydrate and protein production, with minimal self-shading. The researchers say the study is innovative in that the algal work offers opportunities not available with higher plants.

The Falkowski/Bennett proposal has been granted $40,000 for the first year and, if all goes well, a similar amount for a second year. With these funds, they plan to hire a postdoc, build small continuous culture chambers and develop other special apparatus.

The researchers maintain their regular research will benefit from the pilot studies. "We can ask questions and see if the conclusions we come to with regard to higher plants are valid for algae, and vice versa," says Bennett. "And there is no question, we will both learn a lot about photosynthesis."

Leon Van Hove Named Haworth Distinguished Scientist

Eminent theoretical physicist Leon Van Hove will be coming to Brookhaven as the Laboratory's first Leland J. Haworth Distinguished Scientist. Van Hove will arrive on October 28 and will be at Brookhaven for two weeks, during which time he will meet with the scientific staff and present seminars.

To honor the memory of Leland J. Haworth, a BNL director from 1948-61 who played a primary role in developing BNL into one of the world's leading scientific research centers, the Distinguished Scientist Appointments were established this year, with funding from Associated Universities, Inc. Recipients are expected to spend one to three weeks per year, for three consecutive years, in residence at Brookhaven. During those times, they will hold scientific discussions with the staff and present seminars or colloquia, at least one of which will be of Laboratory-wide interest.

Van Hove will present a Physics Colloquium on "The Hadronic Phase Transition in the Early Universe," on Thursday, November 1, at 3:30 p.m. in the seminar room of Bldg. 510. On Monday, November 5, at 3:30 p.m. in Berkner Hall, Van Hove will give a lab-wide lecture entitled "The Quark-Gluon Plasma as a New State of Matter, and Relativistic Ion Beams as Tools to Study It." Tea will be served at 3 p.m. preceeding each talk.

In addition, Van Hove will give two informal seminars. On Friday, November 2, at 2 p.m., in the seminar room of Bldg. 510, he will present Part I of "Some Ideas About an Experimental Program for Relativistic Heavy Ion Program." Part II is scheduled for Tuesday, November 6, same time, same place.

Leon Van Hove graduated in mathematics in 1946 from Brussels University. He spent three years as a member of the Institute for Advanced Study at Princeton. In 1954, he was appointed professor of theoretical physics at the University of Utrecht. Six years later, he joined the European Organization for Nuclear Research (CERN) in Geneva as director of the Theoretical Study Division. From 1971 to 1974 he chaired the Scientific Directorate of the Institute for Physics of the Max Planck Institute for Physics and Astrophysics in Munich. Since 1976, he has served as research director general of CERN.

CERN Photo

Leon Van Hove

The succession of prestigious positions Van Hove has held throughout his career reflects the impact of his work on the physics community. He has made important contributions in several areas: statistical mechanics of irreversible phenomena; many-body theory, both general and applied; the theory of strong interactions at high energies; and, most recently, the phenomena of relativistic heavy ion collisions and the possible new matter described as quark-gluon plasma.

This most recent work is germane to the new BNL initiative on relativistic heavy ions, which officially got under way last week with the groundbreaking ceremony for the Tandem/AGS Heavy Ion Project.

Inside Info

Richard Setlow has been reappointed Chairman of the Biology Department for a term of five years. In making this appointment with the enthusiastic support of Setlow's staff, Lab Director Nicholas Samios said that the Biology Department had "maintained and enhanced its reputation for excellence in a broad spectrum of biological studies." Setlow will also continue as Acting Associate Director for Life Sciences until a successor to Victor Bond is found.

PTP Reaches Double Design Load

The scene through the control room window at the Power Transmission Project (PTP) on Thursday, October 18, was a placid one: a field ringed by trees in various shades of autumn splendor and populated by a large flock of migrating starlings, apparently undisturbed by the large white pipe cutting through the grass.

Inside the pipe, however, it was not placid. For the twenty-eighth day in a row, the temperature was near absolute zero and vast power surged through the two 430-foot superconducting cables ensconced within the pipe. This was the final check in a month-long series of very successful operational tests of the PTP, which is designed to demonstrate to utilities that using superconductivity to transmit large amounts of electrical power over long distances and through congested areas would be both practical and cost-efficient.

In an actual application, the cables, which are made of superconducting materials that lose all resistance to electricity when cooled to temperatures near absolute zero, would be underground. Together, the cables have a circuit transmission capability corresponding to 1000 megavolt amperes (MVA), in a three-phase system, or 330 MVA per cable. According to Eric Forsyth, head of the Advanced Technology Applications Division, which is reponsible for the PTP, this is enough power for a city of 1,000,000 people.

Following two weeks of routine checks of the system's components, the group began a two-week life test. Ideally, said Forsyth, "We would like to run for a year, as the utilities do. But it costs about $700 a day to run our refrigeration to cool the cables, so budget considerations limited us to a total of four weeks of run time."

In the first week of the life test, the computer-controlled system ran at three-quarters of its full power rating. For the second week, it was raised to full power. Though the system ran round-the-clock, everyone went home most evenings, and the computer called up people like operations supervisor Richard Thomas and technical supervisor John Wilcenski if it detected any trouble. On weekends, for four-hour shifts, the computer was joined by watchkeepers, who included Lou Cannizzo, Conrad Dabrowski, Bill Kristiansen, Ken Rogers, John Slavik and Ken Vitkun.

During the life test, the system was run at low power for one night, because, Forsyth said, "Thermal cycling, back and forth from high to low power, is a test utilities like." And at the end of that appraisal, the group took the opposite tack, overloading the system.

Previously, the PTP had been tested at its rated overload of 500 MVA per cable. This time, power was raised to 660 MVA, twice the design load for each cable, and maintained there for an hour. Then, Forsyth said, "Nothing was in distress, so we went back to rated power for a day. Then we went into the last test, to answer the question, 'If we get a dip in the middle of the night and lose power to our cooling system, how do we restart?' "

At this point, refrigeration was turned off and the computer was instructed to allow the high voltage to stay on. While John Bunicci monitored the high voltage apparatus, the rest of the group tried to bring the refrigerator back on. After about two hours, all the equipment was working, the system was cooling down, and high voltage was still on.

Through all this, the scene in the control room was as placid as the one outside. These were people who knew their apparatus well and had a great deal of confidence in it. Now, buoyed by these successes, they are turning their attention to impulse tests, aimed at seeing if the system can withstand sudden and jarring effects, like a lightning strike or the opening of a circuit breaker somewhere in the power system.

Alex Reben

Marsha Kipperman, Employment Manager, checks over the 5"×8" Employee Guide which replaces the various booklets formerly issued to describe the Lab's personnel policies and benefits.

New Employee Guide Puts It All Together

When was the last time you wanted to look up a certain personnel policy and you couldn't find your Employee Handbook? Over the years, information about personnel policy, procedures and benefits has been published in individual booklets. Now, these booklets have been put under one roof in a loose-leaf binder called the "Employee Guide."

The Guide includes the Employee Handbook, Insurance and Retirement Program, Salary Administration Program, Suggestion System, Employee Assistance Program and BERA activities. As changes occur, there will be no need to reprint the whole book, just the appropriate page. "In the long run, we hope it will save printing costs and time," says Employment Manager Marsha Kipperman.

The binder is complete, except for information on insurance and retirement, which will be added later. Last week, non-bargaining employees received a summary of the salary administration program, and this should now be put in the pertinent section.

Distribution of the Employee Guide is now being made and the binders are addressed to individual employees. If you don't get one, please check with whoever handles the distribution in your building. And if that fails to turn up your copy, call Personnel.

On the United Way Campaign Trail

What do the Boy Scouts, St Charles Hospital and Maryhaven Center of Hope have in common? They have associate director Vincent O'Leary and the United Way of Long Island.

As president of St. Charles Hospital, immediate past chairman of Maryhaven Center of Hope and vice president of the Suffolk County Council of the Boy Scouts of America, O'Leary volunteers time and energy, as well as money, for these three community groups belonging to the United Way of Long Island. Because of his participation on the executive boards of these United Way agencies and his contacts with local government officials, O'Leary was named local government division chairman for the 1984-85 United Way campaign.

Alex Reben

Vincent O'Leary

"As a campaign chairman, it is my job to call on people at the county and town level in Suffolk, describe the United Way's services and convince them that they should allow solicitation of contributions from their employees," says O'Leary. O'Leary has called on or met with the deputy Suffolk County executive and supervisors in the Suffolk County towns of Brookhaven, Smithtown, Islip and Southampton. He works with an assistant who is contacting town officials in Nassau county, and with United Way campaign directors.

"For instance, we did not always have a United Way campaign at BNL. A United Way campaign chairman came here and convinced us it was appropriate for the Lab," mentions O'Leary.

The associate director talks about the difference the United Way has made for the three organizations for which he has served as a trustee or member of the executive committee since the late seventies. O'Leary explains how United Way funding has helped patients at St. Charles Hospital in need of rehabilitation after illness or accident, handicapped children requiring therapeutic schooling and handicapped adults needing sheltered workshops at Maryhaven Center of Hope, and Suffolk County boys wanting to belong to the Boy Scouts.

"Our goal is to increase employees' participation in giving," explains O'Leary. "Because the towns of Long Island are so large and so spread out, it is hard to rally people's community spirit for the United Way. Yet Long Island has a tremendous need for United Way services."

Joy reigned supreme at CERN last week when it was announced that Carlo Rubbia (left) and Simon van der Meer had won the Nobel Prize in Physics. BNL physicist Michael LeVine was at CERN when a party was given in honor of the winners and he took these photos. Rubbia and van der Meer won the prize for work done at CERN, culminating in the discovery of the W and Z^0 bosons. The discoveries confirmed the new electroweak theory which proposed the unification of weak and electromagnetic forces.

Retirement Notes

Radford Sprague, a water and sewerage operating engineer, retired in 1976. Here is a letter just received from him:

As a retiree, I thought I would drop a line to update my activities since leaving the Lab. After leaving, we moved to Fredericksburg, Virginia, with the thought of opening a Civil War museum. After a year, we realized they were not ready for one and I was not ready to sit on the porch in the traditional rocker.

So I spent the next three years as a project inspector for the installation of utility lines in Stafford County. Included in the project was a waste water treatment plant, a water treatment plant and sewage booster pump stations. I was a utility inspector for two years and then advanced to my present position as Superintendent of Construction & Maintenance as openings occurred in the county system.

Seven years ago we purchased a pre-war farm house and acreage about seven miles from Fredericksburg at Hartwood. The area is zoned for agriculture and consists of either farm land or pasture lands. It resembles the way Long Island used to be. We raised chickens, turkeys, pheasants, but have now reduced it to two dogs, three cats and two bunnies. But the most important thing in our lives is the raising of two daughters, Melissa and Mandy, ages three and two.

In addition, Phyllis makes reproduction porcelain dolls and is quite an expert at it. She has her shop in a carriage house in which a good doctor kept his horse and buggy. Our house was originally the manse for the church across the road. About 1900 it was purchased by Dr. Patton who was the one and only country doctor. It is a beautiful home with fireplaces in every room and built on a stone foundation.

We would like to hear from our friends at the Lab. And, if you are on your way to Florida and on I-95, divert yourself onto U.S. 17 and drop in.

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Arrivals & Departures

Arrivals

Dennis G. Averill ..... S&EP
Seymour Baron ..... Director's Ofc.
Eduardo E. Duek ..... Chemistry
Bruce W. McDowell ..... Accelerator

Departures

This list includes all employees who have terminated from the Laboratory, including retirees:

Gary N. Gradney ..... NSLS

Alex Reben

Why is Albert Einstein ghosting the halls of building 120? Einstein, the great American theoretical physicist who lived from 1879 to 1955 and won the 1921 Nobel Prize in physics, appears to be pacing the second floor hallway as he perhaps contemplates his unfinished work — a unified field theory. Some say Einstein has treated us with a visit in time for Halloween, but drafting specialist Richard Tulipiano, DAS, says that this picture is a trick. Tulipiano claims that Einstein is a six-foot poster on the back of his office door which is opposite the fire door. Whooo do you believe?

On Site

In this new column, we will look at some of the activity observed around the Laboratory site, to find out what's going on and to check on the progress of various projects. If there's anything you're curious about, contact the Bulletin and we'll investigate.

When will the Center reopen?

It's been a busy three months at the Brookhaven Center where renovations have been under way. Though the dining rooms, with their new parquet floors have already been in use, the Tap Room will reopen in about two weeks. Not only has its kitchen been redesigned, but its lounge area also sports a cozy new look, thanks to a plush carpet, wood trim accents, comfortable new furniture and ceiling fans. In addition, the Center's rest rooms have been thoroughly revamped.

Have you noticed the new flag?

The giant American flag flying each day in front of the Brookhaven Center is a permanent addition to the Lab. It's called a garrison flag, and at 30 feet wide and 20 feet tall, is the largest national flag flown on national holidays and special occasions, although it is not limited to such use. The new flag was first hoisted at BNL on October 17, for the groundbreaking ceremony of the Tandem/AGS Heavy Ion Project. So many employees phoned in their compliments that Associate Director Vincent O'Leary, who had originally suggested its purchase, gave his approval to having it flown every day. The flag is made of nylon so that in spite of its size, it unfurls at the slightest breeze.

PC/Users Group

The PC/Workstation group will meet at the AMD Seminar Room on Wednesday, October 31, at 10:30 a.m. Dave Stampf will compare several PASCAL Compilers for the IBM PC and PC/XT.

Rose Protection

Winters can be hard on rose plants. To insure healthy plants next spring, protect your roses through the coming winter. The following methods will provide adequate protection if temperatures fall regularly below 10°F.

- Bush roses — After the first hard freeze, mound 8-10 inches of soil in and around the base of each plant. In colder areas, also mound leaves or straw over the soil. Tie the canes together to prevent their being blown about and possibly causing the roots to loosen.
- Climbing roses — Carefully remove the canes from their support and lay them along the ground. Cover loosely with several inches of soil.
- Tree roses — These are the least hardy type of rose. In areas where the temperature generally does not drop below 10°F, simply wrap the head with burlap. Where temperatures are lower, carefully dig under the roots on one side, so the plant can be laid on the ground without tearing up the roots. Cover the entire plant with several inches of soil.
- All roses — When danger of frost has passed, carefully remove the materials mounded around the plants, and remove dead and damaged wood.

Commercially produced rose covers are popular in areas where temperatures do not fall below 0°F. In colder areas, the mounding is still the recommended procedure.

Fall Back

You can roll over and sleep for another hour on Sunday, October 28. Eastern Standard Time goes into effect at 2 a.m. so set your clock back one hour.

-BERA News-

"Morning's at Seven" by Paul Osborne is a classic American play dating from 1940. The action takes place in "two backyards in an American town," and revolves around the lives and families of four sisters, all in their sixties and seventies. The youngest, Aaronetta asks, "Doesn't getting old mean that - well, things don't trouble you so much any more? That everything's more peaceful and quiet?" But with Ida's 40-year-old son considering getting married after a 12-year courtship of Myrtle, the revelation of long buried secrets, and profound changes in Cora's and Esther's households, things are anything but peaceful. The cast includes: (standing, from left) Peggie Woody, Sandi Lane, Tom Morris, Connie Fuchel, Bob Butz; (seated, from left) Bill Love, Jane Love, Penny Baggett, Peter Rathvon. The play will be presented at Berkner Hall on November 9, 10, 16 and 17 at 8:30 p.m. Advanced sale tickets are $3 regular admission, $2 for senior citizens and students, and are available at the BERA Sales Office and from cast members. Tickets at the door will be $1 more.

Mountain Club

There will be a meeting on Tuesday, October 30, at noon in Berkner, Room A, to discuss a camping trip to the Gunks, New Paltz, N. Y., November 3 and 4. The plan is to leave at 8 a.m. on Saturday morning and return on Sunday afternoon. It is an easy hike with no backpacking required. Call Don David if interested in going, Ext. 4821 or 3942, or 286-2267.

Camera Club

The November Camera Club meeting will feature two slide shows: Better Travel Pictures and Photographing People. The meeting is at the Recreation Building at 5:30 p.m. on Thursday, November 8.

Members, new members and interested non-members are welcome to attend. Details on how you can win a box of chocolates will be presented.

Violinist Young Uck Kim is featured in the first BERA concert of the season. He will perform at Berkner Hall on Tuesday, October 30, at 8:30 p.m. His program will include works by Mozart, Schoenberg, Fauré and Beethoven. General admission is $8; students and those over 65, $5; and persons under 18, $3. Tickets are available at the door.

Volleyball

As of 10/22

A Division

The Teddybares over the Dinkers, 3-15, 15-11, 15-12. Upfagrabs over Mixed Ups, 16-14, 15-11, 15-9. Semi-Tough over Nuts and Bolts, 15-13, 5-15, 15-11.

B Division

Phoubars over TNT, 15-2, 15-0, 11-15. Setups over Servers, 16-14, 15-4, 15-7. Fossils over Chungas Revenge, 15-10, 15-3, 15-9.

Bowling

Pink League

Maryann Reynolds rolled a 222/524 scratch series, Sandy Asselta 206/515 series.

Purple League

High games were bowled by Ted Erickson 211, Pat Manzella 203/197/550 scratch series, Sharon Moore 199, Ed Meier 201/196, Mary Scheidet 187.

Red/Green League

Rich Larsen had a 247, George Meinken 235, Nelson Tyler 219, Ken Asselta 209, Ed Meier 208, Tom Prach 203, Harold Marshall 201, Ken Riker 200.

White League

High games were bowled by John Connelly 210, Ed Schwaner 209, Ken Asselta 205/201, Jim Petro 203/200, Jim Griffin 203, Ed Sperry IV 202, Jim Vogel 200, Karen Vogel 182, Joyce Pinelli 180.

Service Awards

The following employees received service awards during the month of October:

Thirty Years

Eugene P. Cronkite ..... Medical
David C. Rahm ..... Physics

Twenty-Five Years

Alice S. Trubisz ..... Fiscal

Twenty Years

Katherine J. Boggi .. Mgmt. Info. Sys.
Grace E. Dryden ..... Director's Ofc.
Bill Greenberg ..... Biology
John C. Heinrichs ..... Medical
Mark Sakitt ..... Physics

Ten Years

Mark O. Israel ..... AUI
John C. Lee ..... Applied Science
Patricia J. Vilardi ..... Medical

Scholarship Deadline

Applications for the AUI Trustee Scholarships are due November 1 at Sponsored Scholarship Programs, CN 6730, Princeton, N.J. 08541. If you need any information, call the Office of Scientific Personnel, Ext. 3338.

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. In keeping with the Affirmative Action plan, selection decisions are made without regard to age, race, color, religion, national origin, sex, handicap or veteran status.

Each week, the Personnel Office lists new personnel placement requisitions. The purpose of these listings is, first, to provide open placement information on all non-scientific 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.

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 - Opportunities for Laboratory employees.

2130. SECRETARIAL POSITION - Requires AAS degree in secretarial science or equivalent, the ability to take shorthand and knowledge of general office procedures. Contracts and Procurement Division.

2131. SECRETARIAL POSITION - Requires excellent secretarial, administrative and communication skills and an extensive knowledge of complex Laboratory procedures and policies. The proven ability to function independently is required. Shorthand skills are necessary. Director's Office.

OPEN RECRUITMENT - Opportunities for Laboratory Employees and outside applicants.

2132. DESIGNER POSITION - Requires AAS degree in mechanical technology or equivalent and a working background in domestic and process water systems. Must be capable of preparing layouts, working drawings and flow diagrams from sketches and field measurement. Knowledge of AWWA, NFDA, ASME and ANSI standards desirable. Alternating Gradient Synchrotron Department. Reposting of Job #2042.

2133. DESIGNER POSITION - Requires AAS degree or equivalent in electrical technology or equivalent and extensive experience in all phases of an electrical design/drafting room. Must be experienced in analog, digital and rf printed circuits, braid layout, design and taping. Familiarity with IEEE Standards 91 and 315 required. Alternating Gradient Synchrotron Department.

2134. DRAFTER POSITION - Requires two to three years' experience in the drafting of electrical and electronic diagrams from rough sketches and verbal instructions and familiarity with IEEE standards 91 and 315. Printed circuit taping experience is desirable. Alternating Gradient Synchrotron Department.

2135. TECHNICAL POSITIONS - (2) Requires AAS degree in electrical technology or equivalent and at least two years' experience in digital circuitry. Requires a thorough knowledge of construction modifications and diagnostic procedures as well as familiarity with associated test equipment. Alternating Gradient Synchrotron Department.

2136. SCIENTIFIC ASSOCIATE - Requires BS degree or equivalent in a relevant field, plus a minimum of three years' experience and the ability to work independently in both software development and design of interfaces between computer and detector systems. Applicants should be familiar with CAMAC and/or FASTBUS. Will work in the Heavy Ion Research Group to plan and implement a data acquisition facility to be used in conjunction with experiments at the AGS. Physics Department.

2137. RESEARCH ENGINEER - Requires MS degree or equivalent in a relevant field, plus minimum of six years' experience in gas dynamics, heat transfer, vacuum technology and related subjects. Will be involved in the design and construction of a newly funded irradiation facility and related hardware and systems. Department of Nuclear Energy.

Autos & Auto Supplies

72 BMW 2002 - 4 spd., am/fm cassette, minilite mags, near mint cond., orig. owner, must see, best offer. 286-4652 after 6:30 p.m.

63 CHEVY BELAIR - 2 dr., 90,000 miles, runs well, sacrifice at $399. Mark, 286-4150.

74 CHEVY MONZA - pb/ps/air, am/fm stereo, 4 spd., stick, new rubber, good cond., 878-0012.

69 BUICK LE SABRE, needs work, new brake, gas line, water pump, best offer. Ext. 7159 or 744-0485.

73 LINCOLN MARK IV - 460 engine, front end smashed, best offer. Tony, Ext. 4095.

83 HONDA CIVIC - shop service manual, $10. Charlie, Ext. 3950.

79 HONDA MOPED - good running cond., $200. Ramona, 928-3088.

CARTER THERMO QUAD - like new, less than 1,000 miles on it, $100. Joe Bush, Ext. 4638.

74 MONTE CARLO - good cond., $1,300. Eves., 325-1337.

74 CAMARO - 350, auto., good tires, brakes, needs left front fender, muffler, and windshield, $400. Mike, 821-0318.

CHEVY TRUCK - floor mat and carpet blue, new, camper roof vent, blue lid, new. Ext. 2462.

80 SUZUKI - FZ-50, B-class motorcycle, 2,300 mi., excel. cond., $300. 80 Honda, CM200T, windshield, crashbar, helmet, 9,500 mi., excel. cond., $700. Tony, Ext. 7543.

82 SUZUKI - RM125 dirt bike, mint cond., water cooled, used/wknds., w/equipment, 800 firm, John, 281-3342 after 6 p.m.

75 OPEL MANTA - good cond., needs exhaust work, $600. Mike, Ext. 7594 or 325-1711.

81 TOYOTA GTA CELICA - limited edition, brown/tan, loaded, excel. cond., 48,000 miles, $6,500. Linda, Ext. 7745.

79 OLDS CUTLASS SALON - 8 cyl., a/c, p/b, p/s, 58,000 miles. Ext. 2041.

74 DATSUN PICK UP - V8-283 eng., 4 spd., Hurst Munsey Trans., am/fm cassette stereo, cap, excel. running cond., $1,695 or 473-3084 after 4 p.m.

DUNLOP 150/90 H15 - tubeless or tube tire, black, new model KG27B, motorcycle, $60. 325-9580 or Ext. 4986.

77 PLYMOUTH VOLARE - good running cond., a/c, p/s, p/b, radio, $125. 281-4871 after 6 p.m.

79 FORD SW - all power, 6 new tires, 50,000 miles, $3,500. 475-4596.

79 FORD SW - Country Squire, all power 50,000 miles, $3,500 firm. Joe Soler, 475-4596.

GM TRUCK FRONT BUMPER - rear step bumper, bumper guards, mirrors, stainless steel, set (4) fender well moundings, Ext. 2462 or 269-9510 after 7 p.m.

81 FORD ESCORT L - auto., air cond., am/fm cassette, $3,100. John, Ext. 5279.

TRAILER HITCH CLASS 2 - for mid-size GM cars, $50. Ext. 2799 or 757-1581.

71 KARMANN GHIA - runs well, body needs work, new battery and muffler. Ext. 2617. or 751-1149 eves.

CAR RADIOS - many kinds, $5-$10. Ext. 2674..

79 CHEVETTE - excel. cond., 55,000 mi., $2,200. Ext. 3798.

75 JEEP WAGON - 360 engine, Class 3, hitch, electric brakes, $2,000 firm. Ext. 4167 or 325-1967.

75 CHEVY MONZA - a/t, 4 cyl., steel sleeves, stereo, cassette, $750. Bill Sampson, Ext. 2697.

79 MERCURY BOBCAT - hatchback, p/s, p/b, a/c, a/t, am/fm, excel. cond., $2,550. 567-4333 days or 399-1669 eves.

69 BUICK ELECTRA - very good running cond., asking $500. 472-1145.

TOW BAR - H.D. Universal, new, $175; L78-15 wheels & tires, very good, $15; trailer hitch, frame mount, $50. Ext. 2462.

TIRES - P185/80R13, Goodyear steel belted radials, all weather, very good, $55/pr. Duke, Ext. 2957.

TIRES - Datsun B210 sport rims w/tires, 1/2 worn, $25 takes all 4. 727-3608.

77 TOYOTA COROLLA - excel. cond., new clutch, tires, brakes, alt. & muffler, $1,850. Ext. 4768 or 2512 after 6 p.m.

75 BUICK ELECTRA - 4 dr., full power, new tires, excel. running cond., a/c, $1,200. Jack, Ext. 2021.

77 BMW - 320i, sunroof, cassette, new radials, $5,750. Ext. 2888 or 286-0422 eves.

77 DATSUN B210 - a/t, excel. mech. cond., some body rust, $1,200. 475-5688 after 6 p.m.

81 FIAT SPIDER 2000 - 49K, silver convertible, Perelli P-6, new clutch, rebuilt trans., am/fm, mint, $6,000 or best offer. Ext. 7132 or 653-9653.

71 DODGE DART - V8, p/b, p/s, a/c, excel. running cond., asking $599. Ext. 4935 or 928-5737 eves.

80 CHRYSLER PLYMOUTH - 6 cyl., 225 cc, 23,000 mi.; rebuilt trans., selling together or separately. 472-1145.

WATER INJECTION SYSTEM - Varajection, new, never used w/extras. Ext. 4576 or 281-3093.

74 VEGA STATION WAGON - runs, as is $100. 475-7017.

81 CAMARO - black, 6 cyl., 3 spd., Kraco cassette w/equalizer, 4 Pioneer speakers, Spoile mags, excel. 751-4822.

S&S CARBURETOR - Model GBL, will fit stock 74s Sporster, $150. Mike, Ext. 2023 or 585-8809 eves.

84 HONDA ACCORD - 5 spd., 4 dr., a/c, p/s, cruise control, 4 speaker stereo, rust proof, $9,700. Pete, Ext. 7627.

72 DUSTER PARTS - right fender & windshield. 727-3668.

66 FORD FALCON - many new parts, $200. 744-8279.

74 DUSTER - new tires, am/fm, a/c, body good, needs engine work, $400. 563-2462 after 5:30 p.m.

73 PLYMOUTH DUSTER - good running cond., good body, needs paint, asking $650. 472-1145.

SNOW TIRES - (2) FR-78-15, Dunlop steel radials, mounted on 5 hole rims, like new, $75. Gary, Ext. 7518.

78 HONDA ACCORD LX - hatchback, p/s, p/b, a/c, 5 spd., am/fm stereo, new exhaust & brakes, $3,200. 422-1846 after 7 p.m.

72 FORD LTD - new tires, brakes, carburetor, radiator & more, runs very well, $500. Gene, Ext. 5293.

67 CADILLAC - Sedan Deville, needs muffler, battery, mech. good, 100,000 mi., good for parts, $100. Ext. 3828 or 751-7250.

72 DATSUN 280Z - orig. owner, 4 spd., wire wheels, a/fm, a/c, $3,800. Ext. 4867 or 744-8087.

TIRES - (2) E/70/14, (2) G/60/14, 4 chrome rims, new valves, locking locks, $300 firm. 281-8253 after 6 p.m.

80 RABBIT - a/t, 30 mpg, yellow, excel. cond., $2,250. 399-0213.

72 DODGE VAN - Sportsman, 6 cyl., a/t, p/s, p/b, bench seat, excel. running cond., $1,500. Joe, Ext. 5233 or 369-0432 eves.

79 TOYOTA CELICA GT - hatchback, a/t, a/c, p/s, low mi., good inside & out, $3,900. Mark, 286-4150.

GM WHEELS - (6) 5 hole wheels w/2 excel. snows & 2 good radials. 363-6673.

70 OLDSMOBILE 88 - p/s, p/b, good running cond., $500. Jeane, Ext. 7742 or 2364.

RIMS - (4), lug-mag, 5-1/2-JJx14, $40/pr. 231-7750, Ext. 400 days or 751-6418 weekends.

Boats & Marine Supplies

82 MAKO 238 WALKAROUND - twin, 115 hp, VHF, White Line recorder, full canvas, priced to sell. Richie, Ext. 3815 or 924-5329.

FLOATING DOCK - 3 piece sections, plus extra floatation, $150. Ext. 3992 or 298-4172.

16' RUNABOUT - 40 hp, Johnson electric start, trailer, runs well, asking $750. John, Ext. 5152 or 281-2471.

FOLDING BOARDING LADDER - teak, $20; marine china overboard toilet, w/new bronze pump, excel., $50; white fold down pilots seat, very good, $10. Joe Bush, Ext. 4638.

16' GLASS BOWRIDER - w/55 Johnson and galv. cox trailer, all access., $3,000. 567-5131.

19' CRUISERS - inc. fiberglass w/90 hp Chrysler o.b., w/trailer, many extras, excel. cond. 325-0447 after 6 p.m.

BARIENT WINCH HANDLES - 10" chrome, list price, $56/ea., sell for $25/ea. Brian, Ext. 2799.

16' SAILBOAT - Point Jude, sloop, trailer, anchor, best offer over $1,000. Tom, 744-5709.

19' SAILBOAT - 6 hp o.b., s/s rigging, alum. mast. 929-8475.

Miscellaneous

TAPE DECK - Panasonic, reel-to-reel, 3 speed stereo, w/sound-on-sound, $80. Peter, Ext. 3535.

SECTIONAL SOFA - L shaped, earth tone, small print, like new, $400. 744-2156.

TIMING LIGHT - w/non-inductive pick-up, $10. Ext. 3992 or 298-4172.

COLOR TV - Panasonic, 19 inch color, good working cond., $50. Ext. 4153 or 732-5829.

WOOD BURNING STOVE - Federal, used 1 season, Exc. Cond., $75. 758-9430, 5 p.m. - 7 p.m. daily.

CHANGING TABLE - for baby, white wicker, excel. cond., $30; baby crib, Simmons mattress, in excel. cond., $165. Mike, Ext. 7941.

GARAGE HEATER - 30,000 btu, and 7,600 btu kerosene heater, best reasonable offer. Don, Ext. 4576 or 281-3093.

ELECTRIC TWIN BED - 2 yrs., excel. cond., $500. 589-9111 (Mon.-Fri. days), 928-0087 (eves. & wkend).

EXOTIC SHELLS & SHELL CRAFT - also coral, blue, purple, white and red. Whitey, Ext. 2913.

TRUMPET - student model, Holtan, nickle-plated, two mouth pieces, mute, music stand & case, $200. 286-3679.

TRS-80 MODEL III - 1 double sided, 40 TK DR, 3 double sided, 80 TK DR, RS232 port, amber eze screen, $1,600, cash or restore to single sided 40 TK DR, $1,100. Jay or Bob, 585-4217.

CHANGING TABLE - wicker, 2 drawers, plus storage under table top, w/extension for supplies, very good, $30. Al, Ext. 2160 or 273-5574 after 4 p.m.

TENNIS RACQUETS - Wilson, T-5000, hardly used, $20/ea., $35 takes both; cassette deck, Akai CSM01-A, Dolby, metal capability, used two years, $95. Mati, Ext. 4570 or 924-4991 eves.

FUR COAT - Spanish Lamb, new color, natural, size, med/large, $75. Linda, Ext. 7745.

FORCED AIR HEATER - new desk, typewriter, reasonable. 363-7032.

FIREPLACE SET - convection tubes, w/blower motor, screen and andirons, must see. 924-6582.

MOTOX EQUIP. - kidney belt, chest protector, Bell MOTO III, like new cond., Atari 2600, w/12 tapes, $100 or best reason. offer. Okula, Ext. 4167.

WASHER/DRYER - good cond., $175, firm. Pat, Ext. 5399 or 5350.

CHANGING TABLE - white wicker, 5 draws, ex. cond., $20; high chair, chrome, fair, $7; mens valet, vinyl-walnut, $10. Judy, 698-4882 after 5 p.m.

COLOR TV - Zenith, 25" console, excel. cond. 325-0447 after 6 p.m.

YAMAHA ORGAN - E-30, double keyboard, Leslies, foot pedals, rhythm, mint. $2,600, value $6,000. 286-1358.

GIRL'S 20" BIKE - $15, floor waxer, $10, unicycle, $5, basketball rim, $5. Lawn spreader, $10; girl's ice skates, 6 pr., sizes and 13, $2/pr. Ext. 4846.

BABY CARRIAGE - playpen, kitchen table w/chairs, reason. Ext. 3803 or 467-1090.

VIOLIN - 1/4 size, Suzuki made, bow & case, very good cond., $135. Ext. 3828 or 751-7250.

WINDOWS - double hung w/storms & screens, $25 ea. 744-7577.

VACUUM - Sears w/power and all attach., cost $225, sell for $80. Artie, Ext. 2674.

SWAG LAMP - 16", wicker shade, $30; quartz heater, $30; Zenith B&W TV, $25. 744-6874.

MINK STOLE - w/Launaire collar, beautiful fur, $300 or best offer. 363-6121 after 6 p.m.

QUARRY TILES - new, brown, 6"x6"x1/2", 22 sq. ft., perfect for stove installation, $30. Tom, Ext. 4084 or 878-1060.

SILK SCARVES - 100%, ideal gifts, original design, hand painted, washable, $20 ea. 472-1596.

UNICEF XMAS CARDS - & gifts, for info or order. Anh, Ext. 2022 lunchtime or 744-8386 eves.

COMPUTER - T/S 1000, great starter pc., full size keyboard, Modem, 16K ram, software & books, $160. Henry, Ext. 4547 or 924-6688.

INTELLIVISION - w/15 tapes & carrying case for tapes & units, asking $125. Ext. 2939.

DINING ROOM SET - rectangular table w/leaf, 4 chairs, buffet, china closet, blonde wood, moving, must sell, $250. 669-9482.

COLLECTOR PLATES - Royal Copenhagen, B&G Christmas Editions, $25. Ext. 2888 or 286-0422 eves.

FISH TANK - 20 gal., long w/stand & hood, filter, pump, gravel & plants. Bill, Ext. 2047 or 472-4684 after 6 p.m.

CRIB - w/mattress; high chair; designer baby stroller w/accessories, all in very good cond. 821-1435.

DINETTE CHAIRS - (4), swivel, chocolate, brown, almost new, as a set, $100. 727-4884 after 5:30 p.m.

KEROSENE HEATER - The Director, 20,000 BTU, $75; round marble coffee table, brown Provincial, $30. 751-4822.

FOLDING BICYCLE - Italian Chiorda, perfect cond., new tires, excel. for camping, traveling, $75. 581-6432 after 6 p.m.

PING-PONG/POOL TABLE - best offer. 929-4688.

COAL STOVE - Franco Belge, #275, 40,000 BTU, $325. 399-0537 after 6 p.m.

BASS AMP - Baldwin Professional, (2) 12" speakers, 4 inputs, $300; excel. lefty baseball glove, like new, reg. $55, sell for $30. 281-3149.

MAN'S SUIT - lt. grey, size 36, like new; sweaters, sm/med/lrg., 29" waist; ladies all weather coat, size 18-20; dress boots, size 7. 331-1162.

MASTER BEDROOM SET - triple dresser, chest, night stand, full size headboard, $300. 563-2847.

HANGING WALL UNITS - modern, wood shelves, 2 desks, lighted bar cabinet, magazine rack, 8', $150. 751-4822.

HANGING LAMPS - (2) pentagonal, bulbs incl., no ceiling plate, amber glass, $20 ea. Ext. 2905 or 281-8306 after 5:30 p.m.

Free

DOGS - male, black Lab., female, Spaniel, housebroken, affectionate, good with children, great watchdogs. Chip, Ext. 2256.

KITTENS - (2) half-Siamese, need good homes, females, litter trained. Lois, Ext. 2959 or 751-0023.

ALUMINUM STORM DOOR - 36"; bathtub enclosure, sliding glass doors. Duke, Ext. 2957.

POOL LADDER - 3', skimmer, fits Coleco. 581-6432 after 6 p.m.

Lost & Found

LOST - small dog, gray, 13 yr. old male, S. Patchogue, 10/14/84, home is W. Sayville. Ext. 4956 or 589-0277.

Yard Sale

MIDDLE ISLAND - Oct. 27 & 28, Rt. 25 & Middle Island Rd., furniture, tools, old Buick. 924-6058.

Car Pools

HUNTINGTON-CENTERPORT-GREENLAWN - 8:30 to 5 p.m. Ext. 7676.

BAYPORT - rider/driver to fill existing car pool. Ext. 4159/4085 or 2408/beeper 460.

NORTHPORT/FT. SALONGA - need 4th person for on-time pool, 8:30-5:00 p.m., door to door. Walter, Ext. 4986 or 757-5478.

Real Estate

Real Estate advertised for sale or rent is available without regard for the race, color, creed or national origin of the applicant.

For Rent

ST. JAMES - one bedroom apt., full bath, large kitchen, living room, carpeted, utilities included. 862-6970.

NEAR SUNY - 1 bdrm., full bath, separate kitchen and family room, ideal for single, immediate occupancy, $500/mo., plus utility. Ext. 2611 or 751-4098 after 5 p.m.

E. SETAUKET - lg. studio apt. w/bath, private entrance, use of patio & yard, $375 + 1/3 util. 585-0558.

ROCKY POINT - 2 bdrm. house, private & quiet, unfurn., avail. Dec. 1. Sheldon, Ext. 4986.

SELDEN - 1 bdrm. unfurn. apt., eik, full bath, private entrance, immaculate, $475 including util., single preferred. 698-6120.

E. PATCHOGUE - LaBonne Vie Apts., 4 rooms, 15 min. to Lab, Jan. 1 or before occupancy. Robin, Ext. 3872.

WADING RIVER - furn. room avail. 363-7032.

HAMPTON BAYS - Winter rental, now to May '85, 2 bdrm., furn., $250/mo. & util. 728-2104 eves.

WADING RIVER - 3 bdrm. house on wooded acres, 2 baths, l/r, d/r, eik, study rm., sundeck, finished basement, 2 car garage, appliances, 10 min. to Lab., SWR schools, avail. early Dec. Chyng, Ext. 4391/4396/4563 or 751-8224 after 6 p.m.

For Sale

EASTPORT - 2 bdrm., l/r, d/r, kitchen, attic, enclosed porches, 2 car garage, detached, on 1/2 acre, $60,000. 325-9590.

MILLER PLACE - 4 bdrm. Colonial, formal l/r & d/r, country kitchen, family room w/brick wall f/p, $158,000. 331-1718.

SHIRLEY - Tangiers Section, 3 bdrm. Ranch, finished basement, fenced, many extras, assum. mort. 7-1/2%, must see. Ext. 2021 or 281-7240.

MASTIC - 2 bdrm. house on 1 acre lot, A-1 cond., 2 car garage, garden-tool house, beautiful grounds, split rail fence, new roof, new septic system & well, will consider taking mortgage at less than going rate, low taxes. 281-2002.

Wanted

NEW MEMBERS - for Scandinavian "VASA" club in Rocky Point, if interested call. 475-5448.

TRAINS - Lionel, American Flyer, accessories, any condition brings good price. Carole, Ext. 3362 or 924-4097 evenings.

TRICYCLE - 16", in good cond.; size 1 or 2 tap shoes for child. 298-4398.

ELECTRIC TYPEWRITER - used, reasonable & in good cond. Ext. 2914 or 286-3742 eves & weekends.

DEHUMIDIFIER - small library desires donation of a working dehumidifier, tax deductible donation. Mrs. Leigh, 286-0818.

TROMBONE - intermediate student. John, Ext. 4243.

GARDEN TRACTOR - w/mower deck, in usable or repairable cond. Gerry, Ext. 7590 or 878-1790.

HOUSEMATE - to share lg. house, 8 min. from Lab, 10-acres, $200/mo. plus 1/5 util. Roland, Ext. 3969 or 924-3669.

VENDORS - for Nov. 17, Christmas Crafts Fair, Kreamer St. School, Bellport. Pat, 286-9390.

UPHOLSTERER - to redo rocking chair pads; GX78-15 snows or equiv.; 15" Olds Cutlass rims. Ext. 4192.

CHILDCARE - for 1 yr. old living on-site, starting No. 12, 5 days/wk. Ext. 2389 or 3131.

40 CHANNEL CB - w/antenna, reasonable. Leon, Ext. 2973.

In Appreciation

THANKS - to everyone for sending get well cards during my recuperation. Frank Chandler.

Ads left out of this issue due to lack of space need not be re-submitted to appear in the next issue.

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