BROOKHAVEN BULLETIN
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BROOKHAVEN NATIONAL LABORATORY

I.I. Rabi, A Brookhaven Founder, Dies at 89

In his 89 years, Isidor Isaac Rabi had journeyed from his birthplace in Austria-Hungary to Manhattan, with numerous stops in between as he touched and enhanced many aspects of 20th century physics. On Monday, January 11, I.I. Rabi's long journey ended, when the Nobel Prize-winning physicist, who had played a major role in the creation of Brookhaven, died after a long illness.

Recalling Rabi's impact on BNL and on physics, Laboratory Director Nicholas Samios said, "Rabi was one of the giants of science, a confidant of Oppenheimer and Fermi, and an advisor of presidents. He was a visionary who created new entities, as well as a pragmatist who knew how to nurture and sustain them.

"Brookhaven National Laboratory is in a sense Rabi — he helped create and mold this institution, and its diversity, high standards and excellence are a testament to his strong influence and taste," continued Samios.

"He was a puckish man, full of unorthodox ideas and strong views," Samios added. "Rabi was one of the few individuals I knew of who, being on the short end of a 12 to 1 vote, still prevailed. Scientist, advisor, visionary and humanitarian, Rabi will be missed but not forgotten. This Laboratory has lost an immensurable supporter and friend."

As a research physicist, Rabi is best known for the method he developed for measuring the magnetic properties of atoms, molecules and atomic nuclei. This work, for which he won the Nobel Prize in Physics in 1944, made such precise measurements possible that the atomic clock could be developed. Other developments following from Rabi's research were the laser, the maser and nuclear magnetic resonance.

Rabi's contributions go beyond his own research: He was the founder of Columbia University's outstanding center for physics research. On the national scene, during World War II, he led the research team that helped develop radar and was a senior advisor to the Manhattan Project. During the Eisenhower administration, he served as a science advisor to the President. Not only was he a founding father of AUI and BNL, he is credited with having the idea to create a nuclear research center in Europe — today's CERN.

As former Laboratory Director Maurice Goldhaber said, "Rabi was

(Continued on page 3)

I.I. Rabi

DOE Renews Contract With AUI

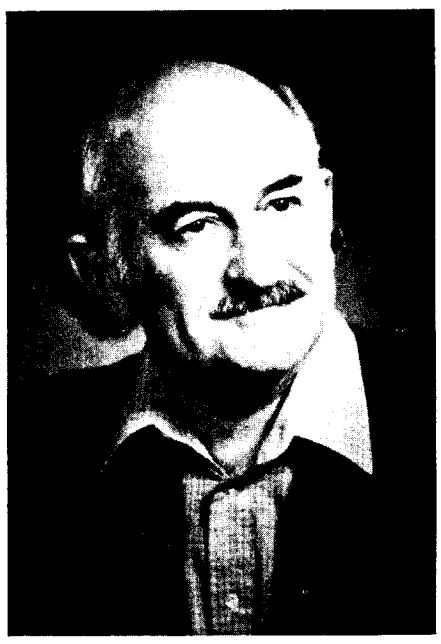
The Department of Energy (DOE) has extended its contract with Associated Universities, Inc., (AUI) for the operation of BNL, until December 31, 1992. On hand for the December signing in Chicago were: (from left) Michael Kainrath, DOE's Chicago Operations Office, Chairman of DOE's Negotiating Committee for BNL Contract Extension; Hilary J. Rauch, Manager of DOE's Chicago Operations Office; David T. Goldman, Assistant Manager for Laboratory Management, DOE's Chicago Operations Office; Robert E. Hughes, AUI President; and Jerome Hudis, AUI Vice President.

DOE's Chicago Operations Office negotiated the five-year extension to the contract that expired December 31, 1987, and Rauch said, "Brookhaven has a long, illustrious history of opening the door to the future through its basic research. The Laboratory has also served our nation by designing and operating innovative machines for research — ranging from medicine to nuclear energy. We look forward to a strong partnership in the future." On-site administration of the operating contract is provided by DOE's Brookhaven Area Office, under the direction of Area Manager Jerry Bellows.

Norman Sutin Assumes Chair Of Chemistry Department

Norman Sutin, Senior Chemist and an internationally recognized leader in the study of inorganic reaction mechanisms, specifically those involving electron transfer, became Chairman of the Chemistry Department for a five-year term beginning January 1.

Laboratory Director Nicholas Samios announced the appointment, noting, "Sutin's pioneering work has been marked by experimental innovation and by the close coupling between his experiments and advances in the theoretical description of electron transfer processes. In the past decade or so, Sutin's work has focused on electron transfer involving species in electronically excited states, with the ultimate goal of obtaining methods for the conversion of solar energy into chemical energy."



Mort Rosen

Norman Sutin

Sutin succeeds Alfred Wolf, who chaired the Chemistry Department since 1982 and who returns full-time to his research. Wolf, a Senior Chemist, focuses his work on positron-emitting radionuclides and the development of radiotracers for studying human organs and metabolic processes using PET, positron emission tomography.

As the new Chairman, Sutin wants "to strike the proper balance between established programs and new investigations, and between Chemistry Department experiments at the Lab's major facilities and non-facility research," he says.

To do this, Sutin is assisted by Ralph Weston, who is continuing as Deputy Chairman, and newly appointed Assistant Chairmen Peter Haustein and James Muckerman.

Explains Sutin, "The Department is diverse: We have over 60 scientists working in more than a dozen groups, with research ranging from reaction mechanisms and state-to-state dynamics, to neutron scattering and solar neutrino detection, to nuclear chemistry and radiopharmaceuticals. As Chairman, I'd like to continue supporting individual initiative and autonomy, while facilitating greater interaction among colleagues in Chemistry's different groups, as well as between Chemistry and the other departments."

Sutin believes that BNL's Chemistry Department has advantages over most such departments elsewhere. He comments, "We can perform more interdisciplinary research, having an extensive pool of collaborators in many fields; we can undertake longer, more ambitious and comprehensive projects; and we can use the unique complement of instrumentation and facilities located at the Lab.

"I think that the work in the Chemistry Department is done in the best of two traditions," Sutin says. "We have a scholarly attitude towards science, motivated by curiosity as to how chemical reactions and physical change occur, yet we can be practical

(Continued on page 2)

W. Robert Casey Is New Head of S&EP

Mort Rosen

W. Robert Casey

As of January 1, W. Robert Casey has been appointed Head of the Safety and Environmental Protection (S&EP) Division.

In announcing his appointment, Laboratory Director Nicolas Samios noted, "Mr. Casey is a highly respected safety professional both within the DOE community and here at Brookhaven. . . . His responsibilities have included administration of health physics, general safety and industrial hygiene programs for the BNL research reactors, accelerators and general research facilities."

Since March 1986, Casey has been Assistant Chairman for Safety at the Alternating Gradient Synchrotron (AGS) Department. There, he was responsible for ensuring the overall safety of the AGS and those who work there.

Casey replaces Charles Meinhold, who had been S&EP Chairman since 1972. In thanking Meinhold for his "outstanding service as Head of this Division," Samios commented, "The response of the Division and Mr. Meinhold to numerous challenges has been gratifying and commendable."

During the past years, Meinhold's experience has been sought increasingly by national and international organizations dealing with radiation protection. He has been a member of the Boards of both the National Council on Radiation Protection and the International Commission on Radiological Protection, as well as chairman of several committees of these organizations. He now joins BNL's Department of Nuclear Energy as head of a new division involving research and radiation protection, which will be the new home of most of

(Continued on page 2)

Sutin (cont'd)

and responsive to the mission of the Department of Energy."

Sutin was granted his Ph.D. in chemistry from Cambridge University, England, in 1953. After serving as a research fellow at Durham University, England, from 1954-55, Sutin came to Brookhaven's Chemistry Department in 1956. He began his appointment as Research Associate, 1956-57; was retained as Associate Chemist, 1958-61; promoted to Chemist, 1961-66; and named Senior Chemist in 1966.

Sutin has been an Affiliate of Rockefeller University, and he has held Visiting Professorships at the State University of New York at Stony Brook, Columbia University and Tel Aviv University. In addition to other visiting appointments and lectureships, Sutin was a Regents' Lecturer at the University of California, Irvine, and a Distinguished Visiting Professor at the University of Texas at Austin.

In 1983, he was awarded the American Chemical Society Award for Distinguished Service in the Advancement of Inorganic Chemistry, and the New York Academy of Sciences honored Sutin with its Polychrome Corporation Award in Photochemistry for 1985.

As well as focusing on the kinetics and mechanisms of thermal and light-induced electron-transfer reactions of metal compounds, Sutin has on-going research interests in the chemistry of unusual oxidation states, the photodecomposition of water, the mechanisms of substitution reactions and bioinorganic chemistry. He plans to continue research in these topics, in addition to being Chairman.

Casey (cont'd)

the research activities at present conducted in S&EP.

In becoming S&EP Division Head, Casey is moving to a division that is not unfamiliar to him. When he joined the Lab in 1973, he headed a Health Physics and Safety group assigned to the AGS. However, in 1977, he moved to S&EP to head the Operational Health and Safety Section until 1980. There, Casey was responsible for the administration of the health physics, general safety, industrial hygiene and building survey program for the research reactors, accelerators and general research facilities. Then, from 1980 to 1985, he served as Deputy Chairman of S&EP.

"So it's not like starting from scratch," said Casey of his new position. "I'm looking forward to working with some old friends. I know from experience that I'll be supported by a group of very good people."

At present, Casey has no special plans for new developments in S&EP. "I need to see what the whole field looks like," he said. "For the past two years, more emphasis than ever has been placed on safety, both in the work place and in the environment. We live in a watchful world and a sensitive location. We must be extremely dedicated to our responsibilities."

Casey received his B.A. in Physics in 1963, and his M.S. in Physics in 1966, both from Vanderbilt University. In 1974, he obtained certification from the American Board of Health Physics. Before coming to BNL, he was a health physicist for the Atomic Energy Commission, responsible for the review and appraisal of the health physics and safety programs developed by BNL.

A member of several committees, such as the American Board of Health Physics and the Department of Energy's Advisory Panel of Accelerator Radiation Safety, Casey also lectured on "Planning for Nuclear Emergencies" for several years at the Harvard School of Public Health. He was also an Associate Editor of the *Health Physics Journal*.

BNL Lecture: High T_c Superconductors — Promises and Challenges

With the recent discoveries of materials that become superconducting at relatively high temperatures — from 90-100 kelvins (K) — came the promise of lower cost, resistance-free electricity. Along with that promise, however, came the challenge of turning these brittle ceramic compounds into pliable and practical superconductors.

Many BNL researchers are investigating the new breakthroughs in superconductivity. One of the most involved is Masaki Suenaga, Senior Metallurgist in the Department of Applied Science, who will discuss this subject in the 240th Brookhaven Lecture. He will speak about "Promises and Challenges: A Metallurgist's View of High Temperature Superconductors," on Wednesday, January 20, at 4:30 p.m. in Berkner Hall.

Suenaga has been working to understand and improve the materials properties of superconductors since he came to DAS's Materials Science Division in 1969. Since last January, however, he has turned most of his attention to materials that become superconducting at a high critical temperature (T_c). Last February, Physics Associate Arnold Moodenbaugh, DAS, and he discovered the world's second 90-100 K superconducting compound, a lutetium-barium copper oxide.

Having worked so intimately with the new materials, Suenaga can speak with authority about their promises and challenges. To do so, he will spend the first few minutes of his lecture introducing the concept of superconductivity and the difference between the new compounds and the superconductors now in use. Then he will discuss the possible applications of superconductivity, and the forms the materials must take to be useful for such purposes as magnets or power transmission lines.

Suenaga will explain the crystal structures of the new materials and how new compounds are formed by substituting different elements for those already in a compound — as Moodenbaugh and he did to create their superconductor.

A number of challenging problems must be solved in order to go further, Suenaga will emphasize, one being to find a way to fabricate these brittle ceramics into usable forms. Even before that, however, for the oxides to become useful, they must show an improved critical current — the maximum amount of current that can be sent through a superconductor before its resistance reappears and it loses its superconductivity.

Suenaga will also talk about his present work examining microstructures of the superconductors to understand the sources of low critical current densities in present materials and to find fabrication methods to alleviate the above problems.

Masaki Suenaga earned his Ph.D. in metallurgy from the University of California, Berkeley, in 1969, then came to BNL as an Assistant Metallurgist in DAS. He became an Associate Metallurgist in 1972 and a Metallurgist in 1975. In 1976, Suenaga was appointed Associate Division Head of the Materials Science Division, becoming Division Head from 1978-84. He was named Senior Metallurgist in 1983.

Recently, Suenaga represented the Lab as a member of the National Academy of Sciences' panel on high temperature superconductivity. He has also been on the National Science Foundation's Users' Committee for the Massachusetts Institute of Technology's (MIT) National Magnet Laboratory, and the Board for the International Cryogenic Materials Conference and for the Applied Superconductivity Conference. He is a member of the American Association for the Advancement of Science, the Metallurgical Society and the American Physical Society.

All those interested in getting together after the lecture are invited to with the lecturer to a restaurant off site. To be part of this group, call James Hurst, Ext. 3844, or James Reilly, Ext. 4502.

Mort Rosen

Masaki Suenaga

Equipment Demos

B&B Motor & Control Corporation will exhibit their latest equipment in the motion control field on Tuesday, January 19, in Berkner Hall, from 10:30 a.m. to 3 p.m. Servos, steppers, brushless and other linear devices will be shown in this working display.

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There will be a walk-through exhibit of the Triplex Triple Redundant Fault Tolerant Programmable Controller on Thursday, January 21, in the Berkner Hall lobby, from 11 a.m. to 1 p.m. The Triplex Unit is a fault tolerant controller for high security and safety applications. It is a new hardware voting technology, with traditional PLC controls.

New Members on Employee Relations Committee

Mort Rosen

New, continuing and outgoing members of the Employee Relations Committee (ERC) are gathered here: (front, from left) Vincent Racaniello, Nicole Bernholc, Randolf Church, Michelle Haller, Carolyn Albert; (rear, from left) April Donegain, Michael Zguris, Susan Foster (ex-officio), Committee Chairman José Medina, Annette Gremme and Susan Eng. New members Bernholc and Church replace outgoing members Donegain and Racaniello on the ERC, which is dedicated to helping non-bargaining, non-scientific employees with work-related problems that have not been resolved with their supervisor. When a problem is referred to the Committee, its goal is to resolve it within 30 days and to hear all sides of the issue. All ERC members are appointed by the Laboratory Director, to whom the group is responsible. To contact the ERC, call its special number, Ext. 4005, or contact individual members: Albert, Ext. 3717, Physics; Bernholc, Ext. 2027, S&EP; Church, Ext. 7578, NSLS; Eng, Ext. 7988, AMD; Foster, Ext. 2888, Personnel; Gremme, Ext. 3662, Med.; Haller, 7908, DCP; Medina, Ext. 4005, PE; Zguris, Ext. 4728, AGS.

Enter Inventions In R&D 100

Last year, three BNL inventions were among the 100 winners of the I-R 100 Awards — and the last to win that competition recognizing the 100 most significant inventions of the year.

As of this year, the I-R 100 Awards are no more. Instead, however, there are the R&D 100 Awards — and applications to enter technical products in the R&D 100 competition are now available from BNL's Office of Research & Technology Applications (ORTA). The 1988 R&D 100 entry form deadline is March 1.

Though the name has changed from the I-R 100 to the R&D 100 Awards, the competition has not changed. In its 26th year, the contest continues to be sponsored by *Research & Development* magazine. Like their predecessors, R&D 100 Awards recognize innovators and organizations for outstanding practical technical developments, and they identify significant technological advances.

Technical products that may be entered include any product, material, process, software or system of scientific or technical origin or use. Any new technical product that was completed and delivered, or became available for contract or licensing between January 1 and December 31, 1987, is eligible.

To encourage BNL staff participation in the R&D 100, the Lab will pay the entry fees for all BNL inventions that are entered and any expenses associated with winning. For more information, contact, William Marcuse, ORTA Head, Bldg. 475, Ext. 2103.

Since 1984, Brookhaven has fielded eight I-R 100 winners. Last year, Department of Energy (DOE) contractors garnered 30 percent of the awards; an exhibit showcasing DOE's 30 technical achievements is on display in the lobby of Berkner Hall until the end of the month.

To Your Health

As a part of the Occupational Medicine Clinic, the Health Promotion Program has offered two American Lung Association workshops and two hypnosis group sessions to over 100 BNL'ers who wanted to kick the smoking habit.

As she will organize future stop-smoking groups depending upon the demand, Health Promotion Specialist Elaine Friedman invites those who want to make their first attempt, as well as those who want to try again, to call her at Ext. 2699, Tuesdays and Thursdays. Also, those who have stopped smoking and have not yet picked up their mugs, please contact Friedman to obtain them.

Coming Up

The Amsterdam Loeki Stardust Quartet will bring their fresh and unconventional approach to recorder playing to Berkner Hall on Tuesday, January 26, at 8:30 p.m. Tickets for the recorder ensemble's performance can be purchased at the door. Prices are $9, general admissions; $6, students and those over 65; $5 for those under 18.

New Vehicle Stickers Required in February

Expired vehicle registration stickers will no longer be honored for entry to the Laboratory site after February 1. Beginning February 2, persons who do not have 1988 stickers must show their Laboratory ID cards or other satisfactory means of identification for entry. Registration cards for new stickers are available at Police Headquarters, Bldg. 50.

Return Cylinders For Compressed Gas

The Supply & Materiel Division (S&MD) reminds everyone to return unneeded compressed gas cylinders to the Compressed Gas Warehouse, Bldg. 210.

Compressed gas cylinders represent a potential safety hazard if retained beyond their hydrostatic test date, and Department of Transportation regulations require that they be retested every five years to ensure the integrity of the vessel. Further, deposits and monthly rental charges on vendor-owned cylinders can add up — at substantial cost to the Lab. Deposits range from $75 to $150 per cylinder, and rentals range from $2.50 to $5 each.

S&MD will pick up all cylinders, BNL or vendor-owned, that are brought to the "empty" cylinder racks located around site. Please check your work areas and move any empty or unused cylinders to the racks; pay particular attention to laboratories and work areas where cylinders can remain unused for long periods. Please contact Fred Pond, Ext. 7238, with any questions.

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Salutations to Non-Smokers

Toasting their success with new "I Kicked the Habit" mugs are six of 13 BNL'ers who have stopped smoking through one of the four programs sponsored to date by the Health Promotion Program. The non-smokers who were awarded mugs are: (sitting, from left) Michael Torres, Applied Math (AMD); Lawrence Taibbi, AMD; (standing, from left) Richard Murgatroyd, National Synchrotron Light Source; Mildred Bennett, Supply & Materiel; (fourth from left) Nancy Smith, wife of Chester Smith, Alternating Gradient Synchrotron; and Lewis Jacobson, Plant Engineering. They pose with Associate Director for Life Sciences Richard Setlow (standing, third from left) and a ghostly reminder of what smoking can prematurely cause.

Service Awards

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

Thirty-Five Years

Paul W. Levy ..... App. Science

Thirty Years

Tage G. Carlsson ..... Plant Eng.
Ottilie B. Figluizzi ..... Medical
Leonard Newman ..... App. Science
George M. Penny ..... Reactor

Twenty-Five Years

William C. Crockett ..... Biology
James L. Davis ..... S&EP
J. Dennis Klein ..... Light Source
Anthony P. Meade ..... Physics
William G. Sieger ..... AGS
Bernard L. Stepnoski ..... AGS
John A. Wilcenski ..... Accel. Dev.

Twenty Years

Edith P. Lehman ..... Medical
Ronald W. Weider ..... AGS
Joseph R. Yelk ..... Physics

Ten Years

Bennett J. Azzara ..... Accel. Dev.
Dimitrios Cokinos .... Nuclear Energy
Jonathan C. Hanson ..... Chemistry
Marie H. Hobson ..... App. Science
Randolph A. Hudson Jr. ..... Reactor
James F. Osterlund ..... Accel. Dev.
Michael J. Paquette ..... Plant Eng.
Eugene T. Premuzic ..... App. Science
Wayne H. Rambo ..... Light Source
Robert M. Ritter ..... AGS
Elizabeth H. Seubert ..... Dir. Off.
Henry W. Wagner ... Supply & Materiel
John B. Warren ..... Instrumentation

Dowling Offers On-Site Courses

Registration for Dowling College courses will be held on Tuesday and Thursday, January 19 and 21, at Berkner Hall, from 11:30 a.m. until 2 p.m. The following courses are being offered for the spring 1988 semester:

BUS 046 — Retail Management
BUS 146 — Organizational Behavior
ENG 042 — American Literature II

A counselor will be on hand on those dates to process registrations and answer questions about Dowling's program offerings.

WIS Meeting

Virginia Brown, Personnel Division, will be the guest speaker at the next luncheon meeting of Brookhaven Women in Science, scheduled for noon, Wednesday, January 20, in Room A, Berkner Hall. She will speak on "Salary Administration at BNL."

Brown holds an M.A. in European History, from the State University of New York at Stony Brook, and has taken additional courses in finance and investments from New York University Graduate School of Business Administration.

Everyone is invited; please bring your own lunch.

Arrivals & Departures

Arrivals

Christopher J. Frosina .... Plant Eng.
John A. Kalef-Ezra ..... Medical
Robert G. Kelly ..... Personnel
Frank Porfido ..... NSLS

Departures

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

Edward H. Pultz ..... Plant Eng.

Note to Diners

The Cafeteria will be closed on Saturday, January 16, and on Monday, January 18. On both days, snack bar service will be available from 9 a.m. to 2 p.m. at the Brookhaven Center.

ANS Meeting

James Powell, Department of Nuclear Energy, will speak about "Particle Bed Reactor and Orbital Transfer Applications," at the next meeting of the Long Island Section of the American Nuclear Society (ANS). The meeting will be held on Wednesday, January 20, at the Bavarian Inn, Lake Ronkonkoma. Cocktails will begin at 6 p.m., dinner at 7 p.m., and Powell will speak at 8 p.m. The cost is $14.50 for members and spouses, $16 for other attendees. For reservations, call Amalia Ruggiero, Ext. 7517.

Cafeteria Menu

Week of January 18

Monday, January 18
Martin Luther King's birthday.
Snack bar service only — 9 a.m. to 2 p.m.

Tuesday, January 19

Split pea soup	(cup)	.75
	(bowl)	.95
Crusty herb-fried chicken w/1 veg.		2.95
Baked fish w/parsley & lemon butter & 1 veg.		3.05
Chef's salad cold plate		2.25
Hot deli: Kielbasa & pepper sandwich		2.85

Wednesday, January 20

Lentil soup	(cup)	.75
	(bowl)	.95
Yankee pot roast w/gravy & 1 veg.		3.05
Eggplant Parmesan w/garlic toast		2.85
Antipasto salad plate		2.25
Hot deli: Breast of turkey	(bread)	2.75
	(roll)	2.85
	(hero)	2.95

Thursday, January 21

Cream of potato soup	(cup)	.75
	(bowl)	.95
Fried fish amandine w/1 veg.		3.05
Pork & cabbage crisp w/1 veg.		2.95
Stuffed tomato w/chicken salad plate		2.25
Hot deli: Italian meatball sandwich		2.85

Friday, January 22

Manhattan clam chowder	(cup)	.75
	(bowl)	.95
Roast loin of pork w/gravy & 1 veg.		3.05
Fried chicken livers w/1 veg.		2.85
Hot deli: Fried fishwich on a bun		2.95

Rabi

(cont'd)

above all a man of vision. Also a man who liked to act on his vision. He foresaw the need for a laboratory like Brookhaven in the eastern United States and for a laboratory like CERN in Europe. These laboratories have turned out to be more than the sum of their parts. He kept a close interest in the progress of Brookhaven as a member of the AUI Board of Trustees from the beginning.

"His curiosity about the progress of physics stayed with him until the end," Goldhaber continued. "When one talked to him during his long illness, he always wanted to know the latest: 'What about the supernova? What about the new superconductors? And what's new with elementary particles?' A career like Rabi's could only have happened at the particular time when he lived. We are not likely to see somebody like him again."

Most of Rabi's illustrious career was centered at Columbia, where he joined the Physics Department in 1929 as a lecturer, later becoming an assistant professor, then Higgins Professor of Physics, then professor emeritus. He became Columbia's first University Professor in 1964, and a physics chair was named for him in 1985.

In his Brookhaven Lecture on "The Early History of Associated Universities and Brookhaven National Laboratory," given in March 1966, Norman Ramsey recalled how he and Rabi had sowed the seeds for BNL, while working at Columbia from October to December 1945. "Rabi and I both felt that physics at Columbia University had made enormous contributions to the war effort but that the University was coming out in this period with little scientific benefit in return," Ramsey said. ". . . many universities emerged from the war with strong nearby nuclear science research laboratories whereas Columbia did not. . . . Rabi and I discussed at length how we could best make a nuclear reactor available to Columbia. . . . we came to the conclusion that the best alternative was to call together a number of institutions in the New York area to see if all of us could not cooperate in the establishment of a reactor and perhaps a high energy facility."

These discussions led to the formation of the Initiatory University Group (IUG), on which Rabi and Ramsey were two of the 17 members from the nine universities that today make up AUI. They were both on IUG's Planning Committee for setting up the new laboratory, and Rabi was named Chairman of the Subcommittee on Personnel Policy.

When IUG gave way to AUI, which was incorporated in New Jersey on July 8, 1946, Rabi signed the charter as one of the five incorporating trustees. He repeated this role on July 18, when AUI was incorporated in New York.

Since then, Rabi had served continuously on the AUI Board of Trustees, being elected an Honorary Trustee in 1972. He was also acting President of AUI from April 1961 to October 1962, and Chairman of the Board the following year.

I.I. Rabi is survived by his wife Helen; two daughters, Nancy Lichtenstein of Princeton and Margaret Beels of New York; and four grandchildren.

In Stormy Weather: Dial 282-INFO*

**Note: When dialing INFO, dial the letters INF and the letter O - not INF and zero; the INFO extension is 4636.*

Softball

The Softball Board is currently accepting nominations for the vacant position of Softball League President. Please submit nominations in writing to Sharon Smith, Bldg. 510A, no later than Friday, February 12.

Bowling

Red/Green League

High games were bowled by P. Ouvrard 255/638 scratch, E. Sperry IV 227, T. Prach 223, R. Jansson 214, M. Guacci 213, K. Asselta 210, P. Pietraski 210, F. Griswold 203, R. Mulderig 201.

Purple League

Mary Addessi rolled a 202, Sharon Smith 181/180, Bob Jones 204.

Pink League

Maryann Reynolds had a 190/187, Sandy Asselta 179, Donna Cunningham 166, Louise Chinn converted the 4/7/10 split. The Apple Blossoms are the first-half winners.

Volleyball

Standings — Week of January 4

League I	
Upfagrabs	24-3
Dinkers	19-8
Xrayted	16-11
Cannonballs	10-17
Phoubars	7-20
Bumpers	5-22
League II	
Nuts & Bolts	18-6
Set-Ups	17-7
Chunga's Revenge	13-11
Fossils	13-11
Slammers	12-12
Photons	5-16
Upton Ups	3-18
League III	
Printouts	17-4
Sourcerers	15-6
Renegades	13-8
Screwballs	12-9
Spikes	10-11
MISfits	9-12
Airheads	7-14
Good Times	1-20
Open League	
Dakota	16-2
Serendipity	13-5
Phoenix	14-4
Not Too Bad	8-10
Rowdy Radicals	7-11
Duituits	3-15
Leftovers	2-16

Basketball

First Game

Runaways - 51		Hollywood - 42	
R. Moran	12	D. Nordstrum	17
T. James	11	G. Mack	10
P. Johnson	11	B. Gunther	8
S. Gilbert	7	E. Meier	7
J. Desmond	6		
G. Dunmore	4		

Three-Point Shots: Gilbert, James, Moran (2)

Second Game

Celtics - 54		Longshots - 41	
M. Colon	14	T. Mayo	18
P. Ratzke	12	J. Garrison	13
P. Browne	9	F. Thompson	6
O. Aliefendioglu	5	B. Rowley	2
J. Gaeta	5	S. Springston	2
C. Edwards	4		
M. Fulkerson	3		
N. Schaknowski	2		

Three-Point Shots: Aliefendioglu, Garrison, Mayo

Third Game

Knicks - 57		Penetrators - 56	
Q. Harrison	20	R. Domenech	16
W. Cummings	13	T. Abbott	13
T. Mendez	8	R. Garappolo	11
L. Walcott	8	T. Comstock	9
M. Lawrence	6	J. Cyr	7
M. Williams	2		

Three Point Shots: Cummings, Domenech (3), Garappolo

Swim Club

Thirty ribbons for top-three, age-group placings were won by the seven swim team members representing BNL at the White Plains YMCA masters swim meet on Sunday, December 13. In addition, Wlodek Guryn placed third overall in the 200-yard individual medley.

50-yard Freestyle		
Peter Heotis	25.46	2nd men 35-39
Roger Klaffky	28.67*	3rd men 40-44
Peter Cameron	28.75	4th men 40-44
Paul Michael	32.31	2nd men 55-59
Marsha Belford	35.80	1st women 30-34
100-yard Freestyle		
Peter Heotis	59.88	1st men 35-39
Peter Cameron	1:04.60	1st men 40-44
Roger Klaffky	1:05.13	2nd men 40-44
Paul Michael	1:16.40	1st men 55-59
Marsha Belford	1:16.44	2nd women 30-34
200-yard Freestyle		
Peter Heotis	2:13.60	1st men 35-39
Peter Cameron	2:21.34*	1st men 40-44
Roger Klaffky	2:29.50*	3rd men 40-44
Marsha Belford	2:47.33	3rd women 30-34
Paul Michael	3:12.07	2nd men 55-59
50-yard Butterfly		
Peter Heotis	28.20	2nd men 35-39
100-yard Butterfly		
Wlodek Guryn	1:10.50*	2nd men 35-39
50-yard Backstroke		
Wlodek Guryn	34.31	1st men 35-39
Ron Wittlock	35.09	3rd men 50-54
100-yard Backstroke		
Ron Wittlock	1:20.40	2nd men 50-54
Roger Klaffky	1:21.93*	3rd men 40-44
200-yard Backstroke		
Ron Wittlock	2:55.58	1st men 50-54
50-yard Breaststroke		
Wlodek Guryn	34.27*	1st men 35-39
Roger Klaffky	37.80	2nd men 40-44
100-yard Breaststroke		
Wlodek Guryn	1:17.87	1st men 35-39
100-yard Individual Medley		
Peter Heotis	1:06.74*	2nd men 35-39
Peter Cameron	1:13.70*	5th men 40-44
Marsha Belford	1:27.68	3rd women 30-34
Paul Michael	1:39.19	2nd men 55-59
200-yard Individual Medley		
Wlodek Guryn	2:35.50*	2nd men 35-39
Peter Cameron	2:46.30*	1st men 40-44
Marsha Belford	3:09.64	2nd women 30-34

* indicates personal record

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 and/or appropriate bargaining unit, 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 Employment Manager, Ext. 2882.

LABORATORY RECRUITMENT - Opportunities for Laboratory employees only.

2763. SECRETARIAL POSITION - Requires an AAS in secretarial science or equivalent experience and a thorough knowledge of Laboratory procedures. Will be responsible for various office administration functions. Responsibilities will include varied secretarial duties including IPAP/JCARS, travel arrangements and vouchers, and report preparation involving detailed tabular data on IBM/PC word processor. Previous experience with Word Star or WordPerfect preferred. Department of Applied Science.

2764. SECRETARIAL/ADMINISTRATIVE POSITION - Requires excellent secretarial and communication skills (oral and written), as well as a broad knowledge of Laboratory policies and procedures. Will interact with AGS users, arrange guest appointments and housing, and produce and distribute user newsletter. Additional responsibilities will include coordinating committee meetings, conferences and workshops, and assisting with program reviews. Will perform a variety of secretarial duties including travel arrangements, correspondence, and maintaining mailing lists and other data bases on IBM/PC. Previous experience with IBM/PC helpful. Director's Office.

2765. SECRETARIAL POSITION - Requires AAS in secretarial science or equivalent experience, and a broad knowledge of Laboratory policies and procedures. Responsibilities include correspondence typing, travel arrangements, file maintenance, using IPAP and JCARS, monitoring data base and publisher contracts, processing library purchase orders and invoices, and processing translation requests. Requires excellent PC-based word processing skills. Experience with spread sheet and data base management programs highly desirable. Technical Information Division.

OPEN RECRUITMENT - Opportunities for Laboratory employees and outside applicants.

2766. ENGINEERING POSITIONS (2) - Requires BS/MSME and 2-5 years' experience in some of the following areas: mechanical design and shop fabrication practices, vacuum system design, component design involving high electrical current/voltage, ion-beam diagnostic hardware and instrumentation. Booster Project. Accelerator Development Department.

2767. ENGINEERING POSITION - Requires BSME and a minimum of 8 years' experience in all or some of the following areas: manufacturing and assembly, stress analysis and materials selection, machine design and/or production equipment design and fabrication, superconducting magnet design. Accelerator Development Department.

2768. ENGINEERING POSITION - Requires BS/MSEE and a minimum of 3 years' experience in the design of analog circuits, feedback systems and instrumentation techniques. Experience with multikilowatt supplies desirable. Booster Project. Accelerator Development Department.

2769. ENGINEERING POSITIONS (2) - Requires BS/MSME and a strong background in physics. Knowledge of materials and design practices used in cryogenic and high temperature applications, as well as the design, fabrication and joining of a wide variety of materials is necessary. Alternating Gradient Synchrotron Department.

2770. HEAVY EQUIPMENT MECHANIC OPERATOR - Requires demonstrated ability to maintain, repair and operate all material handling, earth-moving, road and ground maintenance, and related equipment. Must have a valid Class 1 license. Plant Engineering Division.

2771. STEAMFITTER - Requires successful completion of four-year apprenticeship or its equivalent, and at least 5-10 years' commercial or industrial plant experience. Incidental welding experience is necessary. Plant Engineering Division.

2772. PROGRAMMING POSITION - Requires BS or MS degree and 1-2 years' working experience in programming, computer hardware, equipment interfacing and electronics. Familiarity with FORTRAN 77, C and BASIC is necessary. Responsibilities include operation of the positron emission tomographs (PET) via MicroVax II/Concurrent (P-E) Model 3200, data reduction and analysis, as well as assistance and interaction with a large multi-disciplinary group of researchers. Chemistry Department.

2773. SR. STATIONARY ENGINEER - Requires demonstrated experience in the maintenance, repair and operation of high pressure boilers firing #6 fuel oil. Current stationary or marine engineers license highly desirable. Plant Engineering Division.

2774. TECHNICAL POSITION - Requires AAS degree and minimum of 5 years' experience in mechanical measurements and assembly of precision mechanical mechanisms. Must be able to work from blueprints and sketches, and be familiar with basic shop practices, soldering and brazing. Experience with clean room procedures and high vacuum systems a plus. Accelerator Development Department.

Motor Vehicles & Supplies

83 TOYOTA SR5 PICKUP - 4wd, am/fm cass., loaded, excel. cond., $6,400. 584-7350.

81 CHEVY CHEVETTE - new brakes, exhaust, clutch, no rust, am/fm cass., sunroof. Mark, Ext. 4132 or 924-4328.

73 BLAZER - no rust, excel. in/out, orig. owner, $1,600. 475-4196.

RALLY SPORT RIMS - 14", $10/each; 87 Toyota MR2, a/t, fully loaded, must sell. 744-0725.

79 TOYOTA CELICA - 5 spd., 108k mi., p/s, am/fm, good engine, tires & battery, new brakes, runs well, $1,495. John, Ext. 2183 or 2520 Rm. #27 eves.

77 HONDA ACCORD - runs well, new brakes, exhaust, a/t, $1,500. Gary, 758-5592.

79 HONDA CIVIC - 85k mi., some new parts, good tires, runs well, $700. Pete, Ext. 4100.

81 PLYMOUTH HORIZON TC3 - hatchback, 4 speed, excel. gas mi., runs well, $800. Ext. 2446 or 924-1911 eves.

81 COUGAR XR-7 - 305 V8, new engine, exhaust, tires, p/s, p/b, a/c, more, excel., $4,000. Ellen, Ext. 2816.

75 CHEVY CAMARO - 350 V8, a/t, p/s, Alpine am/fm cass., $1,800. Greg, 286-0065 after 4:30 p.m.

84 CHEVY S-10 TRUCK - 39k mi., 4 wd, a/c, a/t, p/w, p/s, am/fm cass., cap, club cab, $5,500. Ext. 4823.

71 VW BUG - reconditioned cylinder heads, new Weber carb. & assorted studs, all for $100. Fred, Ext. 4407 or 4435.

82 DATSUN 200SX - 5 speed, a/c, SL pkg., 99k mi., excel. cond., asking $2,800. John, Ext. 7770 or 4480.

82 NISSAN STANZA - a/t, am/fm, 73.5k mi., new tires, $3,000. Ext. 2349 or 3070 eves.

78 GMC - 4x4, 350 V8, loaded, extras. 369-0422 after 6 p.m.

79 FAIRMONT - 4 dr., 4 speed, p/s, good cond., includes manuals, $850. Ext. 4063 or 751-8257.

87 KX80 DIRT BIKE - professionally maintained, excel. cond., $750. Lois, Ext. 4904, 4672 or 929-4753.

Boats & Marine Supplies

22' SEAFARER SAILBOAT - 1974, 3 sails, Volvo outboard, full keel, wet storage, orig. $4,000. Fred, Ext. 4407, 4435 or 499-1214.

Miscellaneous

HOCKEY SKATES - Micron, used once, size 8, w/inserts, $35; 25" Sylvania console, good cond., $25; large dog house, excel. cond., $35. 584-7350.

HUMIDIFIER - Edison, wood grain console, 4 gallon, $35; kitchen set, table w/leaf, 4 chairs, $35. Tony, 698-9274.

MINOLTA SYSTEM HANDBOOK - by Cooper, $15; Linex stereo camera & viewer, $65. Susan, Ext. 4267.

CB BASE STATION - 40-channel, upper & lower side band, w/antenna & stand, power mic. Ext. 2274.

IBM COMPUTER TABLE - heavy-duty, excel. cond., $100. 584-7350.

BEDROOM FURNITURE - corner desk, dresser, cabinet, country provincial, off-white, $150. Ext. 5125 or 286-3906 after 7 p.m.

DRESSER - 6 drawer, walnut finish, $40. Ext. 4962.

FRANKLIN STOVE - 744-0725.

10-SPEED BIKE - good cond., $30. Sherie, Ext. 5386 or 4478.

COLOR TV - $50. Ext. 2349 or 3070 eves.

WOOD-BURNING STOVE - $125; antique china cabinet w/glass front, $350. 751-8240.

KEROSENE HEATER - 9400 Btu, good cond., w/5 gallon can of fuel, $65; wood screens & storms, 14 each, good cond., $50. Ext. 3794.

BEDROOM SETS - Colonial & Contemporary, double bed w/hdbd. & dresser, one w/nightstand, one w/armoir, $150/each, $250/both. 471-2370.

BABY CARRIAGE - Perego, $60; play pen, $25. Torsten, Ext. 3817 or 878-1210.

GRANDFATHER CLOCK - solid cherry wood case, triple chime movement, moving moon dial, $350. Joe, Ext. 2898.

VIOLIN - full-size, beginner, asking $175. Babs, 727-7741.

BANJO - 4 spring w/resonator & case, $30. Pete, Ext. 4819 or 289-7218.

WOOD-BURNING INSERT - for fireplace plate, $100. Ron, Ext. 5305 or 744-1194 after 6 p.m.

IBM-COMPATIBLE DISK DRIVE - half-height, new, $80. Willie, Ext. 4489 or 585-6271 after 6 p.m.

SNOW VEE BLADE - 34", yellow, like new, $30. Tony, Ext. 4095.

BARBELL - 4-2½#, 4-5#, 8-10#, $35; Yaegerson London worsted, 5'x10' approx., 5.5 sq. yd., $20. Ext. 2543.

NEWEL POST - 48", new, $24; glazing tape, 25' rolls, $2/each. Ext. 5400 or 878-6098.

Lost & Found

FOUND - Spenco bicycle seat pad, 1/5/88. Bob, Ext. 4824, beeper 343.

Real Estate

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

For Rent

MIDDLE ISLAND - Artist Lake condo, 1st floor apt., tennis, pool, w/d, d/w, ww carpet, $600/mo. incl. heat + 1 mo. sec. 924-0001 after 6 p.m.

RIDGE - room in 4 bdrm. house, share w/3 males, 5 min. to Lab, avail. Feb. 1, $225/mo. + util. David, Ext. 3406.

BROOKHAVEN HAMLET - room in 4 bdrm. house, share w/2 professionals, 2 baths, spacious, ¾ wooded acre, $350/incl. all. Randy, Ext. 3835 or 286-4028.

CATSKILLS - 3 bdrm. chalet w/sleeping loft, fully furn., great skiing, near Hunter & Windham Mtns., will rent day/week/wknds. Kay, Ext. 4501, or Bea, Ext. 3642.

HILTON HEAD, SC - 2 bdrm. condo, sleeps 6, golf, tennis, beach, pool, winter rates, $250/wk. 585-9149.

MASTIC - room in 3 bdrm. house, l/r, den, d/r, eik, bath, laundry rm., fenced yard, clean, bsmt., alarmed, non-smoker preferred, $400/mo. + ½ util. Ext. 5110 or 399-3087.

BELLPORT - efficiency apt., spacious, lots of storage space, $500/all. Sherie, Ext. 5386 or 4478.

YAPHANK - small 3 rm. bungalow, single preferred, $400/incl. elect. 924-3946.

SHIRLEY - studio apt., private entrance, $450. Aurora, Ext. 2204 or 399-0969.

SHIRLEY - 2 bdrm. house, 10 min to Lab, $600/mo. + util. Aurora, Ext. 2204.

For Sale

RIVERHEAD - over 55 adult park, on Peconic River, 2 bdrm. mobile home, 12x60, 1½ baths, new wood-burning stove, carpeting & floors, must see. 369-2838.

ROCKLEDGE, FL - block & stucco, 2 bdrms., 2 baths, d/r, kitchen, l/r, family rm., 12x25, combination porch, excel. location, $64,500. 305-631-2840.

HILTON HEAD, SC - 3 bdrm. condo, sleeps 8, 2 baths, washer/dryer, wet bar, 6 tennis courts, whirlpool, 3 swimming pools, golf, ocean view, asking $89,000, will rent. 929-8912.

SETAUKET - north of 25A, hilltop setting, private, 3 bdrm. ranch, 2 baths, open l/r, f/p in den, 2 car garage, patio, beautiful landscaping, asking $242,000. 689-7494.

MANORVILLE - lovely 3 bdrm. ranch, 1½ baths, 1+ acre, on quiet cul-de-sac bordering 40-acre nursery, avail. immed., $145,000. Ext. 5400 or 878-6098.

Wanted

SPONSORS - for aerobic marathon to benefit child in need of kidney transplant. Annette Gremme, Ext. 3662 or 929-3061 after 7 p.m.

SKIERS - to ski Whiteface Mt., Lake Placid, weekend of March 11. Bea, Ext. 3642.

ROOMMATE - to share apartment, Mid-Island, 2 bdrm., male/female, 8 mins to Lab, $400/mo. Ext. 3217.

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