

Major Research Facility Proposed For BNL

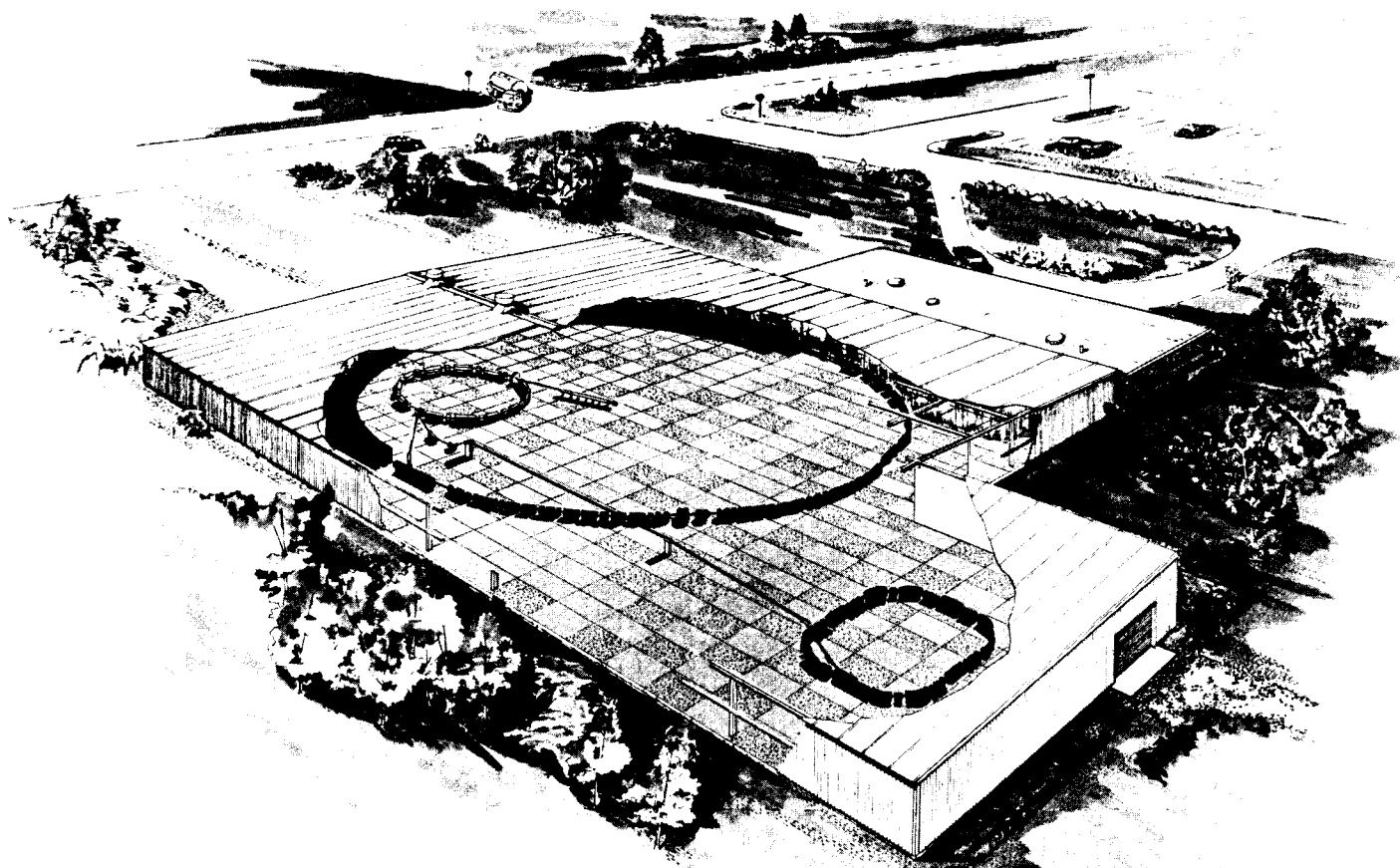
Twenty-four million dollars was earmarked for the construction of a National Synchrotron Light Source at Brookhaven in President Ford's budget message on January 17. The budget is subject to Congressional approval and to confirmation by President Carter.

Funding is anticipated to begin in Fiscal Year 1978 for a period of four years. The synchrotron radiation facility will be the first major construction at the Laboratory since 1966 when the 200 MeV linear accelerator was authorized.

"The National Synchrotron Light Source is a trailblazing project," said Laboratory Director George Vineyard. "It will open up large new fields of scientific work and greatly strengthen existing capabilities at Brookhaven, as did the HFBR when that machine was completed more than a decade ago. Like our other facilities it will be used by scientists from all over the country as well as by our staff. We are delighted that ERDA gave this project high priority and that the President recommended to Congress that it be funded. Construction will be a particular challenge and will commence soon after Congress gives approval. Prospects for the project are very exciting."

At Brookhaven, studies of a high intensity synchrotron radiation source were initiated in 1971. Since then an interdisciplinary committee has been working on design and construction plans. Their efforts culminated in a proposal to ERDA last June.

Synchrotron radiation is the electromagnetic radiation emitted by a rapidly moving charged particle when it moves in a curved path. It has been found that electron storage rings are useful sources of synchrotron radiation. The Brookhaven design calls for two electron storage rings -



A cut-away drawing of the National Synchrotron Light Source to be built at Brookhaven. The building which would house two electron storage

rings - one 40 feet in diameter and the other 150 feet - would measure about 300 feet long, with the largest width at slightly over 200 feet.

one a 2.5 GeV ring with 40 x-ray beam ports and the second, a 700 MeV ring with 16 ultraviolet beam ports.

Martin Blume, who headed the design committee, paid special tribute to key members. "The project would not be possible," he said, "without the ingenuity of Rena Chasman and Ken Green, nor would it be at its present stage if it were not for the persistence and foresight of Chalmers Frazer, Dick Watson and Morris Perlman who have been pursuing this goal since 1970."

The Brookhaven facility has been named the National Synchrotron Light Source. It will be organized as an interdepartmental project with headquarters on the third floor of the Accelerator Department. Construction is expected to begin late this year on a site adjacent to the Instrumentation Division.

Blume, who will act as Manager for the time being, says that they expect to spend 150 man years on the project, and will employ a staff of about 50 people, excluding construction personnel. The Manager will be responsible to the Laboratory Director who will be advised by a steering committee composed of Mark Barton, Victor Bond, Gerhart Friedlander, Nick Samios (Chairman) and Jim Sanford. Blume is also a member of this committee.

Serving as Deputy Manager will be Chalmers Frazer (Physics); as Design Manager, Ken Green (Director's Office); and as Budget Officer, Ron Manning (Physics). Rena Chasman (Accelerator) has been chosen to head the Theory Division;

Jules Godel (Chemistry) will head Engineering; and Morris Perlman (Chemistry) and Dick Watson (Physics) will be in charge of Instrumentation.

Synchrotron radiation has been the subject of many studies. The most recent was carried out by a panel of the National Research Council whose assessment was funded by ERDA and the National Science Foundation. The Panel indicated that development of national synchrotron radiation facilities has not kept pace with the research opportunities offered, and concluded that a commitment to construct new facilities be made now, with due regard to geographical distribution.

Two other national facilities have already been established - the Stanford Synchrotron Radiation Project (SSRP) and the Synchrotron Radiation Center (SRC) at the University of Wisconsin. The Panel observed that even "the full expansion and dedication of existing facilities would satisfy less than one half of the national need for 1986."

Synchrotron radiation is considered to have potential for greater application in many research techniques, particularly x-ray diffraction, photoelectron spectroscopy and photoabsorption studies in the wavelength range from ultraviolet to x-rays. The Panel said that "structural studies using synchrotron radiation will have a dramatic impact in biology, chemistry, and the physical sciences as well as on research and diagnostic applications relevant to the nation's energy, environmental and communication technologies."

What Happens Next?

Before President Ford left office, he submitted the budget to Congress for FY 1978. Under the new budget control procedures, President Carter has until about March 1, to submit any amendments.

In the case of the Light Source proposed for Brookhaven, Senate and House committees must approve the project. In the House, it is the Science and Technology Committee. Three Long Island Congressmen serve on this committee. Representative John W. Wydler is ranking minority member and Representatives Jerome A. Ambro and Thomas J. Downey are members.

According to an article published Monday in *Newsday*, Rep. Downey said that he felt the project had "a really good chance for approval."

After the various committee approvals, Congress votes a bill authorizing the budget proposals and sends the bill to President Carter for signature.

Once the budget is authorized, the next step is for Congress to approve the amount of dollars to be spent on the various categories. This is called an appropriations bill and is also sent to the President for signature.

These steps are supposed to be accomplished by the start of the new fiscal year on October 1.



Some of the principals involved in the design of the synchrotron radiation facility proposed for Brookhaven are: (from left) Ken Green, Martin Blume (chairman of the design committee) and Rena Chasman.

Act Now — Apply For New Career In Trades

Six apprentice openings have been announced in the electrical, machinist, carpentry, and refrigeration and air conditioning trades. Eligible employees are asked to submit their completed applications to Personnel no later than February 25, 1977.

The Craft Apprenticeship Training Program was initiated at the Laboratory in 1969. To date, nine employees have graduated and are now at work as full-fledged journeymen. Nine others are still in training.

It is a unique opportunity for both men and women who seek greater job satisfaction, to acquire a skill, and earn income at the same time.

Employees who wish to be considered must have worked at the Laboratory at least three months prior to February 25, and receive a rate of pay no greater than \$237.60 per week. If an IBEW bargaining unit employee, the applicant must not be above the seventh labor grade; if non-bar-

gaining, be no higher than level III.

The age limit is 38 years, to which up to two years may be added depending on the length of time spent in the Armed Forces. Candidates must be high school graduates, or have sufficient education to master a trade. School transcripts must be obtained.

Employees who applied to the program in previous years may do so again, but must submit new applications and transcripts.

The new apprentices will be selected by a committee composed of three representatives of Laboratory management and three IBEW members employed by the Laboratory.

The Committee will begin interviewing the candidates on March 14 and the winners will be notified on March 25. Of the six successful applicants, two will start the four-year program on April 25 as electrical apprentices, two as machinists, one in carpentry and one in refrigeration and air-conditioning.

Applications and details of the program may be picked up at the reception desk in Personnel. Any further information may be obtained from Peter Paige, extension 2885.

NCAES Programs Reviewed



William Marcuse (standing), head of the Economic Analysis Division, and other members of the NCAES staff, review the work of the Advisory Committee of the National Center for Analysis of Energy Systems at the first meeting of the Committee which was held at Brookhaven last week.

CREF Values Climb

1976			
January	\$40.31	February	\$39.76
March	40.75	April	40.10
May	39.69	June	41.60
July	41.21	August	40.94
September	41.59	October	40.62
November	40.40		
December	\$42.66		

IBEW Meeting

Local 2230, I.B.E.W. will hold its regular monthly meeting on January 27, 1977, at 8 p.m. in the Knights of Columbus Hall, Railroad Ave., Patchogue. There will also be an afternoon meeting at 2 p.m. for shift workers in the Union office at 31 Oak Street, Patchogue. On the agenda will be regular business, committee reports and the President's report.

ERDA Information Meeting



Some of the participants at a two-day ERDA Information Meeting on Accelerator-Breeding at Brookhaven this week included: (from left) Meyer Steinberg, head of the Process Technology Division at DAS; Saul Strauch, Asst. Director of the Division of Nuclear Reactors and Applications, ERDA; James S. Kane, Director of the Division of Physical Research, ERDA; and H. J.C. Kouts, coordinator of the Brookhaven Fusion Energy Program. — photo by Rosen

Money Matters

Now that the W-2 forms have been distributed, thoughts will, of necessity, turn to struggling with income tax returns. Frank Federmann, AUI's Chief Internal Auditor, has prepared some highlights of the Tax Reform Act of 1976 which he says is the "most comprehensive tax legislation since the introduction of the tax laws." He cautions that these are only a few of the many changes reflected in the new tax law.

In subsequent issues, Federmann is prepared to answer any specific questions you may have on taxes. As the new tax law covers a lot of ground and it would be impossible for him to discuss all of it, he asks that you send your suggestions and questions to him, in writing, at Bldg. 134A. From these he will determine what areas are of particular interest to BNL employees.

In the meantime, here are some changes to be aware of before you start on your returns:

1. A new general tax credit permits an individual taxpayer to claim the greater of:
 - 1) \$35 per exemption or
 - 2) 2% of taxable income up to \$9,000 but not more than \$180.
2. A new tax table has been devised for use by individuals whose taxable income is \$20,000 or less. Individuals with taxable income over \$20,000 are to use the appropriate tax rate schedules.
3. The minimum tax on preferences is increased from 10% to 15%; \$30,000 exemption is reduced; and new tax preference items are added.
4. For 1976 and later years, a tax credit, rather than a deduction is permitted for child and dependent care expenses.
5. The earned income credit rules no longer require that a dependency exemption be available for a child who is under age 19 or is a student. Also, the credit may be available if the taxpayer has a disabled child age 19 or older who qualifies as a dependent.
6. For 1976, the sick pay exclusion is eliminated and is replaced by a disability income exclusion which is available if a taxpayer is under age 65 and is totally and permanently disabled.
7. The levels at which individuals are required to file income tax returns are increased as follows: \$2,450 for a single taxpayer, \$3,600 for a married couple filing a joint return, \$2,850 for a surviving spouse, and \$750 for a married taxpayer filing a separate return. Such figures are increased by \$750 if the taxpayer and/or spouse is age 65 or older.

8. Deductions for the business use of a home are restricted, and new limitations apply to deductions attributable to the rental of a vacation home.

9. For 1977 the holding period for long term capital gain and loss treatment is increased to "more than 9 months"; after 1977, the holding period is increased to "more than 12 months."

10. Deductions for prepaid interest are to be allocated over the period of the loan.

11. The foreign earned income exclusion is reduced from \$20,000 per year to \$15,000 per year.

12. Losses from tax shelters (certain farming, leasing, motion picture film or video tape, and oil and gas well activities) are limited to the amounts "at risk," i.e., the amount invested plus the amount for which the taxpayer is personally liable.

13. New limitations are applicable to the amount allowable as a deduction for interest on an investment indebtedness.

14. New depreciation recapture rules apply to disposition of depreciable residential or real property.

15. Corporate tax rates continue at 20% of the first \$25,000 of taxable income, 22% on the next \$25,000 and 48% on taxable income over \$50,000.

16. The 10% investment credit rate is extended through 1980.

17. Persons who prepare returns for pay must sign each return as preparer, give his or her social security number and address and furnish a copy of the return to the taxpayer.

18. Rapid depreciation of rehabilitation expenditures for low and moderate income housing has been extended through 1977.

19. Preservation of historic buildings and structures is encouraged by special depreciation and amortization rules.

20. Costs of removing certain architectural and transportation barriers for handicapped or elderly persons may be deducted, limited to \$25,000.

21. A carry over basis subject to the "fresh start" rule and certain exceptions, applies to property received through inheritance, bequest, or devise from a decedent dying after 1976.

22. All individuals are to compute their 1976 taxable income whether or not they itemize their non-business deductions and regardless of the amount of their adjusted gross income.

Careful attention to the preparation of your income tax return could result in money coming back to you, instead of more going out. As a man named F. J. Raymond said, "Next to being shot at and missed, nothing is quite as satisfying as an income tax refund."

— Frank Federmann

BROOKHAVEN BULLETIN

Published weekly for the employees of

BROOKHAVEN NATIONAL LABORATORY

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Letters To The Editor

To the Editor:

In your January 7 *Bulletin*, you ran a picture of the old grain elevator, which Mr. Harson had made from the negatives he borrowed from me. It may be of interest to you that this building was bought at the auction in 1921 by Raymond Fry, and he had dynamite placed in the concrete base to blow the building down, but it had no effect on it. I was freight agent at the time with the Long Island Railroad Co., and Mr. Fry came to me and wanted to attach a cable to the building and have a locomotive pull it over. I took it up with the Supt. in Jamaica but they wouldn't do it for him, so he had to take it down, and I don't think he got enough out of the lumber to pay for taking it down.

I was freight agent with the railroad for five years there.

Thomas R. Bayles
Middle Island, N.Y.

Cafeteria Menu

Week Ending Jan. 28, 1977

Monday, January 24

Tomato Vegetable Soup
Keilbasy & Sauerkraut 1.10
Grilled Ham Steak & 1 veg. 1.25

Tuesday, January 25

Cream of Potato Soup
Southern Fried Chicken & 1 veg. 1.10
Macaroni & Cheese & 1 veg. 1.05

Wednesday, January 26

Beef Barley Soup
Tuna Noodle Casserole 1.10

Special

Cup of Soup
Refried Beans & Tacos
Pie or Ice Cream

Small Beverage \$1.68 plus tax

Thursday, January 27

Chicken Noodle Soup
Chili Dogs & Rice 1.00
Salisbury Steak & 1 veg. 1.25

Friday, January 28

New England Clam Chowder
Broiled Filet & 1 veg. 1.15
Roast Sirloin of Beef & 1 veg. 1.30

Arrivals & Departures

Arrivals

Howard W. Bell, Jr. Plant Engr.
Patricia A. Brennan App. Math.
Alicia B. Delgado App. Science
Anthony P. Guzikowski Chemistry
Jerome B. Hastings Physics
Nellie I. Kennedy Plant Engr.
Robert Krasny App. Science
Abraham Lesnik Physics
Cecile A. Rideau Medical
Mona S. Rowe Personnel
Joel A. Storch App. Science
William J. Strolecki Plant Engr.

Departures

Jawed A. Jafri Chemistry

BERA Election

Voting Schedule

Hours	Polling Station
Monday 11:30 a.m. - 1:30 p.m. 2:00 p.m. - 4:00 p.m.	Cafeteria AGS - Bldg. 911
Tuesday 11:30 a.m. - 1:30 p.m. 2:00 p.m. - 4:00 p.m.	Cafeteria Biol. - Sm. Conf. Rm.
Wednesday 11:30 a.m. - 1:30 p.m.	Cafeteria
Thursday 11:30 a.m. - 1:30 p.m. 2:00 p.m. - 4:30 p.m.	Cafeteria Fiscal - Lobby
Friday 10:00 a.m. - 2:00 p.m.	Bank

Absentee votes, for those employees who will not be on-site next week because of business trips or other reasons, will be accepted by sending a signed memo with candidate selections to BERA President Ken Batchelor, Building 911. However, these memos must be received by Ken no later than noon on Friday the 28th.

Let's all get out and vote. Remember employees, the BERA Board Trustees are your recreation activities representatives. Don't let the opportunity go by in getting your selected candidates into office.



Gail Williams
Director's Office



William Love
Physics



Elbert (Nate) Carter
Safety & Envir. Prot.



Marguerite Stoeckel
Fiscal
— photos by Rosen

Voting will begin on Monday, January 24, to elect any two of the above candidates as BERA Executive Board trustees.

SUNY/BNL Courses

Due to insufficient registration, MSA 511, Introductory Methods in Applied Mathematical Analysis has been cancelled.

The first class for MSA 507, Introduction to Probability and Stochastic Processes has been postponed. The course will begin on February 1.

For more information call Ms. Weitzman, 246-5957.

Camera Club Meeting

Just a reminder that the Camera Club will meet on Wednesday, January 26, at 7 p.m. in the Recreation Building.

Membership is open to all BNL employees and members of their immediate family. Prospective members and previously enrolled members are urged to attend.

For further information call Ed Hagelberg, Ext. 3120; Keith Jones, Ext. 4581; or Mike LeVine, Ext. 4581.

New York City Trip

The Hospitality Committee is planning a group railroad trip to the city on Wednesday, February 2. Departure will be at 8:32 a.m. from the Patchogue LIRR Station. The round trip fare for adults is \$2.45, children under six years ride free.

Reserve a ticket by sending your fare through the U.S. mail to P.O. Box 322, Upton, New York, no later than January 27. Make checks payable to "Cash." Refunds will be made only if cancellations are received before noon on January 28.

Cooking Exchange

Newman On Chinese Cookery

Everyone is invited to come see Jackie Newman present one of her fantastic Chinese cookery demonstrations. Not only will you be able to see her, but for a mere 75¢ you will have the privilege of tasting her delectable creations.

The demonstration will take place at the next meeting of the Cooking Exchange on Wednesday, January 26, at 12:30 p.m. in the Recreation Building.

Be there - we guarantee an afternoon of unforgettable pleasure!

La Grande Bouffe

Who can imagine France without *la cuisine Française*? To celebrate this important aspect of French culture, *Le Cercle Français du BNL* will hold a cooperative dinner at which members and their guests will have an opportunity to display their own culinary skills and to sample those of others. The date for this *fête gastronomique* is Friday, February 4, at 7 p.m.; the place, the Recreation Hall in the Apartment Area.

If you are a frustrated Julia Child or Pierre Franey, or just a *fin bec* who enjoys good food, we hope you'll plan to attend. However, in order to avoid a menu consisting only of twenty varieties of *coq au vin*, some coordination is essential. So please call one of the following members before January 26, if you wish to attend: Josette Auerbach (286-3742), Paulette Goodman (744-8449), or Ralph Weston (Ext. 4373). Also, please plan to bring a bottle of wine (or other beverage, if you prefer) to accompany your dinner. Following the dinner, if the participants are still able to move, there will be dancing and other indoor sports.

Sports News

Bowling

Red League

The Anachems had a great team effort knocking down 3108 pins. P. Klotz (235 game) led the team with a 585 scratch, 675 gross, just missing his club awards. Bob Wilson had a 210 and T. Prach chipped in a 201.

The Bubble Boys also bowled well together, coming up with a game of 1117. J. Cain had a 247 (287 gross) and W. Kolmer had a nice 235 game.

For the 76'ers, T. Holmquist bowled 241/671 gross, just missing his club award. J. Petro had a 217 and R. Larsen bowled 210.

On the Sandbaggers, C. Bohnenblusch

(207) had a 587 scratch, 671 gross, just missing his club awards. Ditto for K. Riker with a 202/587 scratch series.

Good team bowling by the Designers also, with E. Sperry bowling 214 and A. Pinelli 206.

The following are the results of the first half finals: Anachems, 76'ers, Designers, Sandbaggers, Old Timers, Bubble Boys, Freon Loaders, Cosmos.

Black & Blue League

Congratulations to the Power Meds (Kristiansen's and Skelton's) on winning the first half. High games: Bob Holland 214, Lew Jacobson 203, Dorothy Pollock 177, Renee Flack 174, Ellie Kristiansen 173. High gross pots were won by Bob Holland 262, Jean Sells 227.

Green League

The Sparks are the winners of the first half. Second place went to the Pick-Ups as they just edged out the Got-A-Hit-Ums by a half point. The Blue Jays followed a close fourth with the Charlie Browns close behind. For the Blue Jays, T. Iarocci had a 256/607 scratch series and J. Berech a 222 game. Other 200 games were M. Punda 200, N. Parrinello 213.

Purple and White League

The Good Guys did it again, taking all seven points and now have an eleven point lead for first place. The Alley Oops are in second and tied for third are the Plutoniums and Woodchucks.

High games for the men was Art Lipman 207 and Dick Murgatroyd 202.

Kathy Carter led the women with a 183 and Nancy Mayeski with a 180.

Pink League

Congrats to the Pinsplitters for winning the first half. Nice bowling girls! The Gutter Getters were second followed by the Personalities, Fiscal Assets, Odd Balls and Med Squad.

Volleyball

Employees' League

This past week saw three sweeps, with the Atom Spikers taking three from Chemistry (21-8, 21-15, 21-8); the Spikers defeating the Road Runners (21-13, 21-14, 21-7); and Phoenix beating the Circuits (21-10, 21-4, 21-14).

Present Standings:

Phoenix	10	2	.833
Spikers	10	2	.833
Cool Tools	9	3	.750
Atom Spikers	9	6	.600
Road Runners	4	8	.333
Chemistry	2	13	.133
Circuits	1	11	.083

The coming week's schedule will be decisive with the top teams meeting each other. Phoenix (10-2) play the Spikers (10-2) and the Cool Tools (9-3) play the Atom Spikers (9-6). Either of the two leaders could drop as low as third place.

We have recently received confirmation of an important rules change in international volleyball: A team is now allowed three touches after a block. (Previously, a team was allowed three touches including the block.) The United States Volleyball Association has decided to conform with the new international standard in all its competitions. We will hold a captains' meeting to discuss this change (and other matters) after the first half of the season the end of January. Hopefully, we will be playing under the new rules during the second half of the season.

