



Carl Thien (left) and Doug Humphrey, producers of *Brookhaven's Quest*, prepare for a showing.

Congress Hears About J-Particle

Samuel Ting, leader of the research group at BNL responsible for the J-particle discovery, recently testified before the Joint Committee on Atomic Energy in Washington, D.C. He explained the significance of the J-particle discovery, outlined the events leading up to it and described the equipment used. In an effort to keep the BNL community abreast of events evolving from the discovery, the *Brookhaven Bulletin* is printing his testimony in its entirety.

In the last decade a group of physicists working with me and Dr. U. J. Becker from the Massachusetts Institute of Technology (MIT) have been performing experiments using light quanta of billions of electron volts of energy to probe deep inside the nucleus.

Let me recall for you some fundamental ideas about light quanta energy and distances. For example, ordinary light from an electric light bulb has an energy of about 1 electron volt and its wave length is approximately 20 millionths of an inch. In the atomic and nuclear domain, as we increase energy the wave length becomes shorter. X rays have energies of thousands of electron volts and their wave lengths are a thousand times shorter than visible light quanta.

Thus light quanta of a billion or 10 billion electron volts can be used to probe inside nuclear dimensions, that is, 100 million millionths of an inch. Inside the nucleus, the so-called "strong force" binds the protons and neutrons together. The exact nature of this force is still not known.

Besides protons and neutrons, we now know that hundreds of other types of parti-

BNL's Story: A Visual Experience

A blending of voices, sounds and images create a lively tale of Brookhaven National Laboratory and its people in *Brookhaven's Quest*, a visual experience produced by Carl Thien, Public Relations Officer, and laboratory photographer Doug Humphrey.

Quest is on the borderline between a movie a fast-moving slide show. Although no movie film was used, the still images seem alive with motion and dance across the 5 by 17-foot screen to the beat of music.

This effect is achieved with the aid of five slide projectors, programmed to flash any-

where from one to three pictures on the screen at once or to dissolve, one into another. Narration by Julie Peierls and excerpts from radio broadcasts, speeches and interviews put the images into context.

A total of 371 cues were used for 286 pictures to produce the various special effects. The show includes hundreds of pictures of employees, and geographical views from mid-town Manhattan to Montauk. In one segment, the viewer relives the excitement of the J-particle discovery.

In the search for appropriate sound effects and music, many hours were spent listening to everything from symphonies and operas to hard rock and jazz. Eventually, seven different pieces of music were chosen and incorporated into the score along with various sound effects such as those of a noisy city street.

There will be two showings of *Brookhaven's Quest* each day next week, April 14 through 18, at noon and 12:30 p.m. in the Exhibit Hall. It will also be shown continuously during Open House '75 in the Berkner Hall auditorium.

Plans are to make it into a traveling "road show" to be presented at schools, civic organizations, etc. It will be shown to all groups visiting the Laboratory to give them an overview of research at BNL, in much the same way as the movie "Brookhaven Spectrum" did.

The slide format of *Quest* gives it a modular advantage over the more conventional motion picture approach. It can be more readily updated to keep pace with new and changing research programs and directions.

A Year In Provence: Views Of A Biologist

At the next meeting of the BNL French Group, on Wednesday, April 23, at 8 p.m. in the Recreation Hall (Apartment Area), Diana Bartelt of the BNL Biology Department will speak and show slides taken during a year's stay in France.

Ms. Bartelt worked at the Unité de Recherche de Pathologie Digestif in Marseilles with staff member Odette Guy, who has worked at BNL and has many friends here. In her talk, which will be in French, Ms. Bartelt plans to describe the laboratory atmosphere there and to compare it with that at Brookhaven. During her stay, she traveled extensively, not only in Provence, but in Corsica, the Pyrenées, and Normandy as well; many of her slides were taken in these areas.

Laboratory members and friends are cordially invited. Those who are not French Group members will be asked for a nominal donation to help cover the cost of refreshments.

—Ralph Weston

Brookhaven's Quest

A Visual Experience

Will be shown in the

Exhibit Hall

At Noon and 12:30 p.m.

The week of April 14 thru 18

Lab Set For Open House '75

Open House '75 at Brookhaven National Laboratory will include fourteen separate research areas, each of which will present a look at on-going research. Scientists and technicians will be on hand to explain and demonstrate research methods and tools as well as answer questions about their work.

Visitors will be admitted at the main gate of the Laboratory on Saturday, May 17 and Sunday, May 18, from 9:00 a.m. to 3:00 p.m. Exhibits will remain open until 4:00 p.m.

Tickets will not be necessary for admission to Open House '75 and groups arriving by bus may use their busses to facilitate their tour of the Lab. Guide books will be provided to assist in choosing areas of particular interest.

Visitors will tour portions of the laboratories in the Medical Center, the Biology, Chemistry, Health Physics and Physics Buildings, as well as the High Flux Beam Reactor, the Alternating Gradient Synchrotron, a machine shop and other facilities. To tour the Laboratory, visitors will be expected to use their own automobiles or buses which may be parked in one of several areas from which the various facilities may be reached by foot.

An Information Center will be located next to the main parking area to which visitors will be directed upon entering the Laboratory.

In addition to seeing and talking with members of the scientific staff in their laboratories, visitors may see *Brookhaven's Quest*, a visual experience, and general exhibits.

Snacks will be available. A museum shop will have some books, postcards and other items for sale.

Group information has been mailed to public and private high schools in the metropolitan area.

Music to Eat By

On Thursday afternoon Rudy Monty will direct the Longwood High School Symphony Band in a program of popular and semi-popular music. The 65-piece symphony band will perform during the lunch hour from 12:15 to 12:45 p.m. in Berkner Hall - outdoors weather permitting and indoors if rainy or cold.



Sam Ting

cles are associated with nuclear particles. They appear when we make violent collisions between these particles, such as when we bombard a beryllium nucleus with 30 BeV protons. Some of these particles are stable or long-lived on the nuclear time scale. For example, the π meson lives about a hundred-millionth of a second. Most of them are very unstable and short-lived. The ρ meson lives for about the time it would take light to travel a distance corresponding to the diameter of a nucleus (100 thousandth of a billion billionth of a second) and decays into two π mesons.

One of the best ways to learn more about this strange subnuclear world is to shine a powerful billion-electron-volt light on it. Light is very stable and does not carry charge, and therefore, if it is energetic enough, it will probe deeply into the nucleus and enable us to have a very clear way to look around at what is going on inside among the protons and neutrons and those hundred of mysterious particles.

The results of our experiments and those of other scientific teams in the last decade at various laboratories around the world

(Continued on page 2)



Deputy Commissioner Geraldine Sheridan speaks at a Hospitality Committee Coffee about consumer affairs.

Consumer Affairs is Topic at Monthly Coffee

Close to 60 people gathered in the Brookhaven Center on April 1 to hear Geraldine Sheridan discuss her job and responsibilities as Deputy Commissioner of the Suffolk County Department of Consumer Affairs.

Speaking at the Hospitality Committee's monthly coffee, she explained the status of consumer affairs in Suffolk County and mentioned some of the more frequent complaints heard by the Department. According to Ms. Sheridan, most complaints are directed against auto mechanics, with TV repairmen running a close second.

Following her informal talk, she entertained questions from an enthusiastic audience. Prior to her recent appointment as Deputy Commissioner, she was Special Assistant to the County Executive for Consumer Affairs.

Each month the Hospitality Committee, chaired by Ruth Dimmler, holds a coffee to which a guest is invited to give a lecture or craft demonstration. Past coffees have included such events as a patchwork quilting demonstration, artificial flower-making, and a talk on life in the People's Republic of China which was presented by Phyllis Vineyard.

Official & Special Events

Monday, April 14

Brookhaven's Quest - Exhibit Hall, noon and 12:30 p.m.

Tuesday, April 15

Brookhaven's Quest - Exhibit Hall, noon and 12:30 p.m.

Wednesday, April 16

Brookhaven's Quest - Exhibit Hall, noon and 12:30 p.m.

ERDA Solid State Physics and Metallurgy Information Meeting - Physics Department (April 16-17)

Iranian Atomic Energy Organization Visit

Thursday, April 17

C.W. Post College Environmental Society Tour

Longwood High School Symphony Band Berkner Hall - 12:15 to 12:45 p.m.

Friday, April 18

Brookhaven's Quest - Exhibit Hall, noon and 12:30 p.m.

Monday, April 21

Biology Department Visiting Committee Meeting (April 21-22)

Tuesday, April 22

ERDA Project Review Meeting

Thursday, April 24

Yale University Graduate Student Tour

Friday, April 25

University of Bridgeport Student Tour

Update - 3000 Mile Run

There are now 19 runners on the BNL team. Anyone else interested should let Bob Powell know today. The more people we have on the team, the shorter the distance each of us has to run.

Only 4 runners have turned in their results for the first week. Please, everyone, phone Bob Powell, Ext. 4061, each Monday to give him your results for the previous week. For Bob's convenience, please give the time in minutes (to the nearest 1/100-minute) rather than in minutes and seconds.



BAFFA Performance

BAFFA's third showcase of 1974-75 will be held on Sunday, April 13 at 4 p.m. at the Congregational Church of Patchogue, featuring vocal, woodwind and string music from early and romantic periods.

The program includes songs from opera and oratorio by Mozart, Donizetti, Haydn and Grieg, sung by Robert Acker and Elaine Dwight; Quartet in D minor by Telemann, with Mark Barton and Kathy Isles, flute, Boyd Osgood, bassoon, and Beverly Price, piano. The program will conclude with the performance by the Awixa String Quartet of Haydn's Quartet Opus 76 #2.

Admission is free. Guests are invited to view an exhibit of oils, watercolors, pastels and drawings by Nita Elder and Hettie Beth, members of the South Bay Art Association. A coffee hour will follow the program. For more information please call the BAFFA Showcase Chairman, Charlotte J. Price at 472-1419.

Cooking Exchange

Bisque, chowder and consomme - Lela Radeka is planning this delicious demonstration on April 16 at 12:30 in the Recreation Building. If you have something to contribute to this meeting call Mrs. Radeka at 286-0854.

Future demonstrations will be New Orleans Cooking on April 30, Lazy Cooks on May 16 and Men, Men Cook on May 28.

If you would like to attend the International Dinner and haven't demonstrated yet - remember - we only have four more meetings. Call Jane Love, 286-1136. What will the dinner be without you?

- Jane Love

Arrivals & Departures

Arrivals

Daniel Brook Medical
Franz Reidinger Chemistry

Departures

John H. Peterson Accelerator
Robert L. Shirley Accelerator

J-Particle

(Continued)

have indicated that when you use a billion-electron-volt light shining into a nucleus, the light quanta itself does, with small probability, for a very short time, turn into massive particles. The ρ meson, cited before, is one such particle.

Until recently, four such particles were known to exist. All had masses less than twice the mass of the hydrogen atom and all lived for times comparable to the ρ meson. A natural question one asks is why should there be only four such particles. Could there be others?

There is another reason to look for other light-like particles. For many years now there has been strong speculation that there exists a particle which is responsible for the slow and weak decay of many of the subatomic objects. The discovery of a heavy light-like object would be the first step in unifying our understanding of the decay processes and electromagnetic forces inside the nucleus.

To perform a systematic search for these new particles, our team proposed two large scale experiments. The first one is at the 30 billion-electron-volt proton synchrotron at Brookhaven. This machine enables us to search for particles up to a mass about six times the mass of a hydrogen atom. Early next year we will extend our work up to a mass of 60 times that of the hydrogen atom at the most powerful machine in the world, the Intersecting Storage Rings at CERN in Geneva, Switzerland.

Let us now concentrate on the discovery of the J-particle at Brookhaven National Laboratory. The new particles are very rare. They occur once after many millions of nuclear reactions, in which most of the particles produced are K or π mesons. We search for the new particles by detecting its electron-positron decays. A successful experiment must have the following ingredients: A very high intensity beam is necessary to produce a sufficient amount of these particles. The accelerator at Brookhaven produces a beam of a million million protons per second for this experiment. In a billionth of a second the detector must be able to pick up the electron-positron pair from the decay of the new particle amidst billions of other particles. It has taken us many years to learn how to accomplish these two things.

The detector is called a magnetic spectrometer and the identification of the electron and positron goes something like this. A positive particle (presumably the positron) and the negative particle (electron) each traverse an arm of the spectrometer. The electron and positron are identified by the fact that a special counter, called Cerenkov counter, measures their speed as being slightly larger than all other charged particles. Magnetic fields bend them and measure their energy.

Finally, as a redundant check, the particles plow into a high density piece of glass. Now electrons and positrons immediately transform their energy into bright light which is collected, thus "tagging" these particles as electrons and positrons and not heavier particles such as π mesons.

The simultaneous arrival of an electron and a positron in the two arms indicates the creation of a high energy light quanta from nuclear interactions. The sudden increase in the number of electron-positron pairs at a given energy of mass indicates the existence of a new light-like particle.

The trajectories of the electrons were measured by multi-wire proportional chambers. They consist of thin gold-plated wires spaced 2 millimeters apart. When a particle passes in the vicinity of one of these wires, it gives an electrical signal to the wire by losing a small fraction of its energy to

the atoms surrounding the wire. This very faint signal from the wire is then amplified and fed into the computer to reconstruct the position of the electron. In this experiment there are ten thousand such wires, each with its own amplifier and recording system.

What takes place inside a Cerenkov counter is not too different from a sonic boom produced by aircraft travelling faster than the speed of sound. When a particle enters a Cerenkov counter, filled with a particular gas, it travels faster than light does in the same gas. The result is a flash of light, called the Cerenkov effect, which is comparable to a sonic boom.

The signals from the Cerenkov counters were collected by 1/4-inch thick, 3 feet by 4 feet spherical and elliptical mirrors. The counters were filled with gaseous hydrogen so that only electrons would give out light. To measure the arrival time of electron-positron pairs to a billionth of a second, we used one hundred thin plastic counters, each less than 2 mm thick. There are about another hundred high density glass counters at the end of the detector to measure the total energy of the electrons. The combined system is controlled by a computer, and it can sort out eight particles passing through the detector simultaneously.

To properly shield personnel from radiation, the equipment is buried under ten thousand tons of concrete, twenty-five tons of lead, five tons of uranium and five tons of borax soap. Six physicists are required to man the detector at any one time.

Through the excellent help of the Brookhaven staff, the detector was set up in six months time, and by August of last year we began to observe an extremely abundant number of electron-positron pairs arriving simultaneously with a total combined energy or mass of 3.1 billion electron volts.

During the months from August to October, we made many checks of the detector to make sure that what we observed was indeed the creation of a new particle and not the result of any systematic or instrumental bias. The most important check came when we lowered the magnetic field of the detecting magnets by 10% and thus moved the trajectories of the particles to a different region of the detector. The abundance of electron pairs did not change, indicating that what we had observed was a real particle and not an instrumental bias.

We call this new particle the J-particle, as J is the symbol used to denote electromagnetic currents and internal rotations, or spins in nuclear physics.

The most striking feature of the J-particle is its very long life time. Contrary to all the known mesons of heavy mass the J-particle lives 100-1000 times longer. Whenever some objects in nature are found much more stable than anticipated, there is some reason to be curious. There must be some hidden cause, some yet unknown effects or some new principle that prevents the anticipated course of events.

The unexpected existence of the J-particle raised important and fundamental questions. Is it possible that we have now entered into a new area of nuclear physics where there exists not only J-particles but also other types of long-lived particles which do not decay into electron pairs, but instead form a family of their own and decay into already well-known particles such as proton-antiproton pairs, K meson- π meson pairs, π meson-proton pairs, and so forth? Could there be charged J-mesons besides the neutral ones? These are two of the key questions which must be answered in our efforts to understand what is going on inside the nucleus. This type of experiment is ideal for Brookhaven National Laboratory and is being vigorously pursued there.

Letters To The Editor

To all my friends at BNL:

Thank you all for making the occasion of my retirement such a happy and pleasant one.

Sincerely,
Charles Tomesch

Mountain Club

The BNL Mountain Club will have a meeting Tuesday, April 15, in the Recreation Building at 8:00 p.m. There will be discussion on spring canoeing, hiking and climbing plans.

Tips For Energy Savers From the Federal Energy Administration

Vacationing

Vacation closer to home this year. Discover nearby attractions.

A nearby hotel or campground can often provide as complete and happy a change from routine as one that is hundreds of miles away. Plan to stay in one place instead of "hopping" around.

When you travel, take a train or a bus instead of the family car.

During your holiday rediscover the pleasures of walking, hiking and bicycling - the most energy-conserving means of transportation, and the healthiest for most people.

Softball

Dick Ruffing

Even though the weatherman hasn't been cooperating, it's Spring, and once again our thoughts are turned to softball. Each year approximately 300 employees at Brookhaven participate in the softball program. We have four leagues and a total of eighteen teams competing.

Team applications have already been sent out to last year's captains. Our plans are to start the '75 season the week of May 14. If anyone is interested in forming a team from his or her department, please contact Dick Ruffing, Ext. 3418, for any additional information and the necessary application form. We also have a players' pool whereby anyone who is interested in playing and is not on a team may contact Dick Ruffing to be assigned an existing team.

The Mixed League will start at the same time as the Mens' League. This is the only league that is open to both employees and their spouses. So ladies, get your husbands, and husbands, get your wives, and let's make the '75 season one of the best yet at Brookhaven.

Bowling News

Grace Fales

Red League

With only 4 weeks remaining in the 2nd half, the Neutrons continue to lead the league, followed by the Anachems and Old Timers. High scratch series for the night was R. Nelson 215/209/615. Other highs: R. Larsen 222/201, N. Carter 200, J. Scesny 203/219, C. Buzzo 200, H. Frei 233, J. Roesler 200, R. Adams 219, L. Newman 229, C. Gardner 211, E. Malcolm 205, F. Pachinger 202, and V. Bilms 211.

Green League

The Designers moved into first place, with four weeks to go. Now if they can only hold on to it! 200's for the night: C. Zavesky 209, B. Belligan 203, and W. Rasmusson 218.

Pink League

Highs for the night were Kathy Van Noy 209, Marie Brenner 206/180, Grace Fales 206, M. Stoeckel 203, and J. Weber 187. K. Van Noy converted the 4-6 split, M. Brenner and G. Fales the 5-7. Nice bowling!

Black and Blue League

Congratulations to Theresa Van Dervoort (101 Avg.) on her 171 game. Not to be outdone, Fred (male chauvinist) Van Dervoort bowled a 200 game. Other highs were Debbie Antonio 168 and Diane Schug 161.

Highlights of the 32nd Annual Long Island Industrial Invitation Tournament for Women

BNL's ladies did themselves proud the opening night of the tournament, held at Mid Isle Lanes in Hempstead. Out of a field of 15 teams, BNL held first place for the first two games, dropped to second, and are now in third. Go get 'em next week, girls! High games were Kathy Van Noy 194 and Jean Hamilton 179.

Championship Bowling



Representing BNL at the 32nd Annual Long Island Invitational Bowling Tournament for Women are: (left to right) Marge Stoeckel, Fiscal; Ellie Murgatroyd, Director's Office; Helen Caisey, Director's Office; Jean Hamilton, Accelerator, and Team Captain Catherine Van Noy, Fiscal. The tournament, hosted by Fairchild Republic, is being held at the Mid Isle Lanes in Hempstead. The first game was played on April 5 and there will be two more, April 12 and 19. The winning team will receive the Republic Trophy. The "Fems" Incentive Trophy will be awarded to the team that bowls the most pins over its average for the three-week period.

Watch Those Minutes!

The Federal Communications Commission (FCC) has approved rate changes for interstate calls requested by A.T.&T. These changes became effective on March 9. Rate "change" is an accurate term; rates have changed, some are down and some are up. Some of the important changes are:

- On all out-of-state calls you dial yourself, the initial rate period, any time - including weekends - is now 1 minute rather than 3 minutes. First minute cost, excluding taxes, ranges from 16¢ to 56¢ depending on the distance called. Additional minutes cost less than the first minute.

- The initial rate period for all calls placed with an operator's assistance remains 3 minutes, even if you talk less. The charge for the first 3 minutes of all out-of-state operator-assisted calls depends on the distance called and is now the same 24 hours a day, 7 days a week. Additional minutes beyond the first 3 are charged at the direct-dial rate.

- Each minute of direct dial calls, and additional minutes of operator-assisted calls made during the Evening, Night or Weekend periods, will be discounted 35% or 60% from the full weekly day rate. The Full Rate applies from 8 a.m. to 5 p.m., Monday through Friday. The Evening Rate, a 35% discount, applies from 5 p.m. to 11 p.m. on Monday through Friday and Sunday. The Night and Weekend Rate, a 60% discount, applies from 11 p.m. to 8 a.m. everyday, from 8 a.m. to 5 p.m. on weekends and from 5 p.m. to 11 p.m. on Saturdays.

Here are some tips for avoiding the new increased charges:

- Use direct-dial, station-to-station calls whenever practical.
- Take advantage of the discounts available on evenings, nights and weekends.
- Avoid operator-assisted calls.
- Watch those additional minutes.

It is important to note that rate long-distance rates within New York State have not changed.

If you have any questions about the new rates or structure, please call your telephone business office.

A comparison of the old and new rates for a 5 minute call from New York to Los Angeles follows:

	Day 8 am- 5 pm	Evening 5 pm- 11 pm	Night 11 pm- 8 am
Mon-Fri			
Old	\$2.37	\$1.35	\$1.15
New	2.16	1.40	.86
Saturday			
Old	1.10	1.10	1.15
New	.86	.86	.86
Sunday			
Old	1.10	1.35	1.15
New	.86	1.40	.86
	Operator-Assisted		
Mon-Fri			
Old	2.77	1.90	1.90
New	2.75	2.47	2.27
Saturday			
Old	1.90	1.90	1.90
New	2.27	2.27	2.27
Sunday			
Old	1.90	1.90	1.90
New	2.27	2.47	2.27

Who Says It's A Woman's Job?



The Tour Guides at BNL have traditionally been women. But with the advent of men's liberation, the Guides were destined to be "liberated." This is exactly what happened, not by a group of angry picket-carrying men, but by the Tour Guide organizers. They issued a plea for eligible men to join the ranks. Two men answered the plea, Don David and Vincent Lo Destro, both of the Accelerator Department. Following a Health Physics and Safety indoctrination, giving them access to the Reactor, they made history by becoming BNL's first male tour guides.

Slo Break Basketball

The '74-'75 Slo Break Basketball season is over. This year's champs - the Persuaders.

The Condors met the Persuaders last week in the semi-final round. The Persuaders began the game as they usually do with hot shooting and jumped out to a 19-10 first quarter lead. During the second quarter they continued to pull away and their half time margin was 14 points.

During the third quarter both teams played evenly with no players in serious foul trouble. As the fourth quarter began the Condors began to come back and managed to narrow the lead to five. It was too little too late and the Persuaders held on for a 72-65 victory.

Persuaders Player	Box Scores			
	FG	FT	F	TP
James	2	9	5	13
Garrison	11	3	4	25
Rowley	4	1	4	9
Casey	5	1	2	11
Donaldson	5	0	2	10
Knox	2	0	1	4
Shuman	0	0	1	0
Totals	29	14	19	72

Condors Player	Box Scores			
	FG	FT	F	TP
Thomas	5	1	1	11
Brooks	8	6	2	22
Erdman	1	0	2	2
Vignato	3	2	3	8
Nettles	9	2	3	0
Barone	0	0	0	0
Hill	0	0	4	0
Sutter	1	0	3	2
Totals	27	11	18	45

Special Note

Next week there will be an all star game and awards party. League members and their guests are invited. If you wish to attend and haven't notified your team captain please do so today. There will be a \$1 charge for each person attending, to help cover the cost of food and drink.

— Walt Brooks

Selected Reading

- Amer. Sci. March-April 1975
The scientist in society: Inspiration and obligation. M. Rees. 144-9
Privacy and security in computer systems. R. Turn and W.H. Ware. 196-203
New Sci. 65, February 20, 1975
Inflation and science:
Rocking the foundations. M. Sherwood. 432-5
Slow climb out of the depression. N. Valéry. 435-6
Inflation as an institution. L. McGinty. 437-8
New Sci. 65, February 27, 1975
High Energy Physics File 1:
Physics flowers but funds wither. R. Walgate. 496-9
The current state of particle physics. S. Weinberg. 497
All things possible. P. Medawar talks to J.G. Crowther. 500-3
Man's search for his origins. R. Lewin. 503-5
Review: Oak Ridge Nat. Lab. 8, No. 1, 1975
State of the Laboratory - 1974. H. Postma. 1-19

Cafeteria Menu

Week Ending April 18, 1975

- Monday, April 14
Corn Chowder
Beef Liver & 1 Veg. 1.05
Scrambled Eggs, Sausage, Fr. Fr. .95
Tuesday, April 15
Beef Noodle Soup
Knockwurst & Sauerkraut 1.00
Sauerbraten & Potato Pancake 1.20
Wednesday, April 16
Cream of Potato Soup
Beef Chop Suicy on Rice 1.00
Chuck Wagon Special
Cup of Juice or Soup
½ lb. Beef Burger W/Baked Beans,
Fr. Fr & Cole Slaw
Bread & Butter
Plain Jello or Ice Cream
Small Beverage \$1.87 plus tax
Thursday, April 17
Chicken Vegetable Soup
Cheese Ravioli W/1 Veg. 1.00
Roast Chicken W/Stuffing & 1 Veg. 1.05
Friday, April 18
Clam and Celery Soup
Spaghetti W/Clam Sauce 1.00
London Broil & 1 Veg. 1.25

Stony Brook Events

Friday, April 11

Violinist Nancy Reed will present a master of music recital at 8:30 p.m. in Lecture Center 105.

A two-day conference on Criminal Justice, sponsored by more than 20 Suffolk County organizations, begins today in the Stony Brook Union; for information call 665-1173.

An exhibit of paintings and prints by Mavis Pusey, a member of the art faculty at Stony Brook, will run through April 30 in the Stony Brook Union Gallery. Gallery hours are 11 a.m. until 5 p.m., Monday through Friday.

The Chemistry department is sponsoring a colloquium by Professor Ronald Caple of the University of Minnesota at Duluth at 4:30 p.m. in the Old Chemistry Building, Lecture Hall 116. The topic of the talk will be "An Account of a Russian Sojourn. Observation of an Intramolecular 1,5-Hydride Shift in a Vinyl Cation Intermediate."

Saturday, April 12

"Dave Liebman and Lookout Farm" a jazz group, will present a concert beginning at 9 p.m. in the Stony Brook Union Ballroom; tickets are \$2.50.

A one-day Medieval Studies Conference will focus on the cultural legacy and history of the Middle Ages. Topics to be included are literature and music, historical writing and monasticism, philosophy, science and the law, social history, and the intellectual history of the period. Registration for the free conference begins at 10 a.m. in the Humanities Building Room 284. Lunch will be available in the University's Senior Commons Room at a cost of \$3. For information call 246-6500.

Sunday, April 13

Violinist John Graham is the featured performer in a Sundays at Five concert sponsored by the Friends of Sunwood. The concert begins at 5 p.m. at the University's Sunwood estate in Old Field; tickets are \$5.

The University's Riding Club is sponsoring its Sixth Annual Intercollegiate Horse Show which will be held throughout the day at Smoke Run Farm on Hollow Road in Stony Brook.

Three recitals will be held in Lecture Center 105 during the afternoon and evening: 3 p.m. with soprano Marion Hoover; 5 p.m. George Cohen on flute; 8:30 p.m. student piano recital.

Monday, April 14

Today marks the beginning of a week-long career conference. A program concerning career-related information for women will be held from 3 to 9 p.m. For further information call 246-7024.

Tuesday, April 15

Tuesday Flicks presents "Chair de Poule" at 8 p.m. in the Stony Brook Auditorium.

The Career Conference continues this afternoon with discussions with representatives from a wide range of occupations. A session concerning mid-career changes will be held from 8 to 9 p.m. tonight and tomorrow night at which several speakers will discuss their own personal experiences in changing occupations.

Wednesday, April 16

The Career Conference continues this afternoon with representatives from a wide range of occupations conducting discussions. A session concerning mid-career changes will be held from 8 to 9 p.m. at which several speakers will discuss their own personal experiences in changing occupations. Between 7 and 9 p.m. counselors from Stony Brook's Mid-Career Counseling Office will be available for individual consultation.

Thursday, April 17

The University's Performing Dance Group will perform in the Stony Brook Union Auditorium at 8 p.m. The concert will consist of eleven original compositions to the music of Bach, Purcell, Satie, Chich Corea and Eddie Harris.

Thursday Night Cinema, sponsored by the CED student government, will show "Blaze Glory," a color short, and Francois Truffaut's "Shoot the Piano Player" beginning at 8:30 p.m. in Lecture Center 100.

The Career Conference continues with discussions concerning a wide range of occupations. Between 7 and 9 p.m., counselors from Stony Brook's Mid-Career Counseling Office will be available for individual consultation; call 246-7024 for information.

Classified Advertisements

Placement Notices

Each week the Personnel Office lists personnel placement requisitions, currently being processed. The purpose of these listings is, first, to give notice of all non-scientific staff positions being filled and, second, to give employees an opportunity to request consideration for themselves through the Personnel Office. In filling vacancies, the Laboratory's objective is to give first consideration to present employees, as follows: employees within the immediate group having the vacancy, employees within the department or division, employees within the Laboratory as a whole.

For further information regarding a placement notice, or to request consideration for an available position, contact Supervisor, Personnel Placement & Development, extension 2874 or 2882.

63. TECHNICIAN - Mechanical technology with 2-3 years cryogenics and vacuum experience including silver soldering and use of helium mass spectrometers. Experience with helium refrigeration systems desirable. Power Transmission Project. Accelerator Department.

64. SECRETARY - Chemistry Department.

65. ECONOMICS ASSOCIATE - B.S. or equivalent in economics. Assignment involves quantitative modeling of energy systems. Department of Applied Science.

66. RADIOACTIVE MATERIALS TREATMENT OPERATOR - Department of Applied Science.

67. CUSTODIAN - Plant Engineering Division.

68. PATROLMAN TRAINEE - Health Physics & Safety Division.

69. TECHNICIAN - A.A.S. degree or equivalent in chemistry and analytical chemistry experience. Health Physics & Safety Division.

70. OFFICE SERVICES ASSISTANT - Temporary position. Technical Information Division.

71. FIREFIGHTER - Health Physics & Safety Division. Application Deadline: April 23, 1975.

Autos & Auto Supplies

71 FIAT 124 - Sport Coupe, 5 spd, Pirelli radials, 28 mpg, like new. \$1950 or make offer. 325-0233 eves.

72 VEGA HATCHBACK - New engine, auto, new exhaust sys. 588-3792.

70 FORD MAVERICK - \$1000. 475-3960.

VW ENGINE - 52 hp, still running, complete, 67 w/ approx 70,000 mi. \$65. Bill Sanchez, Ext. 3354.

67 JAGUAR XKE - 6 cyl. a/c, 4 spd, wire wheels, 2+2, yellow, excel cond. 289-5363 after 5.

TRUCK TIRES - 7.50x17", new recaps, 1 pair; 8.00x 16.5 snow recaps. Ken, 289-8212.

TIRES - New, used & recaps, also extra rims, most sizes. Ken, 289-8212 eves.

PARTS - 307 cu in short block, dist, pistons & crankshaft, cam tr timing gear, 2 recond heads, oil pump & screen lifters. Ext. 4452.

68 RAMBLER - 4 dr sedan, standard trans, good cond. \$590. 744-7170.

72 GRAN TORINO - 12,000 mi, 2 dr, equipped. \$2400. 475-5596.

64 CADDY - Sedan de Ville. \$175. 744-2821.

RIMS - 2-13", 5 holes, \$5; 1-15" Ford rim, 5 holes, \$5. O. Booker, Ext. 4719.

TIRES W/CHEVY RIMS - 2-15", chrome. \$40. Steve, Ext. 4308.

TIRES - 6.85-15, very good, \$5 each; 6.85-15, 2 snows 6.95-14; 4 6.95-14, all \$2, all pass inspection. Ext. 3525.

66 VW BUS - Excel cond, new muffler & brakes, clean throughout, buying new car. 744-2673.

73 MOTORCYCLE - 50cc, Jawa, 300 mi, like new. \$185. John, Ext. 3354.

TIRES - 5-15", 5-13", asstd cond. 475-0144.

TIRE - W/Chrysler rim, 13". Ext. 4172.

TONNEAU COVER - And frame for 71-75 jeep pickup 8' bed, \$35; pickup toolbox, \$35. 281-7485 after 5.

70 OPEL KADETTE - Moderate mi, good running cond, needs trans work. Cheryl, Ext. 4231, 584-6154 eves.

SNOW TIRES - On 15" Olds rims, Dunlop w/w, wide track belted, H70-15, practically new. \$25 each, firm. 941-4328.

65 FORD FAIRLANE - 6 cyl, std trans, new brakes, starter, clutch, batt & exhst sys, clean inside & out, very economical, low mi. \$350. 732-5829.

14" WHEELS - Chevy type, \$5/pr. Bob, Ext. 4652, 289-0357.

Boats & Marine Supplies

33' RICHARDSON - Sedan, sleeps 5+, galley, elec refrig, 185 hp, Chrysler. \$4700. Ext. 4254.

MORGAN SAIL BOAT - 22'. Ray, 661-4225.

FREE - Basket of parts for 12 hp West Bend outboard engine. Don, 286-1205.

18' TROJAN - Hardtop wood & props for 75 Johnson or Evinrude. Bill D., Ext. 4452, 581-0619.

ALCOHOL STOVE - Homestand, 2 burner, like new. \$50. McGeary, Ext. 4662.

15' SEA KING RUNABOUT - Steering, windshield w/ trailer. \$200. 581-0932 after 6.

TRAILER & MOTOR - 18' MFG fiberglass runabout, 68 40 hp Johnson Seahorse, trailer, \$350. Al Vitiello, 935-3560.

17' THOMPSON - 40 hp motor, navy top, many extras, good cond, \$450; util trailer, 500 lb capacity, \$50. 325-9567.

19' DORY - Cedar, oak, copper & well. \$250. Paul, Ext. 3277.

16' AQUAGLAS TRI-HULL - 50 hp Merc 73, galvanized trailer. \$1250. 588-5833.

32' BALTZER - Twin 125 hp Chrysler, camper back. \$4900. 331-1718.

12' ROWBOAT - Needs work. \$25 or best offer. 286-0384.

Miscellaneous

GARAGE DOOR - Metal, approx 8x7'. \$10. Ext. 4240, 286-0295.

WESTINGHOUSE REFRIG - Coppertone, frost-free, 16 cu ft, 3 yrs, excel cond. \$150. 732-7570.

CHAIN SAW - 12" Cox, left-handed, auto oiler A-1 cond. Bob, Ext. 4672, 929-4753.

AIR CONDITIONER - York, 5300 btu, 5.6 amps, under warranty, used 4 times. \$150. 665-5910.

MINI-BIKE FRAME - Just painted. Pete, 588-4766.

WEDDING GOWN - W/train, size 12, Victorian style, ecrv, worn once. 289-8459 after 5.

PERUVIAN GOLD WATCH BRACELET - Ext. 3280, 273-7931 after 5:30.

KITCHENETTE SET - 4 lg upholstered chairs, green & gold w/formica, octagon shaped, 60" w/leaf, custom-made. 0200. 281-9853 after 5:30.

GLASS DOORS - 72" opening sliding safety plate glass. \$100. 281-9853 after 5:30.

SKIS - 2 pair, complete w/bindings, 195 & 185 cm, used once, will exchange for 160 or 170 cm in good shape. Walt, Ext. 3256.

GIRLS' BIKE - 20" Columbia, excel cond. \$25. 286-3508 after 5.

GAS STOVE - White Welbilt, good cond. \$25. Marie, 588-5586.

MECHANIC'S CREEPER - \$4; Philco 8000 btu air conditioner; elec deep fryer w/basket, \$5; glass-top mason jars, 35¢ each. 286-2032.

ELEC HARDWARE - Switches, relays, industrial types, all or part, cheap. Ext. 4058, 286-0436.

AMER INDIAN JEWELRY - Zuni & Navajo, sterling silver & turquoise rings, earrings, bracelets, pendants, very reasonable. Marie, 588-5586.

STEP STOOL - Kitchen, \$2; ABA basketball & rim, \$7. 289-1754.

ELEC STOVE - 40", \$35; 3 living rm chairs, \$35 each; 8' commercial fluorescent ceiling fixtures, \$25 each. 423-7714.

BABY GRAND PIANO - And bench, Cable, good cond. \$800. Ext. 3427, 751-2403.

COMPLETE LIVING RM - Thomasville classic style w/ matching sofa, chairs, lamps, includes end, library, cocktail & round tables, excel cond. Ext. 3427, 751-2403.

PACHYSANDRA - Good ground cover, 50 plants for \$4. 744-5448.

CHESAPEAKE BAY RETRIEVER - AKC registered, 3 yr old male. 878-2799.

RUG - 6'x9' green braided, \$10; 4'x6' green rug w/ fringe, \$6; pair heavy Cannon green bedspreads, like new, \$6 each; tall colonial lamp, \$20. 473-1157.

20 GAL AQUARIUM - Filter, heater, light & wrought iron stand, \$40. 475-6938.

TYCO HO TRAINS - Used once. Orig \$40, sell \$20. 475-6938.

21" RCA COLOR TV - Needs picture tube; milk shake machine, \$5. Bob, Ext. 4652, 289-0357.

TV ANTENNA - Archer color eagle, VU 120, uhf/vhf, new, never used, specs avail, \$25. Bob, Ext. 3725 after 4 M-F.

MIMEOGRAPH - Gestetner electric, automatic. \$125. Ext. 4058, 286-0436.

PLUMBERS - Rigid rached stock from 1" to 2" thread #65. R. Emilie, 475-9406.

ELECTRONIC FLASH - Honeywell Strobosar 400. \$30 firm. Laurine, Ext. 2550.

TRAVEL TRAILER - 17', 1974 w/hitch & extras. \$3000. 666-7238.

OLD GE REFRIG - Freezer compartment needs work, chills fine, good shape for its age. \$20. 727-7724 eves.

WINDOW - 10' triple picture, s/s included, best offer; triple width floral drapes w/traverse, rod & hooks. 744-5553.

KITCHEN SET - Wooden table & 4 chairs. 878-2928 after 5:30.

BABY CARRIAGE - Green Bilt-rite coachette, good cond. \$25. Shelly, 732-0974.

BABY BACK PACK - Blue "Gerry Carrier," used once, excel cond. \$7. Shelly, 732-0974.

PROPANE GAS CYL - 20 lbs, \$20. J. Aggus, Ext. 4742.

73 PULLMAN TRAILER - 24' self-contained, sleeps 5, many extras. \$5700. Marie, Ext. 3155, 732-6137 eves.

ANTIQUUE STATUE - O. Booker, Ext. 4719.

SOFA BED - Handy person special, modern-type needs new pillows & upholstery, mattress in good cond. Shelly, 732-0974.

REFRIG - Frigidaire, 17 yrs old, 12 cu ft, good cond, \$25; traverse rods, 8' span, \$5; 6' span, \$3. 286-8256 5-7 p.m.

SKIS - Head Master, 190 cm, Look-Nevada bindings. \$40. Nauman, Ext. 3412, 286-3764 eves.

COLONIAL COUCH - W/cover, \$50; Kenmore washing machine, \$50; Sears portable dryer, \$50. 924-7193 after 4.

FREE FOR DIGGING - 6 roses of Sharon. Jack, Ext. 4592.

25" COLOR TV - Sears, lg colonial cabinet, picture tube weak, no vertical. \$45. Richie, Ext. 4254, 734-7342 after 6.

ICE CREAM MAKER - Salton elec, used only few times. \$12. 744-3744.

FLUORESCENT LIGHT - Fixture w/bulbs, 4', \$8; 3', \$6; 3 pr jeans, 32-31, \$3 each. 744-5871.

SWAG LAMP - Asstd small cabinets, baby scale, men's ice skates, size 11, women's size 5. 924-4442.

BATHROOM WALL SINK - Vitreous china, yellow, 19" w/hardware, good cond, \$15. Bob, 732-9517.

ALUM SCREEN DOOR - Good cond w/hardware, 30"x6'8" or 9", \$15. Bob, 732-9517.

RUPP MINI BIKE FRAME - And wheels, disc brakes & shocks. Danny, 588-5833.

TRAILER - Heavy duty, 4'x6' diamond plate bed. \$50. Artie, 744-7185.

TABLE SAW - Sm 8" on wheeled base, ¼ hp motor, switch, no blade. \$30. Bill Sanchez, Ext. 3354.

WASHING MACH - 3 cycle, 2 spd, 2 yrs old, Whirlpool. \$85. Ext. 3508, 878-1157.

Real Estate

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

For Sale

BROOKHAVEN HAMLET - 3 bedrm ranch, 2 baths, family rm, fireplace, full basement, fenced yard, wooded lot. 286-2032.

NORTHAMPTON - 3 bedrm, fenced yard, finished basement, very low taxes, private fresh water lake. \$25,000. 727-8052 after 5:30.

For Rent

MEDFORD - 3 room apt, furn or unfurn. \$225 includes util. Avail April 1. 475-8456.

ROOM - W/private entrance. \$25/wk. 475-0352 after 4.

5 ROOM APT - 5 min from Lab. \$200. 281-9412.

FURN RM FOR FEMALE - Share facilities, \$25/wk includes util. 727-9058.

Wanted

KITCHEN CABINETS - Fran, Ext. 4167.

MUSICIANS - Esp string players for Riverhead Comm Orch, practices Wed at 8 p.m. J. Wall, Ext. 3372.

HOME - For 4 yr old black male dog, part Lab, use to lg family, friendly, playful w/children. 732-7570.

CAMPBELL'S LABELS - Soup & bean needed by St. John School for gym mats. Send to F. Chandler, Bldg. T-89.

SCOPE - 15MHz Heath, Hewlett Packard, Philips, TechTronics. G. Hrabak, Bldg. 480, Ext. 3515.

PEOPLE - To share expenses to dental clinic in South Carolina. Ed Bihn, Ext. 3840.

VW BUS - Spare tire mount, service manuals for '72 bus & '67 Fastback fuel-injected. Ext. 2032, 286-3455.

FLEA MARKET DEALERS - Hempstead Amer Legion #390, April 27. Ext. 4216.

HOUSE OR APT - To rent or buy, 2 or 3 bedrm, unfurn only, for permanent occupancy beginning about July 1. Herb, Ext. 3851.

TABLE SAW - Good cond, reasonable. 744-8567 after 6.

AUTO RELATED LIT - Moton's, Chilton's repair & owner's manuals. Frank, 281-3460.

BOAT TRAILER - Good cond, w/suspension. Wayne, Ext. 3046.

HOME FOR PUPPY - Shepherd mix, intelligent, affectionate, happy pooch seeks happy home. 929-4526.

PROPANE GAS CYL - 10 lb. J. Aggus, Ext. 4742.

RHYTHM/LEAD GUITARIST - For serious heavy metal rock band in Miller Place area, must be serious. Chip, 744-2069.

PORTABLE TYPEWRITER - Good cond, reasonable. 286-3742.

BICYCLE - W/training wheels or big wheel trike for a 5 yr old boy. Kris, Ext. 3073.

HOME FOR DOG - Spayed female, beagle mix, good-natured, obedient, needs room to run. G. Schiro, Ext. 3743, 286-8234.

HOUSE/APT - To rent, sit/sublet, months of July & Aug or year-round, North shore. Carol, Ext. 2345, 928-2437 after 5:30.

Car Pools

PATCHOGUE VILLAGE - To lab, on time, riders share costs w/driver, one seat avail. Alyce, Ext. 2902.

MASSAPEQUA PARK AREA - To join or form 8:30-5:00. Al, Ext. 4216.

SHOREHAM - Warden Cliff Rd, form or join. Bob Meck, Ext. 3559.

Services

OAK FIREPLACE LOGS - Split & deliv, well seasoned. Ken, 289-8212.

TREE WORK - Exp, free estimates. Ken, 289-8212 eves.

AUTO REPAIRS - Good rates, tune-ups, brakes, all repairs. Ray, 878-2486.

GARDEN PLOWING & ROTOTILLING - Ken, 289-8212 eves.

CERAMIC TILE/CEMENT/TERRAZZO - Prof work, call for estimates. John, Ext. 2242, Donald, 281-8848.

FIREWOOD - All oak. \$55/cord. 924-4693.

HOME IMPROVEMENTS - All types, very reasonable. 924-4693.

GARDENS ROTOTILLED - Very reasonable; tree removal. 924-4693.

PAINTING - And wallpapering, call for free estimate. Bob, 698-7647.

AUTO BODY - Repairs & painting, good rates, free estimates. Bob, 698-7647.

MUSIC FOR ALL OCCASIONS - Anne, Ext. 3336.

ALTERATIONS & HEMS - Reasonable rates, Sharon, 924-5077.

MOTHER - Will love and care for your children in her home. Pat, 924-4496.

EXCEL TYPING - Manuscripts, theses, etc. Susan, Ext. 3609, 928-6082 after 5:30.

ROTOTILLING - Custom, lawns & gardens, free estimates. Bob, 732-9517.

ROTOTILLING - Gardens, no job too small. Holbrook, Sayville, Patchogue areas. 588-5833.

FLEA MARKET - New Field HS, Marshall Dr, Selden, April 13, 10-4, lots of electronic bargains. Ext. 3354.

PLUMBING HEATING ALTERATIONS - Repairs special for April, single lever kitchen faucet, labor & materials, \$40. 732-1913.

HAVE TRUCK - Odd jobs done, reasonable. 727-1329.

CHAIN SAW WORK - S. Brookhaven area, reasonable prices. 286-3377 after 6.

ROTOTILLING - Grow your own vegetables this year, reasonable prices. S. Brookhaven area. 286-3377 after 6.