

Some of those who were involved in the design, construction and operation of the 80" bubble chamber gather for a last look prior to the departure of the central core of the chamber which will be displayed at the Smithsonian Institution.

—photos by Reben

BNL Makes History At Smithsonian

Fifty years of atom smashing will be highlighted at the Museum of History and Technology at the Smithsonian Institution beginning in December. Artifacts from Brookhaven will be part of this big show which is expected to be in residence for the next five years, according to the Museum staff.

This exhibit of the growth of accelerator technology is a joint project of ERDA and the Smithsonian. About 50 people within the Smithsonian and personnel from ERDA's Division of Physical Research have been working for some time to replace and update the Atomic Energy Hall in the Museum of History and Technology.

The major item from BNL to be on display will be the 80" bubble chamber, minus its magnet and vacuum tank. This historic machine was conceived and designed by the members of Ralph Shutt's bubble chamber group. The first tracks were photographed in June 1963 and only six months later, the existence of the Omega-minus particle was confirmed in the chamber. When the program was ended in late 1974, nearly 12 million pictures were taken in the chamber during the course of 71 separate experiments.

After the departure of the apparatus last week, bound for Washington, Dr. Shutt had this to say:

"To see the central part of the 80" bubble chamber having been elected to continue its service in Washington, perhaps to educate or at least to entertain those that see it, should fill all of us who have contributed to its design, construction and operation, with a certain sense of satisfaction. After serving its purpose to produce many data for high energy physics for many years, it is not ending on the usual scrap heap. And, since it consists of stainless steel it will not even become rusty in its new atmosphere. While this piece of apparatus represents a small building stone in the history of our science, its selection for continued service is due to the efforts of the many technicians, designers, engineers, secretaries, physicists, administrators, architects, etc. who have made it a success."

A model of the 80" chamber which shows the complete assembly is also being sent to the Museum. Responsible for getting the model and the actual chamber ready for exhibition were Robert Louttit and Roger Baker, both of whom were in the Bubble Chamber group from the beginning. Louttit worked closely with Dr. Shutt and, in more recent years, took on overall responsibility for the chamber. Baker was for a

long time responsible for the mechanical operations of the chamber. Fred Vandervoort had the job of getting all the exhibits transported to Washington and helped clear the administrative underbrush.

A model of the Multi-particle Spectrometer (MPS), made under the supervision of Satoshi Ozaki, has also been sent to the Smithsonian. According to Alan Thorn-dike, coordinator of the BNL exhibits, the MPS has taken over the kinds of experiments that the 80" used to do. "To some degree, it's an electronic replacement for the bubble chamber," he says.

Also going to Washington is a working demonstration spark chamber which will show an active particle detector with cosmic rays recorded in it. The spark chamber is still at Brookhaven but will be sent in time for the exhibit opening.

A section of the Cosmotron magnet, similar to the one standing in front of the AGS, (Continued on page 2)

Van Steenberg Heads Light Source Project

Laboratory Director George Vineyard announced last week the appointment of Arie van Steenberg as Head of the National Synchrotron Light Source Construction Project. He will be in charge of the \$24 million facility and will manage the inter-departmental project staff.

According to van Steenberg, the immediate objectives for the project are to build up the staff to an adequate level for the detailed design and construction phase of the project, to finish and review the preliminary designs for the major elements of the synchrotron light source and to finish the basic concepts for the building and conventional facilities.

The basic accelerator storage ring aspects of the synchrotron light source were designed by Rena Chasman and the late G.K. Green, who developed structures inherently capable of very high synchrotron light brightness. When the basic design objectives are reached, approximately four years from now, this facility will be a forefront "dedicated" synchrotron light source. Regarding the X-ray ring it will be unique in the USA, and, with its many "beam" lines, will be capable of serving extensive research needs in the areas of solid state physics, chemistry, biology and miscellaneous technologies.

Van Steenberg comes to his new post directly from the ISABELLE project where, as a member of the parameter committee since late 1974, he has devoted his time to development work for Brookhaven's proposed intersecting storage accelerator.

A native of the Netherlands, he has been on the scientific staff of the Accelerator Department at Brookhaven since 1957. Although most of his education and early experience was obtained in the Netherlands, he received the Ph.D. degree in physics and mathematics from McGill University in Montreal and also spent three years there as a Research Associate before coming to Brookhaven.

His first work at the Laboratory was done on the development of high brightness ion sources and dc high voltage accelerators. As head of the BNL 50 MeV proton linear accelerator, his subsequent efforts were mainly concerned with the linac improvement programs. In 1965, van Steenberg was named Division Head of the Alternating Gradient Synchrotron Division, a position he held until he joined the ISABELLE group. In this capacity, he as-



Arie van Steenberg —photo by Rosen

sumed responsibility for the further development, studies and operation of the AGS.

He has interrupted his career at Brookhaven for two periods of research at other institutions. In 1967-68, as head of the Booster Synchrotron Section at Fermilab, he was involved with most of the basic design of the 8 GeV booster synchrotron. During 1975-76 he spent a year at the CERN 30 GeV p-p intersecting storage ring facility where he participated in the design of a 400 x 400 GeV² colliding p-p facility, studies which were relevant to his work on the ISABELLE project which he resumed on his return to Brookhaven.

Van Steenberg is a member of both the American Physical Society and the European Physical Society. He, his wife Jannie and their four children reside in Shoreham.

A Chance To Speak Up

Another series of Assertiveness Workshops conducted by Francine Berger has been scheduled. The workshop meetings will be held on October 21, 28 and November 4, from 1:00 - 2:00 p.m.

The employees who attended this program last spring felt it was a valuable and rewarding experience.

The objective of the workshop is to improve the participant's ability to communicate and interact with others, both on the job and in their personal lives.

This program is open to all employees, work permitting. Enrollment forms are available at the Personnel Office reception desk and must be completed by Wednesday, October 12. For information call Robert D'Angio.

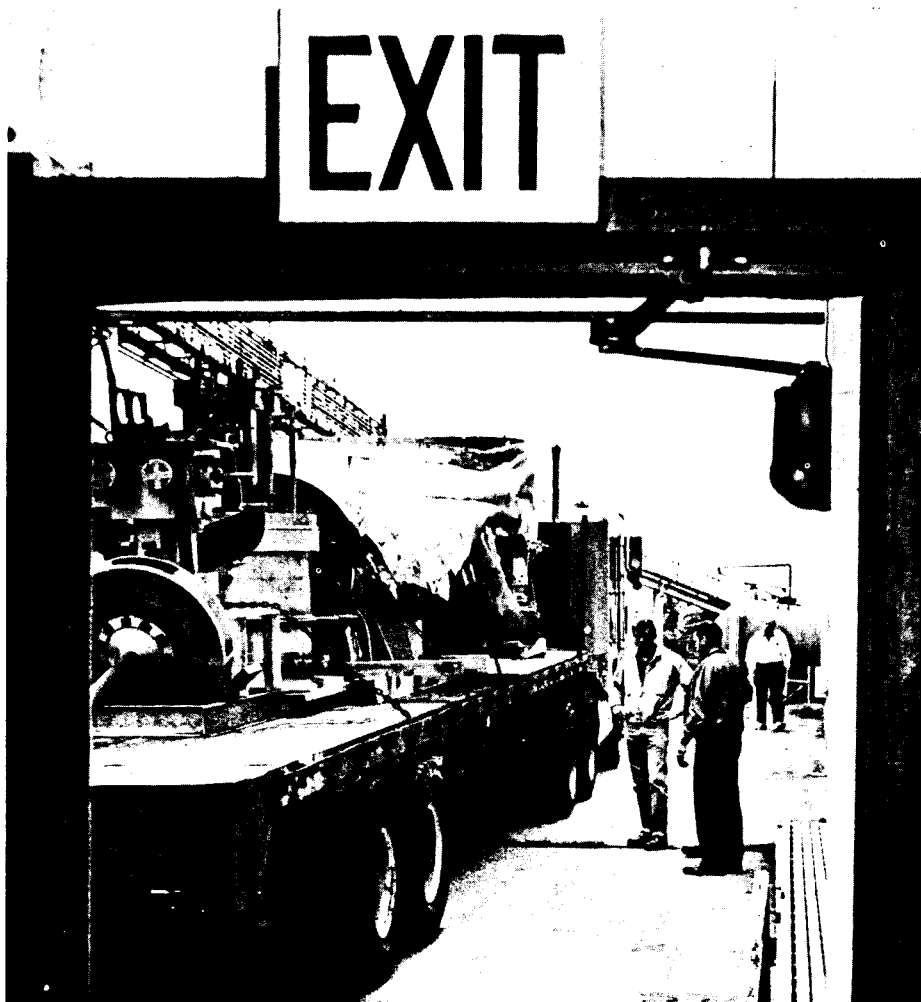
See It On Saturday

The crew at the High Flux Beam Reactor are opening up their doors again this Saturday, Oct. 1, as the special feature of the tour program. For those of you who missed it this summer, this is your last chance until next year. The HFBR tour includes a slide show, a guided tour to all levels of the building, a stop at an experimental setup and a look into the fuel storage canal.

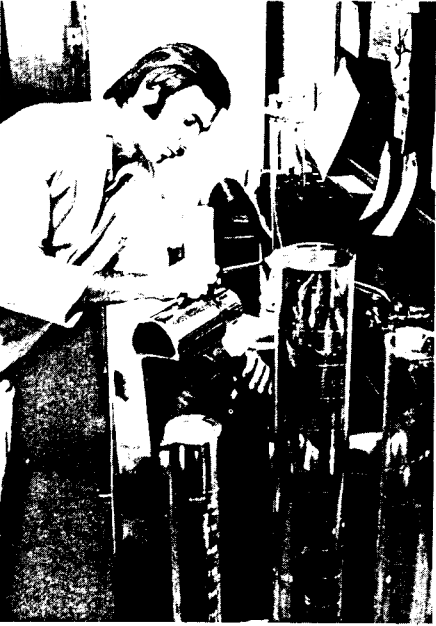
The tour program begins with a 15-minute slide presentation *Quest*. Visitors then board buses for the tour of the HFBR, a guided bus tour of the Lab site, and a stop at the Exhibit Center - BNL's showcase for research, past, present and future. The tours begin at 10 a.m. and the last tour leaves Berkner at 2:30. From start to finish the tour is about 2½ hours long. You can buy your lunch in the Cafeteria or picnic on the grounds.

Lecture Reminder

Max Small will present the 150th BNL Lecture, "Natural Waste Water Treatment Systems," Wednesday, October 5, at 8 p.m., in Berkner Hall.



Boning Up At BNL



Peter Wicki —photo by Reben

Peter Wicki is a Swiss medical student from the University of Zurich who has been working this summer in the Medical Department with Dr. Italo Zanzi whose specialty is metabolic diseases, including osteoporosis.

What is unusual is that Wicki does not plan to be a research physician. He expects to enter into the practice of family medicine and would like to have a greater knowledge of bone diseases than he can get in medical school. He hopes that, in time, he will take over his father's practice in a small town, about one-half hour's distance from Zurich. He says that, together with psychological problems, bone and muscle complaints are at the root of the troubles of about half his father's patients.

He had been looking for a place to go for his two-month elective period before entering his last year of medical school. By chance, he met Dr. Jean Laissue, a Swiss physician who left Brookhaven in August 1976 after spending four years here. Laissue suggested Brookhaven as a good place in which to learn more about his special interest.

This is Wicki's first exposure to a clinical research program and he feels he has a "good picture" of how it works. During the last two months he has seen with Dr. Zanzi some of his patients in the out-patient clinic and has helped with the research in other patients under study. In addition to his work here, he has spent considerable time in the Pathology Department of the State University at Stony Brook, observing their studies on bones and muscles, and has visited the Nassau County Medical Center on several occasions.

Wicki hasn't had enough time to compare American and Swiss hospitals, but he says there is a big difference in the opportunity to enter medical school. In Switzerland, anyone who has what is roughly equivalent to a bachelor's degree in the U.S., and wishes to study medicine, can do so. The applicants may not get into the school of their choice, but they will get into a school somewhere in the country.

At about age 20, the students enter medical school for a period of six years, which includes two years pre-med. A newly-minted physician may go directly into practice without interning in a hospital. But Wicki says this isn't generally the case. The average internship and residency in a hospital is from six to seven years. Then in his case another five years are required for the Family Board which will be his field. It adds up to a lot of years. "Yes," says Wicki somewhat wryly, "the goal is to finish your education before retiring."

It hasn't been all work and no play for him at BNL. He has done some traveling - from Boston to Washington, D.C. and he has found New York "a fascinating city." He leaves Brookhaven today to continue on the long road towards a career in medicine.

Hospitality News

A morning coffee will be held in the Brookhaven Center on Tuesday, October 11, from 9:30 to 11:30 a.m.

Please come and bring the children. Babysitting will be provided at no charge. It is suggested that you bring along a toy or two for your children to play with.

The Musical Season

BERA is proud to present another fine series of concerts. Today we are listing a "preview of coming attractions" and giving the dates for each concert. Make a note of them, and watch for future announcements.

The series will be opened by one of the most celebrated ensembles of our day. The Tokyo String Quartet, founded only in 1969, has already attained a level which invites comparisons to the Budapest Quartet, the Juilliard String Quartet and the Quartetto Italiano.

Martin Best, the 20th century troubadour, has been described as "musician, singer, actor, composer, young man with a pocket full of dreams." Like his predecessors, he tells his stories and sings his songs - to the accompaniment of lute and guitar - as he goes from place to place.

Neither flutist Paula Robison nor harpsichordist Kenneth Cooper need an intro-

duction to BNL listeners. This season we shall bring you the two together!

Ani Kavafian is a distinguished young violinist who has been the first recipient of the Philip H. Faucett String Prize of Young Concert Artists. As a result Ms. Kavafian will present a solo recital at Alice Tully Hall next spring. She is equally distinguished as a chamber music performer, and has performed for 3 summers at the Spoleto Festival and has participated in the Malboro Festival for several seasons.

The series will close with a piano recital by Agustin Anievas, who has played for a BNL audience once before. Mr. Anievas has become a popular performer on both sides of the Atlantic and in both hemispheres. This season he will give recitals in Europe in honor of Alfred Cortot, playing the 24 Chopin Etudes and 24 Chopin Preludes in several cities.

Concerts

Tokyo String Quartet
Martin Best
Paula Robison and
Kenneth Cooper
Ani Kavafian
Agustin Anievas

Wednesday, October 19
Tuesday, November 1
Wednesday, January 18

Friday, February 17
Wednesday, March 15

General admission \$4.00
Block of 5 or more purchased
at or before first concert (ea.) 3.00
Students and persons over 65 2.00
Persons under 18 1.00

Berkner Hall 8:30 p.m.

Arrivals & Departures

Arrivals

Gerald T. Bida.....Chemistry
Michael A. Brauner.....Plant Engrg.
Jean Logan.....Chemistry
Walter G. Parsons.....Ph. & Gr. Arts
Joseph E. Pasciak.....Applied Math.
Michael J. Rodgers.....Accelerator
Arthur B. Scott.....Applied Math.
Richard J. Tulipano.....Applied Math.

Departures

Frederick E. Boland.....Applied Science
Beverly T. Goldstein.....Director's Ofc.
Willy Lin.....Biology
Nikki C. McNally.....Personnel

NYC Train Trip

The Hospitality Committee is planning a group railroad trip to the city Wednesday, October 5. Departure will be at 8:32 a.m. from the Patchogue LIRR station. 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 11973, no later than Friday, September 30. Make checks payable to "Brookhaven National Laboratory." Your tickets will be given to you at the train station. Refunds will be made only if cancellations are received at least two days prior to the trip.

Retiring



Helen M. Browell, an Offices Services Assistant in the Business Office of the Physics Department, will retire today. She joined the Laboratory on May 13, 1963.

— photo by Rosen

Smithsonian Exhibits (Cont'd)

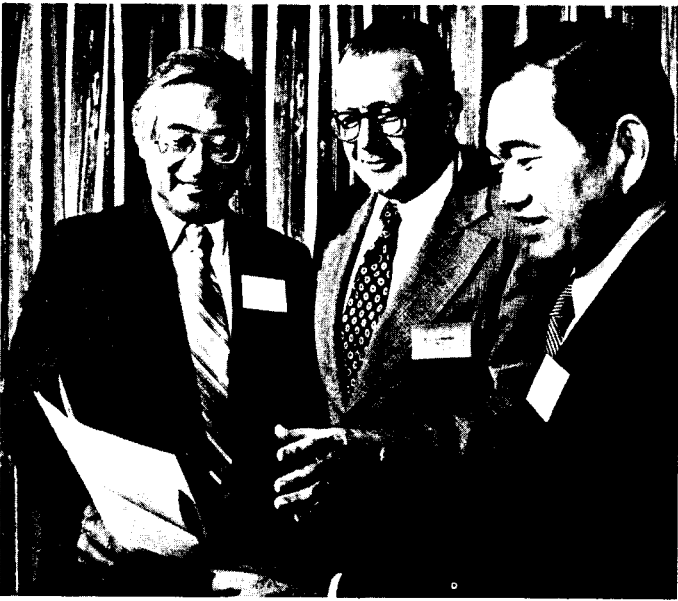
will also be housed in the Museum. Other items are Ernest Courant's notebook which gives some early calculations and equations relating to the strong focusing principle; drawings and photographs; and a small search coil which was used for early magnetic field measurements. And Per Dahl selected a one-meter long superconducting magnet built during the superconducting development program leading up to the ISABELLE design.

Many of the other national laboratories will contribute historical apparatus. The exhibition will range from reports and ideas that were only on paper 50 years ago, to the first cyclotron built at Berkeley in the early '30s down to the recent machines at Fermilab.

Now, in the historical sequence of things, ISABELLE is the most recent concept in accelerator technology. It will lead off the next 50 years.

Holiday Club Reminder
Note From the Bank

Bankers Trust advises that the last payment date for the 1977 Holiday Club is Tuesday, October 11, 1977. No payments will be accepted after Friday, October 14.



From left to right, Dr. Walter Y. Kato, Associate Chairman for Reactor Safety at BNL; Dr. Robert D. Schamberger, Chief, Gas Cooled Reactors Branch, Division of Reactor Safety Research, USNRC; and Dr. Kiyooki Taketani, Director, Division of Power Reactors, Japan Atomic Energy



Research Institute, meet during the Japan-U.S. Seminar on High Temperature Gas-Cooled Reactor Technology held here last week. At far right Lester G. Epel, HTGR Safety Division, discussed helium technology at BNL at one of the sessions.

—photos by Rosen

Japan-U.S. Seminar On HTGR Safety Technology

On September 15-16, the United States Nuclear Regulatory Commission sponsored the first Japan-U.S. Seminar on High Temperature Gas-Cooled Reactor (HTGR) Technology at Brookhaven. The meeting was attended by 26 Japanese scientists and about 30 scientists and engineers from U.S. affiliations concerned with HTGR safety. The two-day seminar consisted of two simultaneous sessions on seismic research and on helium technology. Papers presented at the seminar will be published as proceedings in BNL-NUREG-50689.

The HTGR, an advanced reactor concept, presently in the early stage of development, features high-temperature operation, a gas coolant, graphite moderator and

reflector, a highly enriched uranium-thorium fuel cycle, a prestressed concrete reactor vessel, and a homogeneous fuel with graphite structure. The high temperature feature of the HTGR inherently makes it attractive for process heat applications such as methane and steel production. The Japanese government is very interested in this application.

The sessions dealt with two areas of reactor safety under consideration. The HTGR core consists of a large number of graphite fuel blocks which present unique structural problems when the reactor is subjected to seismic excitation. Another area of work in safety research was summarized at the helium technology seminar.

Impurities in the helium coolant may cause deleterious effects after prolonged operation, which might lead to degradation of components.

The Japanese participants represented various large companies and agencies in that country, whereas the U.S. participants were from the Advisory Committee on Reactor Safeguards, Nuclear Regulatory Commission, Los Alamos Scientific Laboratory, Oak Ridge National Laboratory, several universities and industrial companies, as well as BNL. At the conclusion of the meeting, plans for the second Japan-U.S. seminar, to be held in Japan next year, were discussed.

BROOKHAVEN BULLETIN

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Help In Basic Math

A tutorial session in basic mathematics is being offered in Personnel under the Technician Training Program. The course will be given for the benefit of employees, who intend to begin college technical mathematics courses and need a refresher course in basic arithmetic, algebra, or geometry. For information call LeRoy Jefferson on Ext. 2884 on Tuesday or Wednesday.

More Hockey Tickets

The BERA Board takes great pleasure in announcing that four additional \$9.50 tickets for each of the Islanders home games will go on sale in the BERA Sales & Services Office on Monday, October 3, at 8:00 a.m.

A maximum of four tickets may be purchased at one time; however, there will be no restriction on the number of times one may get back on line to purchase additional tickets.

If there are tickets still remaining after Monday's sale, they will be sold with no restrictions.

According to an established BERA ticket sales policy, no refunds or exchanges will be made at the Sales & Services Office after a purchase is made.

Speakers Bureau October

October 12 - Max Small (DEE), Idle Hour Taxpayers Civic Council, Oakdale, on **BNL's Water Recharge Program**.

October 15 - Ken Hoffman (DEE), American Association of University Women, Setauket Presbyterian Church, on **Overview of the Energy Situation**.

October 19 - Leonard Hamilton (DEE), American Lung Association Conference, Buffalo, on **The National Energy Plan and Health**.

October 20 - Harry Davitian (DEE), Friends of Smithtown Library, on **Solar and Wind Energy**.

September Addendum:

September 1 - Gary Cottingham (Accel.), Center Moriches Rotary Club, on **Solar Energy**.

September 25 - Lew Jacobson (P.E.), Mt. Sinai Congregational Church, on **Conserving Energy at Home**.



Operators of the Daconics system at Word Processing have been in training for several weeks. The operators and the equipment they will handle are (left to right) Mary Wigger (editing terminal), Denise Warren (editing terminal), Maureen Stock (optical character recognition device) and Linda Ptashnik (shared logic unit). —photo by Reben

More On Daconics

The personnel of the Center have completed their training and all new word processing/text editing jobs have begun to flow into the Daconics Visual Type System. In addition, repetitive jobs which now reside on Redactron cassettes will be transferred to Daconics as they come up for revision.

Visual Type is a multi-station system. All stations share a central logic and memory unit and have instant access to more than 2000 pages of active text at any one time.

On October 17 at 10 a.m., a slide pre-

sentation, explaining all the features of Daconics will be given by personnel of the Xerox Corporation in the Hamilton Seminar Room of the Chemistry Building to all scientists, administrators and secretaries who wish to attend.

Beginning at 11:00 a.m., live demonstrations will be given at the Word Processing Center. Written invitations to both the slide presentation and one of the five live demonstrations will be mailed on September 30.

BERA Film Service Under New Management

The BERA Board wishes to announce that effective October 1, 1977, Mr. Pierre Clement and Mr. Michael Clement of the Bellport Camera Corner will take over as contract managers of film processing and sales of photo supplies at the BERA Sales & Services Office in Berkner Hall.

The present schedule of 11:00 a.m. to 3:00 p.m. Monday through Friday will remain in effect.

Bowling

Red League

Congratulations to Art Dick of the Sandbaggers (233 game, 271 gross) 599 scratch and 713 gross pins. His 199 average for the night enabled the Sandbaggers to take 8 points. Also, E. Jones had a 215 game.

A great match between the 76'ers and the Oldtimers, with the 76'ers coming out ahead 8-3. J. Scesny bowled 215/202, R. Larsen 226 (578 scratch) and J. Petro 213. J. Roesler bowled 207/200 and had 653 gross pins with R. Adams having a 210 game.

The Designers took 8 points led by A. Pinelli with a 202. The Anachems also took 8 for the night. The Freon Loaders took 7 from the Sparks while the Cosmos and Bubble Boys both were skunked (0-11) for the night.

Green League

Going into the second week, the Pick-Ups are in first place with a 11-0 romp over the Cosmos. The Blue Jays took eleven points to move into second. The Dyno-Mites won eight from the Trouble Shooters while A. White had a 205 game. The Pinball Wizards managed only four points with R. Egert having a 206. The Old Timers II squeezed out three points as N. Carciello rolled a 212.

Purple & White League

High games for the night were Caryl Mac Dougall 244, Joe Ferrante 233/201, Bob Fuchs 226, Ken Asselta 224, Roger Gileta 203, John Usher 200. High series was bowled by Ken Asselta with a 553 and Caryl Mac Dougall 589. A nice game was bowled by Liz Bull 199 (74 pins over average). The Alley-Oops did it again winning all points.

Pink League

The Gutter Getters are in first place after two weeks of bowling followed by the Pinsplitters.

Cafeteria Menu

Week Ending October 7, 1977

Monday, October 3

Cream of mushroom soup	
Chicken a la king on rice	1.10
Jamaican turnover & 1 veg.	1.30
Hot deli - pastrami	

Tuesday, October 4

French onion soup	
Chinese pepper steak on rice	1.25
Barbecued spare ribs & black eyed peas	1.35
Hot deli - sloppy joe	

Wednesday, October 5

Split pea soup	
Breaded flounder filet & fr.fr.	1.20
Hot deli - baked Virginia ham	

Special

Spaghetti w/meat sauce & garlic bread	
All you can eat	\$1.20 plus tax

Thursday, October 6

Cream of chicken soup	
Beef hash & 1 veg.	1.15
Veal parmigiana & 1 veg.	1.20
Hot deli - meatballs	

Friday, October 7

Manhattan clam chowder	
Broiled filet & 1 veg.	1.15
Meatloaf & 1 veg.	1.15
Hot deli - roast beef	

Runners' Corner

All of BNL's runners are reminded that our fall races will be held on Sunday morning, October 2. The 5-kilometer and the 10-kilometer races will begin at 10 a.m. and the 30-kilometer time trial at 8:45 a.m. Registration for each race, costing \$2 for adults and \$1 for children, will close 15 minutes before each run.

These races are open to all comers, and runners of all levels of ability are encouraged to enter. We expect Paul Fetcher, the current BNL 20-kilometer record holder, and Olympic veteran Nina Kuscik to enter the 10-kilometer race, and we anticipate that some runners will take twice as long as the winners. All are equally welcome.

The 30-kilometer event, is our new innovation planned as a **Fun Race** for our aspiring marathoners. Each entrant will estimate his finishing time, and the one who most closely predicts his finishing time, will be the winner.

Trophies will be awarded in 7 age categories to males and females in the 5 and 10 kilometer events, and to overall winners in all 3 events. Certificates will be awarded to all finishers and refreshments will be available at the finish line.

Football

Roga 45 - Chickens 0

No highlights available.

Slowpokes 26 - Quarks 19

Greg Donaldson, Fletcher Johnson, Bob Jansson and Dennis Nordstrom caught touchdown passes for the Slowpokes. Don Litcher (2) and Walt Reams scored touchdowns for the Quarks.

Tee Dees 33 - Sweathogs 6

John Bennett and Barry Lovett (2) each, and Bob Peck scored touchdowns for the Tee Dees. Bob Petricek scored the lone Sweathog TD on an interception.

September 24

Slowpokes 34 - Tee Dees 12

Fletcher Johnson, George Oldham and Bob Jansson (3) scored touchdowns for the Slowpokes. Barry Lovett and Bob Peck did the Tee Dee scoring.

Quarks 26 - Chickens 0

Walt Reams, Tom Petty and Don Litcher (2) scored touchdowns for the Quarks. Quarterback, John Polcha, played a fine game for the winners.

Roga 60 - Sweathogs 6

Everyone scored for Roga. Bob Petricek scored the 6 points for the Sweathogs.

Badminton

A badminton clinic for enthusiasts of the indoor sport is being considered as a prelude to the coming season. An informational meeting will be held Monday at 12 noon, October 3, in Room A at Berkner Hall. Participants should be in reasonable physical condition and expect to continue play through the year. Interested raquetees who cannot attend may contact John Elmore, Bldg. 490, Ext. 3626.

Mini Tour Schedule

Sat., Oct. 1	High Flux Beam Reactor
Sat., Oct. 8	Solar Energy
Sat., Oct. 15	Biology
Sat., Oct. 22	Safety and Envir. Protec.
Sat., Oct. 29	Physics

Classified Advertisements

Placement Notices

The Laboratory's placement policy is to select the best-qualified candidate for an available position, with consideration given to candidates in the following order of priority: (1) present employees within the department, with preference to those within the immediate work group; (2) present employees within the Laboratory as a whole; and (3) outside applicants.

Each week, the Personnel Office lists new personnel placement requisitions. The purpose of these listings is, first, to provide open placement information on all nonscientific staff positions; second, to give employees an opportunity to request consideration for themselves through Personnel; and, finally, for general recruiting purposes. Because of the priority preference policy stated above, each listing does not necessarily represent an opportunity for all candidates. As a guide to readers, the listings are grouped according to the anticipated area of recruitment, as indicated below. Except when operational needs require otherwise, positions will remain open for one week following publication date.

For further information regarding a placement listing, contact the Personnel Placement Supervisor, Ext. 2874 or 2882.

LABORATORY RECRUITMENT: Opportunity for present Laboratory employees.

332. SECRETARY - Requires excellent skills including tape transcription. Medical Department.

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

333. SENIOR PERSONNEL REPRESENTATIVE - Bachelor's Degree or equivalent with strong statistical and analytical skills. Requires the ability to interact well at all organizational levels. Background in compensation administration is desirable. Personnel Division.

334. REGISTERED NURSE - Regular evening shift, occasional holiday and weekend duty. Medical Dept.

335. TECHNICAL SPECIALIST - AAS or equivalent in electronic or electromechanical technology with extensive background in troubleshooting, repair, maintenance and operation of complex instrumentation used in biological research. Biology Department.

336. OFFICE SERVICES ASSISTANT - Requires a knowledge of general office procedures and good communications skills. Applied Science Department.

337. OFFICES SERVICES ASSISTANT - General service duties in support of scientific programs. Medical Department.

338. RESEARCH SERVICES ASSISTANT - Glassware washing. 8 month position. Medical Department.

339. TECHNICAL TRAINEE - High school graduate or equivalent with at least one year of vocational training in electronics. 6 month position. Accelerator Department.

Tennis

The women's tennis ladder ended September 19 with Wen Shi Yu and Carole Kerr competing for first place followed by Marge Stoeckel, Carolyn Eterno, Rita Kito and Georgia Irving in the top positions. For those interested in playing tennis and competing with new players, it was a good season and hope many of you will continue on the ladder next season.

The men's tennis ladder has completed another successful and enjoyable season, with 41 participants. The last two weeks were marked by many close matches as players tried for final positions. Harvey Goldman, Ed Platner, and Y.Y. Chu occupied the first three positions. A post season "fun" tournament will wind up the year for the top 16 contenders with matches to begin this week at participants' convenience. Congratulations to all look forward to more play and competition next year.

Classified Advertisements

Autos & Auto Supplies

70 PONTIAC - Catalina, ps/pb, new front radials, new water pump, new muffler system. Good cond. 582-6366 after 10 pm.

SNOW TIRES - L-78-15. \$30. 878-0897.

2 RIMS - 14" chrome reversed steel w/wide tires. \$20. Mike, 281-3460.

64 CHEVELLE WAGON - Blue, ps, good running cond. \$325. Jim, Ext. 4040, 289-0876.

TIRE ON RIM - 900x16.5 LT, Goodyear hi miler on Ford, 8-hole rim. \$50. 234-7225.

75 FORD PICKUP - F100, low mi, excel cond, am/fm 8-track stereo, incl cap, 6 cyl. \$3000. 727-5697.

73 MERC MONTEGO - V8, ac, new brakes, recently tuned, excel running cond. Asking \$1500, negotiable. Sara, 281-2095.

76 FORD VAN - V8, auto, ps/ac, am/fm cassette, capt chairs, finished interior. 399-0836.

ROOF BOX - W/canvas cover, snaps, to fit on roof racks. \$25. Ron, Ext. 4082.

66 TRIUMPH HERALD - Red convertible, excel cond in & out. Asking \$600. Sharon, 281-8893.

74 TOYOTA COROLLA - 35 mpg, excel running cond. Asking \$1500, negotiable. Sara, 281-2095.

70 HORNET - 2 dr, auto, 6 cyl, new brakes, snows, stereo tape, very good cond, 22 mpg. \$575. Richie, Ext. 4254, 734-7342.

4 RADIAL TIRES - GR78-15, steel belted, 2 good, 2 very good. \$55. Ext. 4701, ARI-2877 eves.

75 DATSUN PICKUP - \$2200. Ext. 3040.

72 CHEVY PICKUP - Luv, 38,000 mi, \$850. 589-9103.

69 CORVETTE - 48,000 mi, 2 tops, side exhaust, 4 spd, 427 eng, excel cond. 298-8537.

69 FORD GALAXIE - Good running cond, new front tires & water pump, ac, snow tires, must sell. \$600. Jean, Ext. 3817.

74 TOYOTA - Land Cruiser, 4 wh dr, am/fm, good cond. \$2500. 286-8758 after 5.

70 CHEVY WAGON - 9 pass, \$700. G. Raynor, Ext. 2268, 727-5194.

73 BUICK CENTURY - 39,000 mi, ps/pb/ac. \$2500. Dick, Ext. 4313.

68 CAMARO SS - New motor, clutch, exhaust & paint. Excel body. \$1200. 289-5544 after 5.

71 NOVA - 6 cyl, std trans, fm cassette stereo, very good cond. \$925. Ext. 4605.

65 FORD FALCON - Mech good, some rust. Asking \$350. LT9-2156.

HONDA 350 - Road & trail, 9000 mi, like new. 475-3792.

70 HORNET - 2 dr, good tires, std shift, 6 cyl, needs battery, body & eng good, 66,000 mi. \$500. Carl, Ext. 4615.

TIRES & RIMS - Most sizes, free installation & testing. Ext. 4597 or 475-4935 eves, Fred Usack.

69 PONTIAC - 6 cyl, 2 dr, spt coupe, auto, ps/ac, 2 new tires, snows on rims, good cond, clean. \$575, extras. Ext. 4459, 483-6118 eves.

71 HONDA - 450 cc, chopped custom seat & paint, sissy bar, 9000 mi. Tom, 325-1033.

65 PONTIAC CATALINA - V8, auto, ps/pb/ac, needs muffler, good transportation. \$150. 286-8119.

SNOW TIRES - Radial, 165 SR15 for VW, mounted on wheels. \$60 for pair. Carl Wingard, GR5-3717 after noon.

75 PONTIAC GRAN PRIX - L model, sunroof, velour int, fully loaded, am/fm stereo tape deck, Michelin radials. \$4475. 293-9090.

75 FIAT 128 - 2 dr, good cond, extras, \$1800. Andy, Ext. 3514, 286-8814 after 6.

69 CHEVY CAPRICE - V8, ac, am/fm radio, rear speaker, good cond. Best offer. 744-3399.

68 FORD FALCON WAGON - 6 cyl, new front brakes, new muffler & tail pipe, good cond. \$500. Ext. 3499, 929-6156.

68 FORD WAGON - 390 eng, very good running cond, new transmission, ac/radio. \$550. Ext. 4762.

68 AMC JAVELIN - Excel running cond, good mi, sound body, \$650. Ext. 2444, 473-3295.

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

76 SUZUKI RM 250 - Motorcross, never raced, very good cond. Asking \$800. Mike, 473-2608.

75 PORCHE 914 - 1.8 LT, 5 spd, excel cond, excel mech. Bob, 744- 8983, 473-5522.

72 YAMAHA - 650 cc, springer, chrome, extras, good cond, needs minor work. \$700. Rich, 727-7304.

68 HARLEY DAVIDSON - 1200 cc, completely customized, custom paint, much chrome, must see, excel cond. \$2650. 727-7304.

74 HARLEY DAVIDSON - 175 cc, road & trail, low mi, excel cond. \$400. Rich, 727-7304.

4 CRAGER MAGS - 15x7 & 15x10 w/G60-15 & L60-15 tires, excel cond. \$325. Rich, 727-7304.

75 SUZUKI 500 - Titan, blue w/sissy bar, mint cond, 11,000 mi. \$925. 727-2204.

CAP - Winnebago, paneled, insulated, fits all 8' jeep pickups, 63-77. \$175. Mitch, Ext. 3084.

75 MERC MARQUIS - Excel cond, ps/pb/ac, am/fm stereo, white w/wh vinyl top. Nick, Ext. 4810, 588-6417.

76 TOYOTA - Excel cond, am/fm stereo, ac, snows, owner leaving U.S. Best offer. Daniel, Ext. 2017.

70 FORD GALAXIE - Ps, low mi, good cond. Asking \$610. Ext. 3130/3998.

70 OLDS - Vista Cruiser, eng & body good, needs front left fender, etc. 9 passenger. 727-7761.

TWO TIRES - On rims, H78-15, fits Ford or Plymouth. Like new. \$30 ea. Ext. 3284.

Boats & Marine Supplies

GARVEY CLAM BOAT - 22 ft decked over, 18 gal inboard tank, teleflex steering, anchor, compass, good cond, 120 hp, new 76 powerhead. \$1350. 567-2871.

68 PACEMAKER - 30 ft, express cruiser, chrysler 210 hp, sleeps 6. \$6500. 363-6583.

ENGINE - 10 hp, Gold Jubilee, 1959 model, gas tank. \$125. Ext. 2028, 473-6063.

ROW BOAT - Wood, fiberglass bottom, 13', home-made trailer. \$75. Ext. 2028, 473-6063.

PLOW ANCHOR - With 12' galv chain. \$30. 286-9659.

Miscellaneous

CRAFT SALE - Oct. 1, 7, 2, 10 a.m. to 4 p.m. Hand-made items, Christmas crafts. 24 Lower Cross, Shoreham.

FURNITURE SALE - Oct. 1, 11 a.m. to 3 p.m., 149 Washington Dr, corner Neighborhood Rd in Mastic Beach, Charley, 281-5385.

GARAGE SALE - 3 families, Sept 30, Oct 1 & 2 from 10:00 to 4:00, 118 Peconic Ave, Medford.

GROUP YARD SALE - Sept 30 & Oct 1, Halsey Manor Rd, Manorville. Cameras, tools, glassware, etc.

TWO TICKETS - Rod Stewart concert, Madison Sq Garden, Thurs, Oct 20, 8 p.m. \$8.50 each. Jodie, Ext. 2003, 289-0152.

CEMENT MIXER - 2½ cu ft load, 4½ cu ft liq upright motor drive, on wheels. \$175. Ext. 2409.

FREE KITTENS - Hurry while there's still a selection. 732-3135.

TABLE TOP - Electric stove, 4 burner. \$30. 286-0570 after 5 p.m.

SOFA - 6', 2 cushion, good cond. \$50. 286-8229.

COLEMAN TENT - 9'x12', Delux Oasis. \$125. John, Ext. 3354.

DRUM SET - Nice cond, base, 2 snares, tom-tom cymbals, and upright. \$125. Ernie, 281-7873.

HEATH TRANSCEIVER - 2 meter, mint cond w/11 EL beam. \$75. 744-2725.

CONVERTER - 150-174, for car radio, \$12; panasonic tape recorder, no mike, works good, \$6. 744-2725.

FREE YOGA CLASSES - On site, shape up and learn to relax, Tues 5:15 p.m. - 6:45 p.m., Rec Hall. Contact Cecile Rideau, Ext. 3631.

BOWLING SHOES - Men's size 10EE, good, clean cond. \$4. 289-6490.

RANGE - GE, white, electric 220, fair cond, \$25; range, GE, coppertone, excel cond, \$100. 331-1203 after 5:30.

HEATH SWR METER - \$7; Gonset CB radio, 4 channel, \$8; Polytronic CB radio, 4 channel, \$6. 744-2725.

WET SUIT - Nylon II, long john, excel cond. Steve, 3395, 744-5083.

AIR CONDITIONER - Westinghouse, 1100 btu, 12A, good cond. \$50. Ext. 4449, 751-8403 after 6 p.m.

PICTURE WINDOW - Width 6' x 4' height. \$30. Chorzempa, Ext. 2957.

ARTIFICIAL FIREPLACE - 589-1069. Chuck, Ext. 3512.

DINING ROOM - 8 pc contemporary, all wood. \$265. 744-1821.

LIVING ROOM SET - Colonial, 3 pc w/slip covers, \$150; bistro set, \$30. 475-7464.

DUMBELLS - Two 18 lb, red/white, wrench incl. \$20. 281-8497 after 6 p.m.

DINING SET - Fr prov, 2 pc lighted china, oval table, 4 chairs, Basset built. \$350. 475-7464.

REFRIGERATOR - W/small freezer, \$40; small freezer, \$40. 475-7464.

JUKE BOX - 60-45's records, Wurletzer, \$425; modern couch & stuffed chair, \$75; single bed complete w/headboard, \$50. R. Tallon, Ext. 547.

TRUMPET - Excel cond, \$100; complete darkroom, Bogan. \$85. 929-4450.

BOW & ARROW - Good for beginner, target incl, 25 lb draw. \$10. Carolyn Eterno, Ext. 2446, 929-6172.

ACCORDIAN - Excelsior, 120 base, excel cond. \$200. Carolyn Eterno, Ext. 2446, 929-6172.

KENMORE GAS STOVE - Self cleaning oven plus eye level oven, coppertone, 30" w & 54" h. \$180 or best offer. Chuck, Ext. 4328, 473-6515.

SOFA - Tufted back, contemp, \$40; man size leather recliner, \$35; 3 prs red insulated 90" drapes, \$20. Kathi, Ext. 2907, 589-8410 eves.

MASON JARS - 1 doz qt size, never used, \$2; gilt framed mirror, 22 x 30, \$10; lg wicker dog bed, \$15. Kathi, Ext. 2907, 589-8410 eves.

ENGLISH SPRINGER SPANIELS - Puppies, only 3 left, full breed, no papers. 289-8212.

PIANO - Spinet, good cond. \$400. 744-5448 after 5 p.m.

LYMAN EASY LOADER - Shot shell, 12 & 20 gauge. \$35. 878-1895.

AKAI TAPE DECK - Reel to reel, internal speaker, portable. 878-1895.

8 FT CAP - Winnebago, insulated w/light. \$120. 878-1895.

PLANTS - Lily of the valley, 20 for \$1; evergreens (fir & spruce) 20' to 24', 2 for \$5. 727-1617.

POOL - Filters, ladders, used 2 mos, free if you dismantle; filters & ladders, \$135. George Meinken, Ext. 4460/4453.

APACHE POP-UP TRAILER - New canvas, sleeps, 4, set up for the beach, 13" rims and tires, extended axle. \$450 firm. 289-5380.

BICYCLE - Raleigh 3 spd, 24" wheels. \$30. Holyrod, Ext. 4331.

LUGGAGE RACK - Gutter mount, \$6; custom built, waterproof box for VW bus top, \$3. Kinsey, Ext. 2901.

GOLF CLUBS - Spaulding top flite irons, \$35; Spaulding Sam Snead woods one and three, \$15; set of 3 woods, \$15. Ext. 3121.

72 TENT CAMPER - Krown Kauiler, stove, heater, ice box, sleeps six, excel cond, many extras. \$1250. 928-1084.

COTTON DRESS - Long, fully lined, white w/blue paisley print, long sleeves, scooped neck w/ribbon belt, size 15-16. \$20. 286-0587 after 5:30 p.m.

BANJO - Harmony sovereign tenor w/case; new pitch pipe, strap, extra strings & beginner's lesson book. \$140 value, \$85 takes all. Ext. 3357.

TENNIS RACQUET - Davis Imperial, medium. \$22. Rudy, Ext. 3403.

CASSETTE RECORDER - Panasonic mini, used twice, like new. \$40. Ellen, Ext. 3725 after 4 p.m.

SLOW COOKER - Brand new, \$6; hutch, \$30. 744-9498 after 6 p.m.

REFRIGERATOR - Frigidaire, 5'10" high, 32" wide, small tables, books. 475-0918.

PIANO - Wurlitzer portable, electronic, vinyl case, excel cond. \$300. 929-8693 after 6 p.m.

BOY'S BICYCLE - Raleigh Mountie, 20" wheels. \$30. David, Ext. 3501, 286-8097.

COMB ALUM - S/s, fit 50½" x 32" opening, excel cond. \$15 each. Ext. 4851.

COAT - Lady's full length, size 14, persian lamb style w/mink collar, excel cond. Reasonable. Kristine, 281-7873.

COLONIAL COFFEE TABLE - \$17; end table, \$10; woman's bowling ball, \$8; old fashioned china closet, \$20. Kristine, 281-7873.

COAT - Girl's winter, never worn, size 14, rust w/hood and fur trim. \$20. Fred, Ext. 4095.

HOUSE PLANTS - Large selection, medium size and priced to sell, no plant over \$4. Noreen, 281-7873.

REFRIGERATOR - Large Westinghouse, frostless freezer. Ext. 3922.

71 TRAILER - Dutch Craft, 19' self contained, sleeps 6, shower, hot-cold water, heater, refrig, awning, new tires. 727-0367 after 5.

70 YELLOWSTONE CAMPER - 11½ ft, many accessories. \$1850. Walter, Ext. 3358, 732-1913.

CLOTHES WASHER - Westinghouse apt size, 5 yrs old, used little, needs minor repair. \$45. 929-4624.

LUGGAGE CARRIER - Auto top, steel, good cond. \$6. 929-4624.

FURNITURE - Chandelier, classical design, antique brass, \$5; alum s/s window, 28" x 55", \$7. 929-4624.

TV - B/w, 19" w/st, \$20; girl's bike, 20", \$10; swivel chair, \$10; corner table, \$5; elec stove, \$30. Vincent, 588-8492 after 5:30.

SNARE DRUM - W/st. \$10. A. Romano, Ext. 4024.

PACHYSANDRA - Good ground cover, 50 plants for \$5, 100 plants for \$9. 744-5448.

RING - Wide gold wedding band, never worn, size 6. \$35. Ext. 3514.

CHAIRS - 2 antique olive green fireside chairs, excel cond. \$65 pr. 265-1072.

SKIES - Ostryker 300, 205 cm, brand new, never drilled for bindings. \$25. Rich, 821-1148.

POP-UP CAMPER - Homemade, sleeps 6, sink & stove. \$150. 473-8749 after 6 p.m.

ENGLISH SPRINGER SPANIELS - Puppies, 9 wks old, full bred, no papers. \$25. 289-8212.

WINDOWS - Wood storm, 7 - 30" x 39", 2 - 28" x 39", 2 - 24" x 39", \$4 ea. 732-1298.

FURNITURE - 3 piece lr set, sectl, w/coffee table & end table. Frank, 475-8187.

WOOD SCREENS - 7 - 30" x 39", 2 - 28" x 39", 2 - 24" x 51", 1 - 24" x 39". \$3 ea. 732-1298.

STORM DOOR - Alum, 30" x 78", ping-pong table, # bowling ball, guntype oil burner. Ralph, Ext. 2485.

'76 COLEMAN CAMPER - Pop-up, slps 6, stove, ice box, heater used 3 times, excel cond, awning incl. Ellie, Ext. 2970, 369-2526 eves.

BREEDING CANARIES - 298-8956 after 4 p.m.

JUVENILE FURNITURE - 8 drawer dbl dresser w/ infant changing platform on top, 4 drwr single dresser, good cond. \$45 for both. Dick, Ext. 3860.

ELECTRIC BROILER - Brand new, never used, toast-master. \$13. Rosalie, Ext. 3160.

COFFEE MAKER - 10 cup, like Mr Coffee, brand new, \$15; 10 speed Sunbeam blender, never used, \$17. Angie, Ext. 3160.

SMALL APPLIANCES - Very reasonable, hairblowers, slow cookers, Corning, Corell, etc. Angie, Ext. 3160.

STAMPS - US, UN, Vatican and others, ½ of catalog. 281-9020 after 6 p.m.

CHAIRS - 2 high-backed caned arm chairs, off white, \$50 pr; med club chair, gold, \$35; all excel cond. Jack, Ext. 2907.

MATTRESS - Full size & box spring, \$75; 8000 btu air cond, \$70; kitchen table, \$5. Sara, 281-2095.

TV - B/w, \$75; 8 servings stoneware, \$10; Kodak Instamatic camera, \$10. Sara, 281-2095.

ADDING MACHINES - Elec, all types. \$25. Bob, Ext. 4636, 289-0357.

SANDER - Belt & disc, walker-turner w/stand. \$100. W. Lundergren, Ext. 3800, 585-3794.

FURNITURE - Early Amer dining rm set, hutch, 2 capt chairs, 4 reg chairs. \$850. 744-9343.

RCA TV - B/w, 21" w/remote control, needs work. \$15. 281-7844.

TWIN BED SET - Maple, mirrors, upright freezer, boudoir chairs, chandeliers, lamps, sewing machine. 286-0376.

COLOR TV - 25", console w/stereo, am/fm radio & phono. Ext. 3130, Ext. 3998.

MATTRESS - And box springs for dbl bed, 2 twin size headboards (Fren pro), 2 hollywood bed frames. 744-0979.

SOFA - 7' contemp, excel cond, must sell. \$150. 567-2917 after 6 p.m.

DISHWASHER - Sears portable w/butcherblock top, good cond. \$100. Pat, Ext. 2064, 722-3863.

72 TRAILER - 21' Dutch Craft, low mileage, excel cond. \$3000. Trudi, Ext. 3058.

BOY'S CLOTHING - Navy wool blazer, brown vest, white baseball jacket, almost new, size 10-12. Best offer. 286-3742 eves, wkends.

ADDING MACHINE - Frieden, elec, paper tape, fast ten key type. Asking \$50. Ext. 4058, 286-0436.

GALVANIZED CHAIN - ¾", new, unused. \$1.50/ft. Ext. 4058, 286-0463.

LAWN MOWER - 21" Craftsman reel, eager 1 engine, good cond. Ext. 2113.

BICYCLE - Boy's 20" Ross Polo, good cond. \$25. Ext. 4045, 289-5770.

PACHINKO NISHIJIN - Record from Japan, excel cond. \$45. 289-5770.

PRESSURE COOKER CANNER - Cast alum. \$8.50. 727-1617.

EVERGREENS - 29" to 24", spruce & fir. Two for \$5. 727-1617.

FLUTE - Armstrong model 104, excel cond, ideal for student. \$100. Ron Manning, Ext. 3887, 286-0353.

CHINA CLOSET - Maple, w/server, hollywood bed, blond 4 drw dresser. 363-6845.

