

# The Village Courier

 national accelerator laboratory

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## PROGRESS ON ACCELERATOR STUDIES - BETWEEN JANUARY 31 AND FEBRUARY 4TH

Bending and quadrupole magnets were wired into series during the first part of the week to improve tracking. Acceleration to energies three times greater than transition was achieved. Attempts to accelerate to higher energies are continuing.

### MAIN RING GROUP PREPARING FOR FIRST NAL EXPERIMENT

The excitement of the final stages of bringing the NAL accelerator into operation is almost equaled by the suspense of waiting to start the first experiment on the machine. And NAL has a group of men who are working on both fascinating aspects of high energy physics at the same time.

The group includes Ernie Malamud, Ryuji Yamada, Dick Carrigan, Bruce Strauss, Jim Klen, and a group of NAL technicians. They are part of a larger group that is preparing Experiment Number 36, titled, "Small Angle Proton-Proton Scattering," which includes men from three other institutions -- Rockefeller University, New York City; the University of Rochester, Rochester, N. Y.; and the Joint Institute for Nuclear Research in Dubna. Experiment 36 will be the first to be performed at NAL.

The first phase of the experiment will employ a tiny rotating "target" of polyethelene film .0001 inches thick. The target is now installed and spinning just under the beam pipe in the tunnel below Service Building C-0. It will be lifted into the beam line by an electric motor when beam is made available to the experimenters.

A vacuum can slants up at an angle from the target installation to several small counters in the C-0 building corridor. The slant angle was chosen so that the maintenance crew's golf carts could pass freely under the vacuum chamber without the riders having to duck their heads. The results that occur when the target is struck by the Main Ring proton beam will be gathered on a computer in the building above and then measured, studied, and evaluated by the men.

Proton-proton scattering is considered a "simple" experiment. The process is somewhat analogous to a "billiard ball collision." The original proton strikes the target and scatters in a manner quite similar to a grazing collision of two billiard balls. One proton recoils almost perpendicular to the beam line just as the target billiard ball does. The characteristics of the proton (the ball) become clearer; the angles and distribution of the recoils

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....(L to R) Physicists E. Malamud and R. Yamada are involved both in Main Ring operations and in Experiment 36....



....(L to R) Tony Rader, Richard Applegate and Jack Johnson preparing the nitrogen shield for the long liquid helium transfer line....



...Jim Klen checking status of vacuum system...



...(L to R) Bruce Strauss, Jim Klen & Ed Podschewit testing flexible helium transfer line.



...Steve Olson at the PDP 11 computer which will gather data for Experiment 36...

Photos by Tim Fielding, NAL

give clues to the shape of the proton. One of the prime advantages of using the Main Ring is that the experiment can be carried out as the machine accelerates and data can be taken at all energies during a single machine pulse.

Physicists Malamud and Yamada are attached to the NAL Accelerator Section. Both have been deeply involved for many months in the design, construction and commissioning of the accelerator. Their work in the Main Ring led to their interest in the possibility of utilizing it directly for experiments. Their expertise brings to the experimental group the distinct advantage of knowing the temperament of the giant machine, for they have both spent many hours at the Main Ring control console in the course of bringing the machine into operation.

Strauss, a metallurgist, is also a cryogenic specialist and familiar with engineering problems in the Main Ring. Jim Klen and the technicians bring installation know-how to the effort, having lived with the vacuum system of the Main Ring since construction began.

When the NAL group changes hats and moves from construction headquarters to the Experiment 36 location, they go to Service Building C-0 on the Main Ring Road. There they join Steve Olson, a physicist from Rockefeller who has been on site since June of 1971, working on construction of the experimental equipment, I Hung Chiang, physicist, and Dan Gross, graduate student, both from Rochester. Chiang and Gross are planning and building the electronic equipment that is part of the experimental apparatus.

The second phase of Experiment 36 substitutes a hydrogen gas jet for the foil target. Equipment for this phase will be installed in the beam line just ahead of the foil target. The results obtained when the proton beam strikes the gas jet will then be studied by the group. But this activity involves much more complicated equipment. To keep the gas from seeping into the Main Ring vacuum chambers after it has performed its function as a target, it must be frozen by allowing it to strike a helium-coated plate at the base of the apparatus. The frozen gas becomes a solid "chunk of ice" which at intervals will be raised out of the apparatus and recycled. The second phase of Experiment 36 will be carried out with the Dubna collaborators who have pioneered this technique.

Thus, the NAL Main Ring is the stage on which a major physics drama will be played. The exhilaration of watching the new machine operate and the satisfaction of providing for the first experiment on it, will provide the plot and the action.

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NALWINGS...Will present a program on air safety on Thursday, February 24th at 5:30 p.m. at the Village Barn. At this same meeting, a free ground school will be organized. Two films on air safety will be shown (one includes two examples of aircraft accidents), and Mr. John Hunt of the F.A.A. will give an illustrated talk on Spatial Disorientation (Vertigo). Anyone interested in flying is welcome to attend. Call Tony Frelo, Ext. 349, for further information.

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#### MAROFKSKE NAMED TO AURORA COLLEGE COMMITTEE

Charles F. Marofske, NAL Personnel Manager, was among selected business and industrial leaders who met at Aurora College, Monday, January 24, to discuss current college programs and suggest new programs to meet industry's needs.

A March meeting date has also been set to review the discussion and to provide an opportunity for revisions or new program suggestions by businessmen. Members of the group include (L to R) Seated, Roy Crews, Aurora College Evening Program Director; R. Mickelson, representing Western Electric Co.; and Bob Enderle of Bell Indian Hill Laboratories; Standing, George Allen, Henry Pratt Co.; Marofske, NAL; and Richard Pugh, Vendo Co. Also attending were Donald Savage, Caterpillar Tractor Co.; and Osmund Orland, Orland Stevens Engineering Co.



Photo by Aurora College

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#### "FROSTY FROLICS" FEATURED AT THE FORMER PHILLIPS FARM

An attempt is being made by NALREC to feature an ice skating party for all NAL, DUSAF and AEC employees and their families on Saturday, February 19 from 2 to 5 p.m. We say "attempt" because the winter weather is so unpredictable that it is almost impossible to plan an event that is so dependent on climatic conditions. Let's hope for the best for this one! There will be a bonfire where skaters can warm themselves and also roast hot dogs and marshmallows. Food will be provided FREE; everyone is asked to bring his own roasting fork. Hot chocolate and coffee will also be served. For those who tire of skating there will be hay wagon rides.

The party will be held at the pond behind the DUSAF complex, sometimes referred to as the Phillips Farm. It is best reached by taking Road B off Wilson Road, watch for DUSAF signs. If you're in doubt, check a site map before the date. For further information, contact Eric Jarzab, Personnel, Ext. 396.

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#### EEO AT AURORA CAREER DAY

NAL's EEO Office will participate in Career Day at East Aurora High School on Thursday, February 10th, sponsored by a newly-formed organization of black business and professional men and women. Thirteen areas of business, industrial and education will have representatives available to talk to students, answer questions, and distribute information. The objective will be to inform all students of the many opportunities available in the area as well as provide information for the college bound student.

NAL's EEO program will be presented by Warren Cannon of EEO and other selected employees from various NAL sections.

#### CLASSIC FRENCH FILM TO BE SHOWN ON FEB. 20TH

A French film, considered a screen classic, titled "Atalante," will be shown by the NAL Film Society at 7:30 p.m. on Sunday, February 20, in the Village Barn. Admission is \$1.00.

This film was directed by Jean Vigo in 1934. Vigo, a most promising director, died when he was 29. In "Atalante" he pioneered techniques that are now accepted by avant-garde film makers. Among these was establishing character by closeups and by dwelling on faces.

The plot deals with the problems a young Normandy wife finds adapting to the life of her bargeman husband.

Beautiful photography!

NEWS FROM NALWO - Barbara Lach, Editor

(NALWO husbands, please take this issue home to your wife!)

ACTIVITY GROUPS MEETING IN FEBRUARY:

BRIDGE - Such a good time was had at last month's meeting that we're hopeful more will join in this time. The next meeting will be Thursday, February 17th at the White Farm. For further information, call Mary Fray, 232-0724.

CERAMICS - This group meets on Fridays from 11:00 a.m. to 3:00 p.m. at the White Farm. If interested, call Joan Sculli, 355-4109.

GOURMET - The next dinner will be held at 7:30 p.m. on Saturday, February 26 in the home of Marilyn and John Dinkel, 35 Croydon Lane in Oakbrook. It will be a Greek dinner with reservations for only ten couples. Please call Mary Ann Ryk, 968-8651 or Mary Lou Satti, 355-4430, for recipes by February 21.

PHOTOGRAPHY - Equipment and space is available at the White Farm. If interested, call Joan Sculli, 355-4109.

PLAYGROUP - The Playgroup children are looking for new friends to share their crayons, paint and paste. Bring your young one to the White Farm on Eola Road to see the kids in action and to find out what it's all about. Our made-to-order program has something for everyone! Call Ann Gordon, 393-9144, to arrange a visit. All families of employees and visitors are welcome.

SING-A-LONG - The group will meet on Friday, February 18 at 8:30 p.m. at the Laukant's in Wheaton. For directions, call Herta Laukant, 665-0439.

NEEDED: VOLUNTEERS - The Occupational Therapy Group of the DuPage County Convalescent Home in Wheaton needs volunteers to assist in the craft projects of the residents. Even if you have just an hour or two available, you would be most welcome. For further information, call Jane Mann, 584-8414.

Members of the Craft Group are already contributing services. They appeal to all NAL people to help them collect the following items for use in projects at the home: nylon stockings, fabric scraps, yarn pieces, used jewelry, big 46 oz. juice cans, spools, cigar boxes, plastic bottles, cancelled stamps, wood scraps. A collection box for these items is located in the Visitor's Center-Housing Office at 33 Shabbona.

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YOU & YOUR CREDIT UNION: A NEW BENEFIT DUE TO THE NEW EDP\* (\*Electronic Data Processing)

Many borrowers pay back their loans weekly. With the EDP, these payments are credited weekly. This means they are effectively paying back "faster", and hence, they should pay less "interest". This is indeed the case. Many borrowers will soon find out they are paying 50¢-70¢ less per month on credit costs. This is YOUR CREDIT UNION helping YOU.

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CLASSIFIED ADS

FOR SALE - Parts for 1969 Honda, CB 350.  
Call Darrell, Ext. 575.

FOR SALE - 1962 Buick Special Convertible. Needs repairs. Make any offer. Call Marilyn, Ext. 205.

FOR SALE - 250 Riverside 1968 motorcycle, 20 HP, 1 cyl. \$70 or make offer. Call Harry McQuinn, Ext. 555 or 879-2271.

FOR SALE - Baby Scale, like new, \$4; Cosco jump chair/recliner, \$5. Call Barb, 815-725-1258.

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