


The Village Courier

 national accelerator laboratory

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PROGRESS REPORT FOR JANUARY, 1973

During the month of January, in the course of a successful high energy physics run, an integrated exposure of 10^{17} protons was reached. The first beam splitting station was initially tested on Saturday, January 6. Injection of twelve Booster pulses for each Main Ring pulse is now a regular mode of operation. The accelerator has run consistently at 1.8×10^{12} protons per pulse at 300 BeV.

SWITCHYARD GROUP READIES 3-WAY SPLIT

The Switchyard group in NAL's Accelerator Section is never satisfied with the status. The latest of the modifications to improve operations of the accelerator, which are this group's responsibility, was tested On January 6, 1973. The first "splitting station" in the beam transport line successfully "sliced" the beam coming from the accelerator, sending 25% of it to the Proton experimental area and 75% to the neutrino experimental area, at the same time. The test run activated the first of two new splitting stations. The second station was installed during the week of January 28, 150 feet farther from the accelerator on the transport line, adding the Meson Area to the new arrangement and resulting now in a 3-way split capability. Station #2 is being tested in current operations. Further tuning of the new apparatus, together with related alignment work, will continue for several weeks.

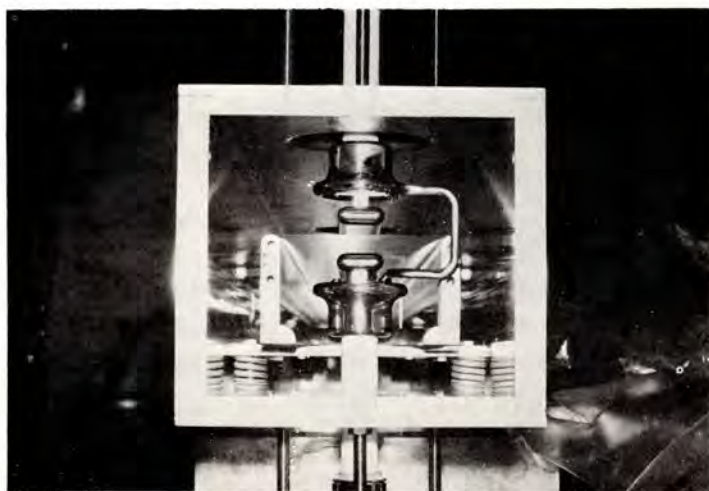
"We must still try for perfect splitting," says Les Oleksiuk, who led the January effort in the Switchyard group, "so as to not disturb beam trajectory. We want to cut the beam neatly and cleanly without affecting the beam spot."

Many Switchyard staff members have been involved in the splitting station work. Claus Rode and Leon Bartelson have handled cabling and control electronics; Les Oleksiuk was responsible for layout and beam optical design. Gene Fisk and Fred Hornstra worked on beam diagnostics and loss monitor. Design parameters of the Lambertson magnets were the results of a collaboration

(Continued on Page 2)



...This device now installed in the beam transport line, is vital to the new beam splitting technique. It was built by NAL's Magnet Fabrication group...



...A close-up of the new Lambertson Septum which accomplishes beam splitting...

SWITCHYARD'S 3-WAY SPLIT (continued)

of Rode and Oleksiuk; Ed Bleser and Dick Andrews supervised the wire septum modules. Under Andrews' direction, Richard Krull and Butch Bianchi built, tested, and assembled the wire splitter.

Two basic components accomplish the splitting action. The first is an electrostatic wire septum, composed of a 10 ft. array of parallel, hair-like, stretched tungsten wires surrounded on each side by strong electric fields. When the beam encounters this device, an effect similar to the peeling of an orange results -- the tiny 2/1000" wires act like a knife edge, and the diverging electric fields provide the necessary wedging action to separate the beam into two distinct portions. There are now four-10 ft. wire septa installed in the Switchyard complex, two in each of the splitting stations.

Once the beam is split into two portions, each portion goes in a different direction. A further splitting is accomplished by a special "Lambertson Septum" magnet, designed and built by the NAL Magnet Fabrication group under Will Hansen. This device provides a magnetic deflecting kick to one of the split portions of the beam, while simultaneously shielding the second portion from this deflecting force. In this way, a very strong "parting of the ways" occurs between the two beams; about 1/2 degree in angle. From then on, each split portion acts like a distinct beam handled with the usual type of bending and focusing magnets.

A special array of small bending magnets is used to "bump" the original beam on to the wire splitters; varying this "bump" allows varying the splitting ratio between any two experimental areas. The needs of different experiments vary greatly. Some need many protons (high intensity) with high energy, such as neutrino experiments. Others need less intensity of less energy. The more experiments that can be accommodated at one time, the more experimental work can be accomplished. In a sense, the duty factor of the machine is increased by 200% with the activation of the beam splitting feature since three experiment lines can operate at once, instead of one at a time.

Future splitting stations are being designed for the Proton Experimental Area, and are also contemplated for the Neutrino targeting areas.

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MARCH ART SHOW PLANNED

There is only one month left to prepare your entries for the 1973 NALREC Art and Crafts Show. Denise Augustine, NALREC Chairman of the event, is distributing applications for show displays. All types of arts, crafts and hobbies are eligible and are invited. NALREC's "Barnstormers," model airplane club, will be among those exhibiting their handcraft. Previous shows have brought out many unusual, splendid talents. NAL, DUSAF, B & H Janitorial, and Advance Security employees and their family members are all urged to participate.

For further details, call Denise Augustine, Bubble Chamber Section, Ext. 3791. She must know in advance of your interest in order to arrange accommodations for your display.

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NAL INTERNATIONAL FILM SOCIETY PRESENTS
D.W. Griffith's "Intolerance"
Friday, February 9 - 8 p.m.
Village Barn

One of the greatest spectacles ever filmed, "Intolerance" is composed of four different intersecting episodes, depicting prejudice and cruelty through the ages. One of the most influential silent films ever made, this is a picture for the whole family to see at least once.

Stars of "Intolerance" include such names as Lillian Gish, Mae March, Monte Blue, Bessie Love, Erich Von Stroheim, Constance Talmadge and Eugene Pallette.

The short "New York Hat" with Mary Pickford and Lionel Barrymore will be also be on the program.

Admission is \$1.00. Employees, visitors and their guests are

!!! WELCOME !!!

AEC AREA OFFICE NOTES
(Reported by Minerva H. Sanders)

JOHN RYAN, STRUCTURAL ENGINEER AT AO, RETIRES!!

Yes, it's true - John, after completing more than 37 years of dedicated service with the government has pushed aside his drawings, cleared off his desk, and just plans to take it easy. To wish him success on his endeavor, approximately 85 friends and associates (from AO, NAL, ANL, DUSAF, and retirees), gathered at the Midwest Country Club in Oakbrook on January 26 to extend their best wishes. Seated at the head table with John and his lovely wife Bernice, were Fred C. Mattmueller, Area Manager; Andrew E. Mravca, Deputy Area Manager, and Loretta Miller, who served as John's secretary in the Area Office.



...John and Bernice Ryan...

Highlight of the luncheon was a presentation by F. Mattmueller of a congratulatory letter to John from Robert H. Bauer, Manager, Chicago Headquarters of the AEC, and an AEC plaque in recognition and appreciation of John's successful completion of 37 years of government service, 22 of which was spent with the Commission. Mr. Bauer's letter stated in part, "I would like you to know that I feel very fortunate in having had you as a member of the Batavia Area Office since the inception of the National Accelerator Laboratory. You did much in working with personnel from NAL and DUSAF, to bring to their attention and understanding the policies and procedures of the Commission relating to engineering and construction. Your willingness and capability to successfully accomplish this, as well as inspire others of the Commission staff, have been well demonstrated. You have contributed much to the success of the project and to the distinction it now holds."



...Bill Olach, look good considering...

Also as mementoes from his many friends, John was presented with a digital clock radio, a two-suit, a cross-section of the bending magnet, and a wooden NAL logo by A. Mravca. We wish the very best of success for John and Bernice and their family.

Our sympathy is extended to Ron Zeitler on the death of his brother-in-law...We are happy to report that William Olach, our contract specialist is back on the job with us full time. Through an oversight of one of the secretaries (wonder which one?), we celebrated Bill's birthday in January although his birthday isn't until February 17. Bill thought his doctors had told us something he didn't know.

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NAL NEIGHBORS SEEK HELP WITH PROJECT

The sale of paper "Adobe Bricks" is the biggest single project that students at West Chicago Junior High School, located at 238 E. Hazel Ave., have ever undertaken, but then, building a school is a big job. Purpose of selling the "bricks" at 50¢ each, is to collect at least \$1200 by the 16th of February, so that in far away Guatemala, a school can be built where there has never been a school before. The bricks, each encribed with the name of the purchaser are being laid on the walls of the school cafeteria. Everybody keeps track of construction progress that way. Students are selling bricks to everyone they can, and they are also conducting projects that will bring in more money for brick purchases...This is to be "their school," but they will gladly sell bricks to anyone who would like to join in with them on the project.



...(L-R) Steve Dempsey, Ralph Siddell, and Chuck Baehr lay paper bricks to build a school in Guatemala...

A "Guatemalan Supper" in the School's Cafeteria is planned for Saturday, February 10 from 4 to 7 p.m., complete with native music. Tickets are \$1.25 for adults, 75¢ for children, available in advance and at the door.

Duane Thayer, Principal of West Chicago Jr. High escorted Joe Lach, NAL Physicist and resident of West Chicago, on a short tour of the construction project. They both agreed that the energetic campaign being conducted is nothing short of fantastic!

For further information, call the West Chicago Junior High School, 231-3350, Mr. Ray Kobald.

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(Photo courtesy, Aurora Beacon News)

IN THE NAL AREA...

Second City, the oldest existing satirical theater group in the U.S., will appear on North Central College Campus, Naperville, Thursday - February 8 - 8:15 p.m. The group of eight young people improvise on ideas suggested by their audiences on a gamut of subjects. The performance will be held in Pfeiffer Hall, 310 East Benton Avenue, Naperville. Tickets are \$3.00 for adults; \$2.00 for students.

Simon Estes, 33 year old bass baritone, appears at Wheaton College Friday, February 9th at 8:15 p.m. in Edman Memorial Chapel, Franklin and Washington Streets, Wheaton. Tickets sell at \$6.00 - \$4.50 and \$3.00. Estes is one of two black men currently starring on the major opera stages of the U.S. and Europe.

Illinois Benedictine College Productions will present "Pygmalion" at 8 p.m., on Friday, February 16; Saturday, February 17; Friday, February 23; Saturday, February 24, and at 7 p.m. on Sunday, February 25 at the Academy Theater, Maple and Yackley Roads, Lisle. Tickets are \$3.00 for adults; \$1.50 for children.

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STILL ORGANIZING...

A spring tournament for golfers is being planned by NALREC. It is planned that four-man teams would compete each week during June, July, and August. Employees of NAL, DUSAF, AEC, and service contractors are eligible to compete for trophies. St. Andrew's Country Club, West Chicago, will be the course for the Friday evening rounds, according to NALREC.

Notify Eric Jarzab, Ext. 3396 or Ray Brown, Ext. 3763 if you are interested in order that reservations may be arranged.

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WHERE ARE YOU?

With all the talent we know exists at NAL, why haven't our musical members gotten together? Either classical, light or rock? Eric Jarzab, Ext. 3396, offers to help musicians get together. Call him soon and tell him you're interested.

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CONGRATULATIONS to Don and Virginia Champion on the birth of their daughter, Susan Eileen, on January 14. Susan weighed 5 lbs. when she was born at Copley Hospital, Aurora. Don works in the NAL Machine Shop.

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BELIEVE IT OR NOT

(As posted in the Main Control Room, courtesy of Frank Kleber)

A 300 GeV proton has a velocity .999995 times the speed of light (186,000 miles/second).
A 1 Gram marble with an energy of 300 GeV will travel 0.98 cm/sec. or 0.022 miles/hr.
Your 1.5 ton car traveling down the highway at 60 mph has an energy of 1.5×10^{15} GeV!

FASTEN YOUR SEAT BELTS!!

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CLASSIFIED ADS

FOR SALE - 20' Travel Trailer, DuPage Coach, self contained; sleeps six, shower, 4 burner stove, large refrigerator, furnace, pre-finished paneling throughout, 30 gal. holding tank, 30 gal. water tank, 6 gal. fast recovery water heater, dual 5 gal. 20 lb. propane tanks, 110 volt & 12 volt lighting, elec. brakes, easy pull. Must sacrifice \$1800. Call Kathy Hess, Ext. 3451.

WANTED - Would like to rent a car during stay at NAL, June to mid-August. Call or write David Horn, Calif. Tech., 452-48, Pasadena, Calif. Area Code 213-795-6811, Ext. 2647 or his home, 160 S. Michigan, Pasadena, Calif., (213) 792-9792.

FOR SALE - One 6 year crib with like new mattress - \$15. Call E.R. Gray, Ext. 3724 or 231-2874.

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