

The Village Courier



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ACCELERATOR DIVISION PUSHES INTENSITY TO 2×10^{13}

At 6:40 a.m., Tuesday, January 20, Fermilab's Main Ring accelerated 2.016×10^{13} protons per pulse. The milestone was achieved by the determined efforts of the owl shift operating crew of the Accelerator Division consisting of Rod Gerig, Duane Plant, Bill Merz, Sharon Winfrey, and Wallace Andrews. Greg Urban and Jeff Gannon direct the Fermilab operating crews. The five operating crews had engaged in a friendly competition over the past few weeks to see which crew would surpass the elusive goal of 2×10^{13} .

About 2:30 a.m., taking advantage of the fact that everything was going unusually well in the middle-of-the-night operations, the crew decided to go to a "fine tune," extending various parameters of the accelerator. The accelerator, already the most intense source of high energy protons in the world, was then at 1.75×10^{13} protons per pulse. Over the next four hours, the operating crew inched the intensity up to the new record. The net increase in that period alone would be a respectable beam in many of the world's accelerators. Up until Tuesday morning, the world record, at Fermilab, was 1.90×10^{13} , recorded on January 12, 1976.

The scene at 6:40 a.m. was reminiscent of the early construction days at Fermilab. Champagne was broken out and hard copy pictures of the intensity displays were in demand. The Fermilab tradition continued as accelerator operation moved steadily on to shift the new record number of protons out to waiting experimental groups.

High intensity -- many protons per pulse of the accelerator -- is important to Fermilab operation for many reasons. With the great flexibility built into the Fermilab experimental areas, and because all four experimental areas can be operated at the same time, it is necessary to split the beam coming out of the accelerator, sending portions to each of the target stations. In effect, this is like operating four accelerators simultaneously. In addition, some of the most important research programs at Fermilab require high beam intensities to work successfully. The neutrino program, for instance, where the searches for charmed particles are going on in the 15-ft. Bubble Chamber, needs the highest possible intensity because neutrino events are infrequent and elusive.

The new intensity record is an important milestone in a long-standing program to continue intensity improvement which involves every facet of accelerator operation. Important improvements have been made in recent months on the Cockcroft Walton pre-accelerator and on the linac by Cy Curtis, Curt Owen and their colleagues. The effect has been to move the



... (L-R) J. Gannon, S. Winfrey, R. Gerig, W. Merz, D. Plant and W. Andrews...



... (L-R) D. Young and G. Urban...

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...G. Urban, F. Turkot (at left) D. Young, R. Johnson, P. Livdahl, R. Huson (at right) join owl shift crew after intensity record...

linac output current from 80 milliamps to more than 160 milliamps in the last weeks. In part this has been done by going from the normal mode where the linac injected four turns into the Booster, to a new mode where only two turns are injected, making it possible to increase the linac current substantially.

During the shift where the new record was established, the Cockcroft Walton-linac system was switching back and forth between three turns and two turns for injection. Rolland Johnson and the Booster team have been working steadily on improving the tune of the Booster to increase the transmission of beam through the Booster.

Over the past six months, Rae Stiening and the Main Ring RF group have made substantial modifications on the Main Ring RF. Helen Edwards, Jeff Appel, Gene Fisk and others have improved the extraction system. Frank Turkot has directed extensive improvements in the 13.8 kilovolt cable that transmits the power from the master substation over to the Main Ring. While this did not contribute directly to the increase in the intensity per pulse, it helps to make possible a shorter cycle time for the accelerator.

While the new milestone is a significant advance for the accelerator, many more improvements are on the horizon and will help to continue the push for even more intensity in the coming months. All of the possibilities of changing the injection into the Booster by going to a smaller number of turns have not yet been realized. Work on the pre-accelerator and linac should soon produce about 240 milliamps of beam out of the linac. The line taking the proton beam from the linac to the Booster is being improved by making larger openings throughout the line. A so-called "super-damper," a special device that provides fast feedback on the beam, is being installed on the Booster. With these modifications, it is hoped that the accelerator may get up to 3×10^{13} by this summer. Some time in the fall of 1976, modifications will permit the Cockcroft Walton and the Linac to accelerate negative ions. This modification should make it possible to inject even more beam into the Booster and bring even greater intensity to the Main Ring.

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ACADEMIC LECTURE SERIES BEGIN

The 1976 Academic Lecture Series at Fermilab is now underway. The lectures will be given in Curia II in the Central Laboratory from 9:30 to 11:30 a.m. on Mondays and Fridays, under the direction of the Physics Department. The Series offers campus-level appearances by some of the staff and experimenters at Fermilab who offer expertise in various aspects of high energy physics. It is hoped that other staff members and students working on experiments at Fermilab will take advantage of the opportunity to hear these talks.

The lecture schedule has been distributed within the Laboratory. For additional copies or more information contact the Physics Department, CL-10, Ext. 3203.

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RICH ORR TO NEW POST

Dr. J. Richie "Rich" Orr has been appointed Fermilab Business Manager by John McCook, Associate Director for Administration. Dr. Orr moves to the Business Office post from a job as Assistant Director to which he was appointed in the spring of 1975. The appointment is another in an effort to bring together the technical and administrative expertises at Fermilab so that each may reinforce the other in the successful undertaking of projects at the Laboratory.

Rich Orr came to Fermilab in 1970. He has worked in the Meson Area, the Neutrino Area, and the Accelerator Division at different times in the past six years. He has also been a collaborator on Experiment #87 in the Proton Area, and Experiment #236 in the Meson Area.

Dr. Orr received his M.A. from the University of Iowa in 1955. He worked as an engineer at Boeing Aircraft until 1959 when he entered graduate school at the University of Washington, from which he received his doctorate in 1965. A research position at the University of Illinois followed.

Rich told the audience at a recent Director's meeting after his appointment was announced, "What I will do to help in this new job is to get the people of the Business Office more involved in the scientific projects of the Laboratory. With good communication existing among all of us who are involved with such projects we ought to improve our understanding and our efficiency and hopefully enjoy it at the same time."

John McCook also announced that John Paulk will serve as Acting Business Manager. Mr. Paulk, a graduate of the U.S. Naval Academy, came to Fermilab in February of 1975 after 22 years with the Navy. He has served as an Executive Assistant in the Administrative Division.

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CHOREOGRAPHERS SHOWCASE HERE JANUARY 31

Anjani Ambegaokar, who dances the classical "Kathak" of India wearing five pounds of brass bells on her ankles, will be among the five Chicago-based dance groups in the second "Choreographer's Showcase" at Fermilab on Saturday, January 31. The Showcase, produced by the Ballet Guild of Chicago with support from the Illinois Arts Council, will begin at 8:30 p.m. in the Auditorium.

Kathak is a 2000-year old cultural ritual among both Hindus and Moslems in India; from Kathak has come the Flamenco. Anjani Ambegaokar, accompanied by a three-member music ensemble, uses her brass bells and spoken rhythmic syllables to accentuate her Kathak, once considered the best in India.

Miss Ambegaokar has toured Europe as a dance delegate for UNESCO and is on the staff of the Columbia College Dance Center. Her appearances in Chicago have been very successful -- "her intricate dance art embellishes the dance scene of the city," says one critic.

The versatile Showcase program will also include the modern dance of Richard Arve, Marge Hobley and her group, the Joel Hall Dancers, and a return performance by Spanish dancer Pascual Olivera.

A buffet supper will be offered in the Fermilab cafeteria before the Choreographers Showcase, from 6:30 p.m. to 8:00 p.m. Regular cafeteria service will be open from 5:00 to 6:00 only. Reservations are necessary for the supper which will cost \$4.50 per person. Tickets for the Showcase are \$3.00 each for adults; \$2.00 for children and senior citizens. Call the Guest Office, 840-3440, or 840-3680 to make reservations or get more information.

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...(L-R) John Paulk, John McCook, and Rich Orr...



...Anjani Ambegaokar...

URA SCHOLARSHIPS OPEN

Children of Fermilab employees who will begin a four-year college program in the fall of 1976 can apply for a scholarship for up to \$1,200 per year for four years. The scholarship is sponsored by Universities Research Association, Inc., the parent body of Fermilab.

Students selected for the URA fellowships are selected on the basis of their Scholastic Aptitude Test (SAT) scores -- both verbal and math. A copy of the student's official notification of scores must accompany the scholarship application. The score range for this purpose varies from year to year and depends on the number of applicants.

Winners are chosen by the staff of URA's Washington office.

Applications for the URA scholarship are now available from Ruth Thorson, Personnel Office, CL-6E. They must be returned by March 1, 1976.

NALREC SOCIAL NOTES

...A SOCK HOP on Friday, January 23, will open NALREC's '76 social calendar. "Come in clothes of the '50's," they say, and prizes will be offered for original '50's get-ups. There'll be music from the juke box -- oldies but goodies -- for dancing from 8 p.m. to midnight in the Village Barn. No charge.

...Another NALREC committee is taking reservations for the Candlelight Bowl on Saturday, February 14, from 10 p.m. to ?. Bowl by candlelight for fun prizes. Sign up either with or without a partner, by January 30. Tickets at \$6.00 per person include bowling fees and buffet dinner after the matches. Call Barb Schluchter, Ext. 3991, to make reservations.

...NALREC Ice Skating Party, Sunday, February 8, from 2-5 p.m. The party will be held at the center reflecting pond in front of the Central Laboratory. Hot chocolate, hot spiced wine, hot dogs and marshmallows will be available. No charge. In case of uncertain weather, call the Fermilab switchboard, 840-3000, on Sunday afternoon to find out if the party will take place. Children must be accompanied by a parent.

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...WEST END JAZZ BAND at the Users Center on Thursday, January 22 at 6:30 p.m.

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CLASSIFIED ADS

FOR SALE - 6 mo. old Collie, distemper shots only, house broken. Call Jim, Ext. 3986 or 897-3526.

FOR SALE - Lamb suede tan leather jacket man's size 44, made in Istanbul, new, \$105. Ladies white leather full coat, size 14, new, from Istanbul, \$100. Kenmore Foot whirlpool, like new, \$25 or offer. Kenmore bathtub style Whirlpool, perfect cond., offer. Call Harold Minster, Ext. 3233.

NEED DONORS - with blood type A+ for Feb. 11, 1976. Must know of the donation as soon as possible so that blood samples may be taken. Contact Bale Flores, Ext. 3719/3759.

FOR SALE - Dormeyer Meal Maker (Electric Mixer) with 2 bowls, \$15. Call Rene, Ext. 3278.

FOR SALE - '73 Merc. Montego Brghm., 2-dr. hrd.-top, full pwr, AC, AM-FM stereo, 56,000 mi., good cond. Contact Ron Cudzewicz, Ext. 4068.

FOR SALE - Downers Grove raised redwood ranch, 2.3 acres, 3 bedroom, 2 baths, living room w/floor to ceiling pic windows, many extras. Call for appointment. E. Kaplan, 964-9631.

FOR SALE - LeTrappeur ladies ski boots, leather, buckle, size 6½, good cond., \$18. Call Carolyn Vanecek, Ext. 3315 or 653-0971 evenings.

FOR SALE - '73 Volkswagon 'Sports Bug' - 4 spd., AM-FM radio, yellow & black, radial tires, 37,000 mi., exc. cond., R. Johnson, Ext. 3434 (nice price).

FOR SALE - Caloric Range, Admiral 21.6 cu. ft. side by side refrig/freezer, Wards Washer, Maytag dryer, Sears Portable Dishwasher. Call Frank Mehring, Ext. 4048 or 424-3429.