

# FERMINEWS

 Fermi National Accelerator Laboratory

Operated by Universities Research Association Inc.  
Under Contract with the United States Department of Energy

Vol. 1, No. 20

September 21, 1978

## BOOSTER SETS INTENSITY RECORD

Good things come in threes . . . and the Booster Group reports a trio of news items.

Chuck Ankenbrandt, group leader, gave the FERMINEWS details. A new proton intensity peak-- $3.02 \times 10^{12}$  protons per Booster cycle--was set Labor Day. Experimenters were working to increase the Booster's proton output in its normal accelerating cycle.

The new record, Ankenbrandt said, corresponds to a  $3.93 \times 10^{13}$  protons for the usual 13-batch injections in the Main Ring. The old record, set New Year's Eve, was  $2.64 \times 10^{12}$  protons, corresponding to  $3.43 \times 10^{13}$  into the Main Ring. Added protons mean potentially more beam for experimenters, the spokesman explained.

Booster staffers Bruce Brown and Carlos Hojvat, working with accelerator operators, set the new mark.

The experiment took advantage of the H- injection system's ability to inject many more protons than earlier methods. Recent modifications improving the aperture in the extraction straight section also helped. And beam reliability wasn't lost.

"If there is one thing most experimenters want more than high intensity," Ankenbrandt said, "it is high reliability. It is worth noting that Booster performance on that score is very good. Downtime averaged only two hours a week during the last 14 months."

He also noted results from two other experiments. Both sought to simulate Booster operating modes that will be required for colliding beam experiments with anti-protons.

Present plans call for antiprotons to be decelerated in the Booster from 6 GeV, where they are most copiously produced, to 200 MeV where they can be rapidly cooled



...Booster staffers are L-R: Seated, J. Garvey, C. Ankenbrandt, C. Hojvat, K. Meisner, B. Brown; Standing, R. Webber, D. Cosgrove, J. Biggs, J. Lackey, H. Gerzevske...

in the Electron Cooling Ring. Later, after many antiprotons are collected, they must be reaccelerated through the Booster. Two fundamentally new requirements on the Booster are the ability to decelerate and the capability to handle negatively charged particles.

First, the ability to decelerate was tested. This was accomplished by attempting to "hold on" to a batch of protons beyond the normal extraction time as the ring magnet current decreased. In the test, beam was efficiently decelerated from 4.4 GeV/c momentum to 1.66 GeV/c.

The negative charge capability was also tested. The method involved injecting H- ions into the ring magnets without passing them through a foil. The foil normally strips off the two electrons, leaving protons to circulate.

The current in the ring magnets and many other devices had to be reversed. Gas stripping, in which an H- ion loses an electron in a collision with a gas molecule left behind in the imperfect vacuum, limits the lifetime of the beam to about a millisecond (1/1000 sec.). A beam current of about this lifetime was achieved by careful tuning.

\* \* \* \* \*



...Plant Maintenance mechanics are: (L-R) Seated, R. Roberts, A. Kee, C. Sigwards, J. Douglas, B. Allgood; (L-R) Standing, R. Macygin, K. Barthold, D. Walker, R. Groesh, J. Morphey, J. Woronicz, P. Lentini...



...Electricians are: (L-R) Front Row, C. Worby, R. Gunderman, R. Graff, R. Johns, R. Carlton, H. Scheppman; (L-R) Back Row, R. Boisdorf, A. Magee, J. Kedzierski, J. Hayes...

PLANT MAINTENANCE BATTLES MOTHER NATURE

Flooding and power outages caused by last Wednesday morning's electrical storm tested Fermilab's Plant Maintenance and Plant Utilities groups.

"Severe weather knocked out Village power at 1:00 a.m. and main site power at 1:35 a.m.," said Bill Riches, Plant Manager. More than six inches of rain in five hours was reported. Commonwealth Edison's 345,000-volt transmission line supplying the main site tripped off; at least six lightning strikes in the Village and on Eola Road blew fuses, knocked out lightning arrestors and insulators, and knocked out fire alarm panels causing at least a dozen false alarms.

According to Riches, supervisors responded to the emergency at 1:30 a.m.; crew personnel began work at 5:00 a.m. and continued working on storm repairs until 8:00 p.m. Because of floodwaters at the north end of the site, it was necessary

for a Fermilab 4-wheel drive vehicle to deliver an Edison switching crew to the 345,000 volt top point to switch the main site power crew to the Edison back-up line. Fermilab Maintenance and Utility crews manned a "bucket truck"--a truck with hydraulic boom--in pouring rain to repair the Village overhead power lines.

Riches said, "As usual, our crews responded to emergency calls and worked through the night in pouring rain and lightning to restore power and to prevent excessive storm water damage.

"The storm came at the worst possible time," Riches said. The crews had begun three weeks of intensive maintenance work on plant equipment and electrical substations--work limited to shutdown of the accelerator. "With her tantrum, Mother Nature robbed Plant Maintenance of at least four days of precious maintenance time," Riches said.

\* \* \* \* \*

WORKSHOP: ETHICAL ISSUES FACING SCIENTISTS

"Ethical Issues Facing Scientists Today" will be explored in a workshop at Illinois Benedictine College on October 9.

Fermilab physicist Dr. Jeffery Appel is among discussion group leaders. He will head a group on the topic "Conflict of Interests for Working Scientists." The day-long conference will be held on the college campus at Lisle.

Conference objectives are to increase sensitivity of physical and biological scientists to ethical problems and issues related to their work. To register or for more information, contact Dr. James J. Hazdra at the college, phone 968-7270, Ext. 289.

\*\*\*\*\*  
 \* IN ANY EMERGENCY AT FERMILAB, DIAL \*  
 \* 3131. \*  
 \*\*\*\*\*



...BIKE-A-THON cyclists start Main Ring Ride at F-0 service building...



...L. Krafczyk: Top fund raiser, turned in \$203...

BIKE-A-THON NETS \$3,250 TO FIGHT CANCER

Cancer research efforts were \$3,250 richer after Sunday's Fermilab Bike-A-Thon. About 75 riders, including five teams, turned out for the ride around the four-mile Main Ring road. Sunny, cool weather aided bikers.

Fermilab riders led prize winners. Louise Krafczyk (Energy Doubler) won a 10-speed bike for raising the most money--\$203. The "Fermilab Challenge Cup" was won on 47,169 points by a team comprising Gene Fisk (Physics), Cynthia Reay (User's Office) and Bill Reay (Exp. 531). Bill also rolled up 80 miles to lead all cyclists.

Third place team was the Batavia Bureaucrats, including alderman Peter Koehler (Energy Doubler) and Bob Ducar (Accel. Controls), a Batavia Planning Commission member. Angela Velasquez (Food Services) collected the most pledges, 89.



...Physicist P. Koehler (R) paces W. Hamilton, fellow Batavia alderman...



...Top team members C. Reay (foreground), E. Fisk show "Challenge Cup" prize. Third team member was N. Reay...



...N. Reay shows championship form that yielded 80-mile ride...

NALREC OKTOBERFEST SATURDAY, OCTOBER 7

Celebrate autumn German-style! All employees, visitors, subcontractor personnel and their families/guests are invited to an "Oktoberfest" sponsored by NALREC. Fun, food and music will be featured in the Village Barn from 6 p.m. to midnight. A meal will be offered including bratwurst, thuringer, German potato salad and sauerkraut.

Table snacks will include sausage sticks, cheese curds and schatzel--pretzels with flavored fillings. Beer will be 50 cents; glass, 12 oz. steins will be sold for \$1.00 each.

Food tickets will be four for \$1.00. Three tickets will buy a meal combination; extra bratwurst and thuringer will be available for two tickets each.

\* \* \* \* \*

CANNON, CARRASQUILLO JOIN EMPLOYMENT OFFICE

Fermilab's Employment Office has added two new staff members.



W. Cannon



W. Carrasquillo

Warren Cannon, a nine-year Fermilab employee, was transferred from Equal Employment Opportunity office. Wilma Carrasquillo comes to the Laboratory from the Aurora Urban League office. Both are Aurora residents.

Bill Butler, assistant personnel manager, said the appointments reflect increased emphasis on attracting qualified applicants for Fermilab employment opportunities.

Cannon joined the Laboratory in June, 1969, as a personnel administrator. His main responsibilities include recruiting engineers, technicians and drafters. He is a graduate of East Aurora High School and attended Aurora College and Hampton (Va.) Institute.

Carrasquillo is a 1978 graduate of Aurora College with a major in sociology. For the last year she served as an Aurora Urban League field representative. In



...Oktoberfest planners (L-R) are: P. Yost, C. Carra, K. Schuh, C. Slater and G. Villa...

that post she recruited, assessed and counseled candidates for apprenticeship programs. Fluent in Spanish, Ms. Carrasquillo will recruit candidates for Fermilab administrative positions.

\* \* \* \* \*

NEW ARRIVAL

Congratulations to Graciela (PREP) and Bill Finstrom (Computing) on the birth of a son, Lennart Paul. He arrived Aug. 18 at Copley Memorial Hospital, Aurora. The Finstrom's second son weighed 4 pounds, 12 oz. and measured 17½ inches. He joins a brother Fausto, 13.

\* \* \* \* \*

CANOE RACE SUNDAY IN MAIN RING

Fermilab's 1978 Main Ring canoe race IV will be held Sunday, September 24 at 1:00 p.m.

Employees, experimenters and subcontractor family members/guests over age 14 are invited to enter. In the four-mile paddle, canoes will launch every three minutes near the F-4 service building.

Larry Allen, race coordinator, said timers, starters, safety wardens and others are being sought to make the event a success. For more information, contact Allen at Ext. 3721 or Helen Ecker, recreation manager, at Ext. 3126.

\* \* \* \* \*