

FERMINEWS

 Fermi National Accelerator Laboratory

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

Vol. 3, No. 28

July 10, 1980

ACCELERATOR COMPLETES SUCCESSFUL SPRING RUN

Scientists at Fermilab are expressing satisfaction at the outstanding performance of the accelerator in the final weeks before its summer shutdown June 23.

In a letter to Rolland Johnson, head of the 400 GeV program for the Accelerator Division, Charles N. Brown, deputy head of the Research Division, and Roy Rubinstein, Program Planning, said, "This note is to congratulate you and your staff for the outstanding accelerator performance last week (June 16-23). It was one of the best for experimenters that we can remember.

"To have a week with almost 150 hours of external beam on target, and with experiments logging about 140 hours of data taking, is a tremendous achievement. Since most of the experiments have been in continuous data-taking mode for the past few weeks, the steadily improving performance of the accelerator has led to one of the most productive research periods ever at Fermilab. Please convey our thanks to all who made this possible."

In an interview with FERMINEWS, Rubinstein elaborated further. "With budgetary constraints on the number of weeks in a year that the accelerator can run and the need for access into the Main Ring tunnel in order to install the Energy Saver, there is more and more need for steady and reliable accelerator performance during times when the accelerator is scheduled to run for experiments," he said.

"During the last few weeks up to the scheduled shutdown on June 23, the accelerator performance was better than ever, culminating in a record week with 150 hours of delivered beam, which was 93 percent of that scheduled.

"In the final weeks of the run, nine experiments were simultaneously using beam from the accelerator, with up to seven taking data and the others in the testing stage," Rubinstein said.



Some of the employees who were responsible for the accelerator's recent outstanding performance. They are (l-r, front row) Bob Mau, Carl Maier and Steve Conlon; (l-r, second row) Jeff Ruffin, Sue DeMarco, Rol Johnson and Duane Plant; (l-r, third row) Bill Merz, Al Thomas, John Crawford and Larry Allen; and John Zuk. The photograph was taken in the power amplifier repair facility. In front of the group are two radio frequency power amplifiers.

"In addition, the intensities needed by the experiments simultaneously on the seven targets in the Proton, Neutrino and Meson areas placed demands on the Switchyard Group's beam splitting techniques that only a few months before were considered impossible to meet."

Johnson gave this overview: "The last four weeks of operation have been rather noteworthy in several respects, certainly better than we've ever done before. For example, the accelerator reliability for these weeks was 82, 87, 89 and 93 percent respectively," he said. (He also noted enthusiastically the 150 hours of beam for high energy physics during the final week before shutdown.)

"We have consistently run with 2.1×10^{13} protons per pulse being split
(Continued on page 2)

in the most inconvenient way imaginable. I might remind you that about two years ago the maximum slow spill when split as in our most recent running was about 1.2×10^{13} .

"The hydrogen-minus injection into the Booster continues to work very well. The hydrogen-minus source itself has been recognized as a significant technological advance.

"These are particularly wonderful achievements, and my highest respect goes to the people--some 250 in all--who made it happen. They work in Operations, Linac, Booster, Main Ring and the Switchyard as well as in Electrical-Electronics, Mechanical, Beam Instrumentation, Conventional Devices and Controls Support Groups of the Accelerator Division and Plant Management."

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"NO DOUBT ABOUT IT"

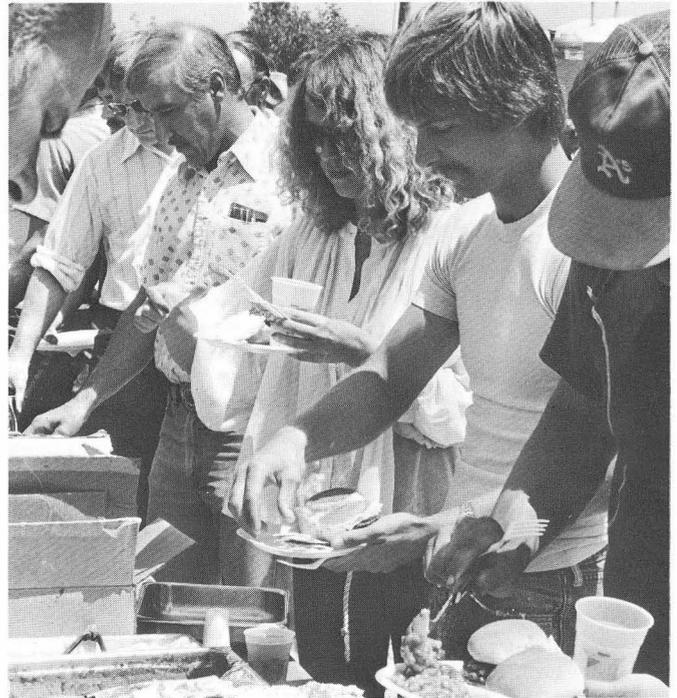
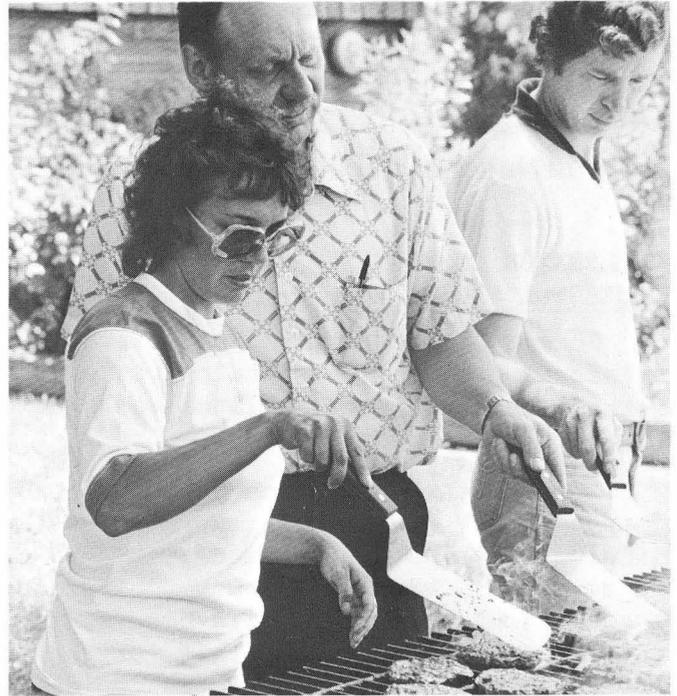
"No doubt about it," said Rolland Johnson, "it was a team effort all the way."

Head of the Accelerator Division's 400 GeV program, Johnson was describing one of the principal reasons for the accelerator's outstanding performance before the summer shutdown June 23. (See other story in this issue.) "Much of the success also can be attributed to a series of intensive studies begun more than a year ago and culminating in reports that analyzed the strengths and weaknesses of the accelerator," said Johnson.

"Members of the Operations Group were asked to head reliability committees to work with specialists in the subsystems of the accelerator complex," explained Johnson. "The committees examined the computer print-outs of downtimes and submitted lists of recommendations and priorities to improve the machine. The recommendations have been extremely valuable in directing the limited resources we have available to improve machine reliability."

The chairmen and the committees they headed are Larry Allen, Linac; John Crawford, Booster; Duane Plant, Main Ring; Bob Mau, Switchyard; Bill Merz, Operations; Al Thomas, Controls; and Wally Kissel, Utilities.

"The follow-up reports of the reliability committees have just been turned in,"



Johnson went on to say. "With the comments on our successes and failures in implementing past recommendations and with new lists of priorities, it seems clear that we should be able to improve the performance of the accelerator even more."

Members of the various groups described each of the areas that "contributed to this outstanding performance (Johnson)."

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FEYNMAN DIAGRAMS ON VIDEO
MASTERPIECE OF INSTRUCTION

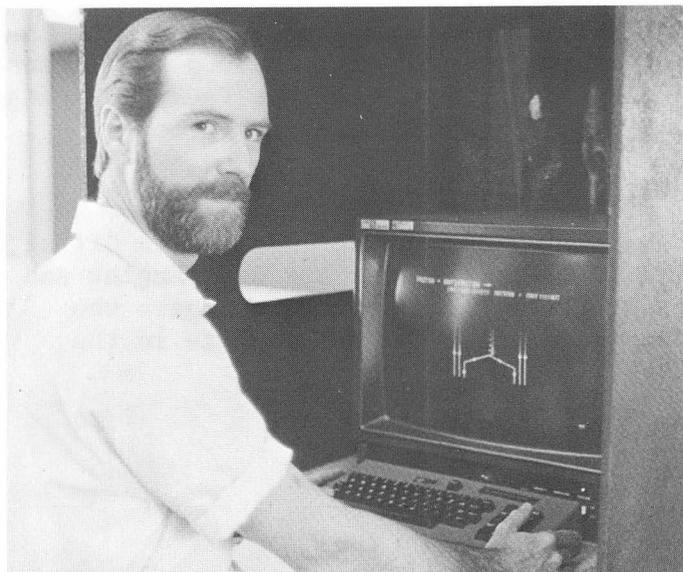
Two of Fermilab's talented scientists combined their knowledge to produce one of the most exciting displays in the "Memorabilia of Five Decades of Particle Physics" exhibit.

Chris Quigg, head of Theoretical Physics, drew a number of Feynman diagrams that illustrate particle interactions. John Ingebretsen, Computing Department, wrote the program for Fermilab's computers. The end product is an O-38 terminal that displays the diagrams in an educational sequence and a keyboard that allows the viewer to interact with the program by choosing the portion of it he would like to study.

The terminal and keyboard are at the west end of the exhibit area on the second floor of the Central Laboratory. They will be available for use by viewers for as long as the exhibit is there, at least through the middle of this month (July). Ingebretsen announced that the program is available for users if they want to generate Feynman diagrams for reports or papers. They should contact him at ext. 3947.

The diagrams are shown in up to seven colors. They are named after Richard Feynman, a theoretical physicist at the California Institute of Technology who first began using them. The O-38 terminal was developed by Research Services to display data on video monitors in black and white or in color.

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John Ingebretsen with display.



Saying farewell to one of their best friends are (l-r) Gene Dentino, operations manager; John Ingebretsen, applications programmer; Jim Prince, operations shift supervisor; and Jack Pfister, manager of computing services.

A COMPUTER NEVER DIES, IT JUST...

At 10:12 a.m., July 1, a bell rang once and proud red and orange winking lights went out for the final time.

The PDP-10, Serial No. 7, was retired. A veteran work horse of the Computing Department, it had a reputation for having a personality of its own. But it was loved by many. More than 40 people from the site gathered in the narrow spaces around the PDP-10 to pay their last respects and to hear John Ingebretsen, former systems programmer who had a close relationship with the PDP-10, read the eulogy.

"The time has come to say goodbye to our sometimes faithful servant..." Ingebretsen began. "We should not mourn its passing. It has not died, but, rather, has gone on to that big GSA surplus list in the sky," he continued. He ended his eulogy with: "Running right up to the end... It died with its BOOTSTRAP on." (Ingebretsen's eulogy is loaded with puns that only those knowledgeable in computers and their programs would fully appreciate.)

But, as Ingebretsen said, there is life after death. In truth, the PDP-10 has not died. Already, many of its organs have been claimed by other Department of Energy facilities, some by Fermilab. So in that sense, the PDP-10 lives on.

NALREC FAMILY PICNIC, A FESTIVAL OF FUN

NALREC's family picnic is on the way with food and entertainment for all tastes.

It'll be held July 20 from 11 a.m. to 6 p.m. in the area near the Barn and pool. The event is for all Fermilab employees, visitors, users and Department of Energy and security personnel as well as families.

The menu--for just 25 cents--consists of chicken, baked beans and potato salad. If that's not enough, then soft drinks, cotton candy, snow cones, pop corn and other beverages will be available. Some of the fun will consist of a cake walk, carnival rides, radio controlled model air plane show, teen town, pony rides, a radar ball, variety of games, door prizes and a make-up booth. The Joliet American Legion's nationally recognized band will perform in concert.

Persons who would like to volunteer to help should contact Jean Plese, ext. 3211.

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RESERVATIONS BEING TAKEN FOR FOOTBALL GAME TICKETS

Reservations for tickets to an upcoming Chicago Bears football game are being taken by NALREC.

Football enthusiasts who want to reserve one or more tickets at \$11.50 each should contact Sharon Koteles, ext. 3598. If enough people show an interest, NALREC will make arrangements for transportation to and from the game.

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VOLLEYBALL STANDINGS

<u>League I</u>			<u>League II</u>		
Team	Wins	Losses	Team	Wins	Losses
2	10	2	2	16	0
1	9	3	4	15	1
4	8	4	5	7	9
5	7	5	6	4	12
6	5	7	1	4	12
7	4	8	3	2	14
3	2	10			

(Standings through July 2)

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SPECIAL NOTICE

Ferminews is preparing an article about employees and users who regularly ride two and three-wheel vehicles--bicycles, motorcycles, Mopeds, and so on--to work in order to save on gasoline and get their daily allotment of fresh air and exercise.

A picture will be taken of all of these riders and their vehicles at noon on Tuesday, July 29. (If it's raining, then the next day, Wednesday, July 30.) Please plan to come with your vehicle to the horseshoe drive at the north end of the Central Laboratory. See you then, and ride safe.

REMINDER ABOUT AIR CONDITIONING

Air conditioning to the Central Laboratory will be turned off between 6 a.m. and 6 p.m. this Saturday, July 12, for maintenance. This does not apply to computer facilities. During this time, the building will be ventilated with outside air. Chilled water will not be available for cooling.

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EMPLOYEES SHARE KNOWLEDGE

Last month (June), a number of Fermilab employees worked with the Public Information Office to share their knowledge about high energy physics and its related activities.

Paul Mantsch spoke about Fermilab to members of the Fox Valley Skywatchers.

Helping with tours and giving more in-depth explanations about various facilities were Joe Biel, John Cumulat, Paul Czarapata, Gene Dentino, Brian Hendricks, George Krafczyk, Paul Mantsch, Bob Mau, Randy Pientak and Jim Zagel.

Helping the Public Information Office with tours this summer are Bill Engler and Kris Fillman, both science teachers who have worked with the public here in the past.

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