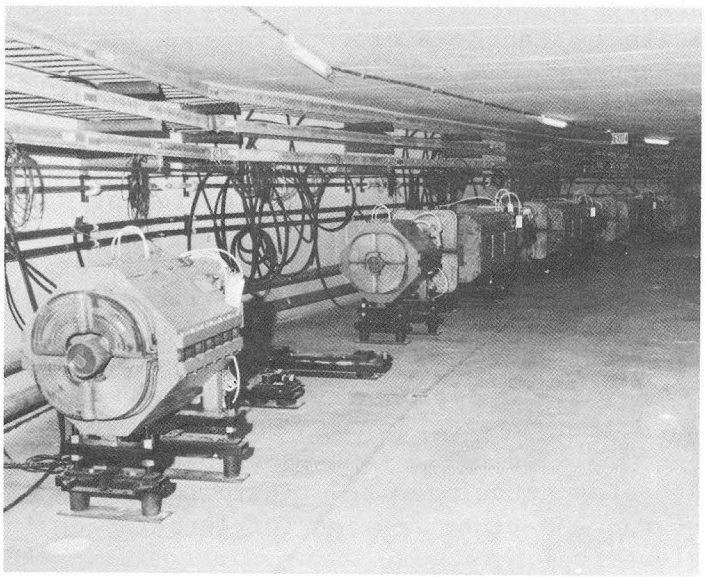
February 21, 1985
FERMI NATIONAL ACCELERATOR LABORATORY

FermiNews

$\bar{p}$ SOURCE--INSTALLATION ON COURSE



Progress in the Debuncher Ring is manifested by the growing number of small quads, large dipoles, and kicker magnets already in place, on stands, ready for power and water hook-up.

by Ernest Malamud

Look south from the 15th floor of Wilson Hall, and, behind the central utility building, you'll see what looks like a vest-pocket version of the Main Ring. Upon more careful observation, however, several differences become immediately apparent.

For one thing, this "ring" is actually a triangle, each corner occupied by a service building, the triangle mirroring the geometry of the tunnel below which houses the Debuncher and Accumulator rings.

Look a bit farther south, and you'll see the target hall which sits atop an underground target station, where antiprotons are created in collisions using 120 GeV protons extracted from the main ring at F17.

All this newly completed construction comprises the Antiproton Source, the complex of target station, beam lines, and rings where antiprotons are made, "cooled," and stored. The Antiproton Source is the very heart of the Tevatron I Project which has as its goal the production of collisions between protons and anti-protons in the Energy Doubler at a center-of-mass energy of 2 TeV, and a luminosity of $10^{30}/cm^2/sec$.

Installation of equipment for the antiproton source is now at a peak level of activity. Components are arriving daily and being installed, hooked-up, and tested in preparation for intense commissioning activities scheduled to start in early spring. Tevatron I is a key project at Fermilab, and until SSC becomes a reality Tevatron I will produce collisions at the highest center-of-mass energies in the world.

Dozens of people from the Tevatron I section, the Accelerator Division, and various contractors are working together to install equipment. Installation is paced by two major elements: magnets and other "large objects," and cables.

The category of "large objects" consists mostly of bending magnets and quadrupoles, but also includes rf cavities, stochastic cooling tanks, septa, and kickers. There are 453 such items to install. Each weighs many tons, requires a precision stand so it can be accurately aligned, and has a portion of the vacuum tube running through it. As of the date of this issue, over 70% of the "large objects" have been installed by a dedicated group coordinated by Larry Sauer of the Accelerator Division, with daily supervision of these critical operations by Dan Hellberg and Frank Schneider. The debuncher kicker magnets have been assembled and installed by Lee Brown, Phil Adderley, Al Beutler, Dave Warner, Cliff Foster, Martin Riddick, and Craig Byrd.

The mechanical support department in the Accelerator Division is providing much of the engineering and installation support for the source. Many people in this department, led by Max Palmer and Dick Andrews, are contributing. Frank Krzich

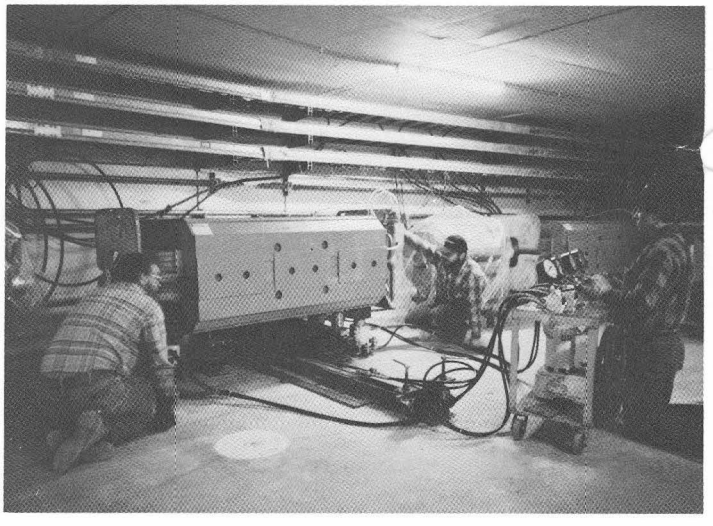
→

leads a group consisting of Bill Carl, Jeff Meisner, and Greg Meyer. They and their group are hooking-up LCW to all of the source magnets as well as the large number of water cooled power supplies, high power rf, and stochastic cooling travelling wave tubes (TWT's) in the service buildings. Another group of people: George Biallas, Rob Reilly, Jim Edwards, Heip Le and Kerry Mellot have been making rapid progress in assembling the complicated elements of the target station. They have been aided by Dave Augustine, Jim Hollub, Ron Kellett, Dave Musser, Mike Petkus, Gene Opperman, John Seidelman, John Spencer, Roger Thomas, and Chuck White.

As rapidly as magnets are placed in the tunnel they are aligned by surveyors whose work is coordinated by Arlene Lennox and head surveyor Larry Ketchum. The engineering and assembly of the vacuum systems of the two rings, as well as the beam lines, is coordinated by Glenn Lee, Chief Vacuum Engineer in the Tevatron I section. Working closely with him are Joel Misek, John Satti, and Jim Klen, and technical support from Lee Benson, Tom Larson, Roy Meeks, Tom Price, Ed Podschweit, Tom Rathbun, Rich Tiesi, and teams of pipefitters. All the magnets, kickers, septa, and rf cavities will be installed in the Debuncher by early March. The equipment will be aligned and under vacuum by then, and first attempts to inject beam in the Debuncher and make it circulate are scheduled for mid-March. Already two Debuncher rf cavities in the Debuncher have been powered by the Tevatron I rf group led by Jim Griffin.

There are over 8,000 cables in the antiproton source with an enormous range in size and type: heliax, RG-58 coax, hard-lines for television, multiconductor control cables, AC power for all kinds of devices, and heavy bus to connect the magnet systems. The enormous job of specifiying the lengths and types of these cables, having them pulled, then defining their terminations to equipment or connectors, and contracting for that work, is coordinated very capably by Bob "Obie" Oberholtzer, with the able assistance of Robin Craven, Mel Rebuehr, Doris Rice, Kim Webster and several competent contractors. Over two-thirds of these cables are now in place and being hooked to equipment. Part of the job of the electrical installation team is to install almost 200 DC power supplies needed for magnets, and various correction magnet systems not mentioned above.

Key to all the testing and operation is the control system. An extension of the highly successful "ACNET" system has been built by the Accelerator Division Controls Department led by Dixon Bogert and Bob Ducar. Over 1,500 components were purchased or built for the antiproton effort. In some cases new designs were needed to meet requirements different from existing systems in the Energy Doubler. Antiproton source commissioning activities will be conducted from a satellite control room in service building 10 (AP10). Already in this building are two consoles from which antiproton devices, as well as any other device in the whole accelerator can be monitored and controlled. The computer stations to clusters of CAMAC crates and other devices for interfacing to electrical, vacuum, beam diagnostic, and other equipment. Well over half of the controls equipment is in place and working.



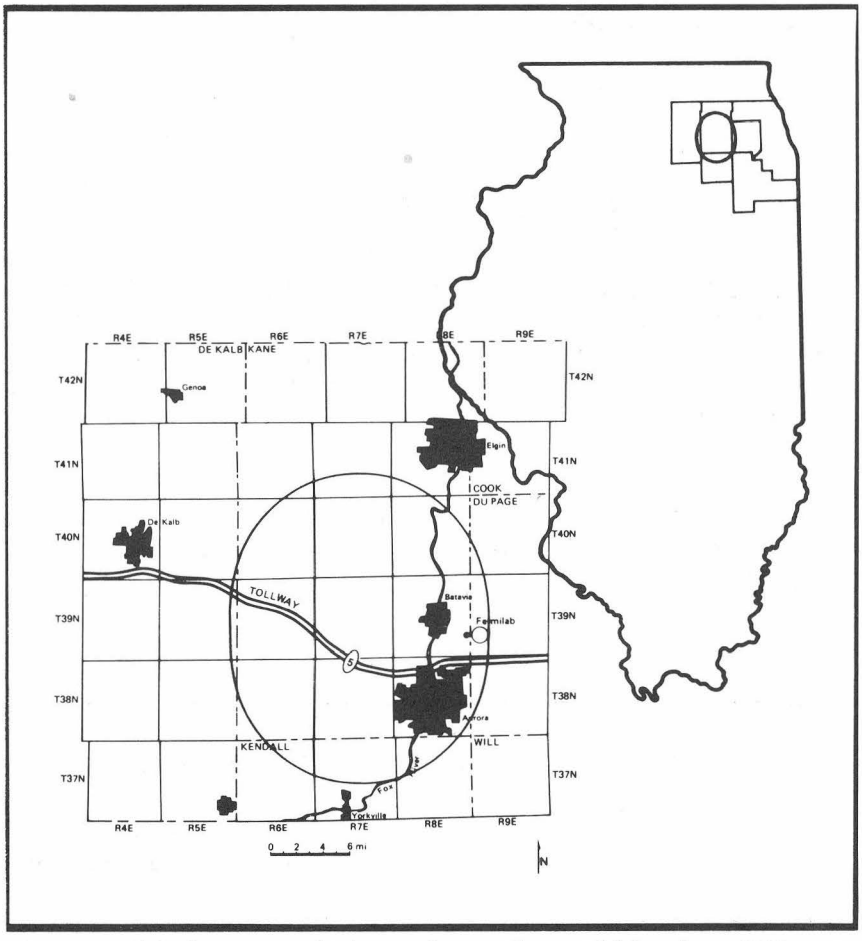
A crew of contract riggers ease one of the last small dipole magnets into place in the Debuncher Ring.

Milestones are being achieved in rapid succession. Many dedicated people are turning this project into a reality. The entire laboratory is contributing to its success. These next few months promise to be very exciting as efforts are made to bring the Tevatron I systems into operation and start exploring the physics frontier opened by these ultra high-energy proton-antiproton collisions.

ILLINOIS THROWS IT'S HAT INTO THE (SSC) RING

by Mark Bodnarczuk

At a press conference held at the old State of Illinois Building in Chicago on February 1, 1985, Governor James R. Thompson, in announcing another major commitment to secure the SSC for Illinois, said, "This magnificent project is not only vitally important to Illinois, but it is critically important to the United States and the world. Illinois is already the site of the world's largest accelerator, the Fermi National Accelerator Laboratory at Batavia, and the proposed SSC would be 20 times larger and 20 times more powerful. The SSC offers the opportunity to maintain world leadership in high energy physics, (a position) which is threatened by the limitations of existing facilities, and rapidly expanding technology in the area of basic research into the structure of matter."



The preliminary siting for the Illinois SSC, as shown in the Report to the Governor, just published by the Illinois Department of Energy and Natural Resources SSC task force. Actual siting will be dependant on final design requirements.

This statement follows-up a December, 1983 action in which Governor Thompson appointed a state task force, chaired by a senior member of his staff, to expedite Illinois' selection as the home of the SSC in the on-going national site competition.

The task force, comprised of representatives from many state agencies, serves as the overall coordinating body for Illinois' SSC activities. Thompson also, at that time, asked for and received a $500,000 appropriation from the Illinois General Assembly to carry out a geological feasibility and environmental screening study.

As part of his new major initiative, the Governor announced the appointment of Thomas O'Neil, President and Chief Executive Officer of Lester B. Knight and Associates, Chicago, as Chairman of a private-sector SSC Task Force that will work closely with State of Illinois officials on bringing the SSC to Illinois. The Governor also announced his plan to secure additional funding to carry out the Illinois SSC campaign. Through the new Build Illinois program, Thompson will ask the General Assembly to appropriate $7.5 million over the next two years to enable the state Department of Energy and Natural Resources (ENR) to continue it's environmental and feasibility study, and secure the land necessary for construction of the SSC.

→

(cont'd. from previous page)

The U.S. Department of Energy plans to announce specifications for the SSC site by the middle of this year, and proposals must be submitted later in '85. Illinois' chances of obtaining the SSC depend partially on submitting a proposal which meets all site criteria, and offers additional incentives for an Illinois siting. Thompson announced that the Illinois Institute of Technology Research Institute (IITRI) will prepare the SSC site proposal for Illinois. Dr. Dave Morrison, President of IITRI, recently gave a talk at Fermilab on how Illinois can win the SSC in the national competition. IITRI prepared the site proposal which brought Fermilab to Illinois.

Thompson also said that he would be working closely with the Illinois Congretional Delegation, and had already contacted Senators Alan Dixon and Paul Simon about giving the project the highest priority.

"ILLINOIS IS COMMITTED TO THE FUTURE--AND THE SSC'S FUTURE IS IN ILLINOIS."

Don Etchison
from The ENR Report to the Governor

In response to Thompson's request, the Senators issued the following statements:

Senator Simon: "I will devote the full resources of my office to the effort to bring the Superconducting Super Collider to Illinois."

Senator Dixon: "The entire Illinois Congressional delegation is united in its support for bringing the Superconducting Super Collider to our state. It has the highest priority in our offices, and we intend to make full use of our political skills..."

Thompson acknowledged the reality of intense inter-state competition for the SSC, and he stated that he is counting on the new private-sector task force to help develop Illinois' proposal, and to convince President Reagan and the Congress that the best location for the SSC is Illinois.

A decision on final siting is expected in late 1986 or early 1987. If approved, construction of the SSC could begin in 1987, with a target completion date in 1994. The state's immediate goal is the preparation of an Illinois proposal. The Governor's commitment to bring the SSC to Illinois, and the funding which he plans to appropriate, insures the state a competitive position regards securing the SSC.

RENE DONALDSON LEAVES FERMILAB TO JOIN THE SSC DESIGN GROUP

Rene Donaldson, (far right) with friends May West and Roger Thompson, at one of the annual Fermilab Arbor Days.

From the prairie to the Pacific to the prairie and now, once again, to the Pacific. Rene Donaldson, a mainstay at Fermilab for 17 years, is once again on the path that led her from Northwestern University, where she majored in journalism, to the University of California at Berkeley to the technical-information division at LBL, and back here to Illinois, where her first stop was at the original Oak Brook offices of the NAL group.

After being assigned payroll #134, Rene began working as editor for the National Accelerator Laboratory. "There was no office, no typewriter, no nothing. I couldn't find the supply cabinet for two weeks! It was great! I never regretted coming here. I loved the work, and I loved science."

"Later I needed a reason to like Illinois again, so I got involved in the Prairie Project. That's my legacy to Fermilab."

Including Oak Brook, with stops in the Village before coming to rest in Wilson Hall, Rene's office has been moved a total of 11 times, "But for some reason I've had the same phone number for 17 years." And for 17 years, that number is where all matters relating to technical publications have been referred. Since 1968 Rene has overseen **Fermilab Report**, together with its originator, Frank Cole; and in 1981, **Ferminews** came under Rene's direction. The list of literature flowing out of the Publications office is nearly endless: preprints, science notes, engineering notes, technical manuscripts, conference notes, conference proceedings, annual reports, special publications: a dizzying blizzard of paper, all of it needing both an overriding philosophy and meticulous scrutiny, all of which Rene has provided.

Now, it's once again back to California to take up her new job as editor for the SSC central design group at Berkeley.

Chances are, the road from the prairie to the Pacific and back hasn't seen the last of Rene.

R.F.

Congratulations To . . .

Treva (Physics Department) and Steve (Exp. #663) Gourlay on the birth of Matthew Robert on November 26, 1984, at Geneva Community Hospital. Matthew weighed 10 lbs and 1 oz. and was 22 1/2 inches long.

Teresa and Ron (Research Division, E/ED) Cudzewicz on the birth of Jonathan Ronald on February 8, 1985, at Copley Memorial Hospital. Jonathan weighed 7 lbs and 5 oz. and was 20 1/2 inches long. Jonathan was welcomed home by big brother Jeremy who is 11 years old.

A.C.U. SURVEY REMINDER . . .

The Argonne Credit Union Survey Committee wishes to remind members who have received but not returned their membership surveys to please do so. Completed forms can be mailed to the A.C.U. in the pre-paid envelopes included in the Survey packet.

Editors: R. Fenner, S. Winchester

Fermilab is operated by Universities Research Association, Inc. under contract with the U. S. Department of Energy. Ferminews is published by the Publications Office, P. O. Box 500, Batavia, IL 60510, phone (312) 840-3278.

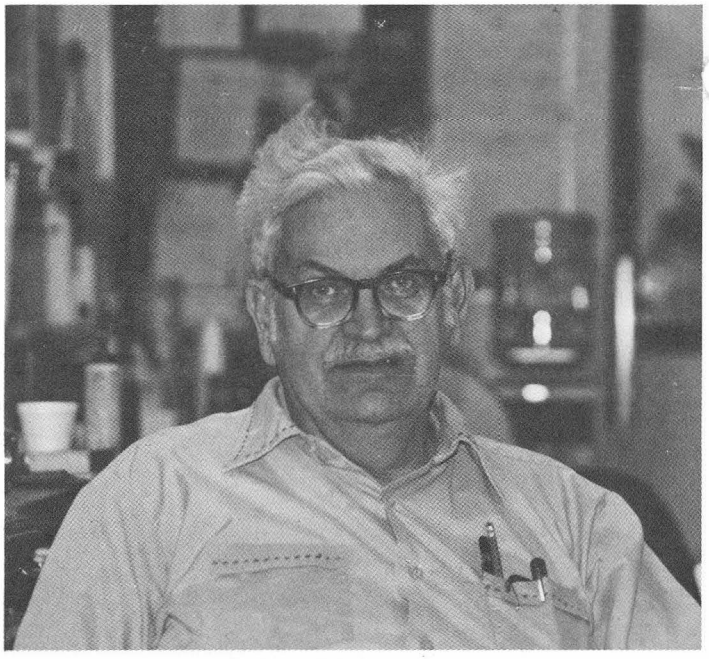
RETIREMENT IS BEAUTIFUL MUSIC TO JIM BUFFENMYER

Jim Buffenmyer is a man with an eye for detail. He showed that talent when he was the first model maker hired by Fermilab (which was then the National Accelerator Laboratory.)

Jim began at Argonne and came to Fermilab in 1967 to work in the model shop which was, at that time, located in the basement of the Oakbrook Office.

Jim was the first Assistant Ombudsman named by then-director, Robert Wilson in February of 1976. In September of 1976, he was appointed Senior Ombudsman and held that appointment until 1978.

In 1979 Jim transferred to the Technical Support/Engineering Group where he worked as a Technician.



Jim Buffenmyer

Jim's first love is music: he has a fine bass voice and is a member of several choral societies. He was Fermilab's Christmas Choral Group Director for several seasons. He also enjoys making guitars and woodworking in his spare time. (A sample of Jim's beautiful woodworking skills is a plaque hanging by the elevators on WH1E.)

JAZZ TAP ENSEMBLE HERE ON MARCH 16

If you need a sure cure for the winter doldrums, take three jazz musicians and combine them with three tap dancers. The end result will be reminiscent of Fred Astaire. California's Jazz Tap Ensemble do just that, and the company will bring their "infectiously cheerful" brand of entertainment to Ramsey Auditorium at 8 p.m. on Saturday, March 16.

It is hard to decide which is more integral to the six year old Jazz Tap Ensemble--the music or the tapping. The musicians (who also take their turn hoofing from time to time) perform original compositions as well as familiar works by such favorites as Duke Ellington, Buddy Holly, and Thelonious Monk. As for the dancing, one doesn't have to know a shuffle from a riff to realize that these dancers are "the real thing." The tapping trio are "technically brilliant, charming, eclectic, humorous, and refreshingly down-to-earth." Each performance by the Ensemble features fresh improvisation by the musicians and dancers so that each show is unique. They clap, slap, and tap in unison, sharing in a tradition and persuading their audience that rhythm is a universal language.

Since their debut in 1979, the Jazz Tap Ensemble has been enjoying "estatic receptions" from audiences across America and Europe. The troup appeared in Christian Blackwood's award-winning documentary "Tapdancin'" and in a British television special. This season the Jazz Tap Ensemble will tour the Far East.

Don't delay in making your reservation to see, no... uh... listen to, the Jazz Tap Ensemble. Admission is $8 and tickets are available at the Information Desk in the atrium of Wilson Hall, ext. 3353. Phone reservations are held for five days awaiting payment. Due to ticket demand, those reservations not paid for within five working days are released for sale.

-Jane Green