

F E R M I N E W S

F E R M I L A B A U.S. DEPARTMENT OF ENERGY LABORATORY



Photo by Reidar Hahn

Parting Words **2**

Volume 22
Friday, July 2, 1999
Number 13



INSIDE:

- 6 Constructing a Legacy
- 10 Witherell Starts Work
- 12 Right On Target
- 14 Talk of the Lab

Parting Words

DIRECTOR JOHN PEOPLES BIDS FAREWELL.

by Sharon Butler

Director John Peoples sat quietly as his life and career at Fermilab were toasted and roasted at the June 10 symposium held in his honor, but then his turn came to reflect on the best of his 10 years at the Laboratory.

With his party about to get started, and barbecue and sparkling grape juice awaiting guests in the atrium, Peoples promised to keep his remarks "down to eight hours." He launched into a narrative about the birth of the Recycler, and ended up paying his respects to the entire Fermilab staff.

"It would be nice to get a few things down for history," he said.

The Recycler was born, Peoples said, during the chaos that resulted from the termination of the Superconducting Super Collider. While he ended up being the SSC's "funeral director (for reasons that I will someday write about)," his thoughts at the time, like those of the rest of the high-energy physics community, were on "what to do next."

"We wanted to go after the top quark. That was the big thing," he said, but it would require a new machine, the Main Injector, and maybe even others. "We wanted to get the luminosity up in the Tevatron."

During the week, he had to be down in Dallas, and sometimes out in Washington, Peoples said, but he would come back to Fermilab on weekends.

"This is one example of how our staff is so fantastic," he said. He and key staff, including his assistant, Mary Cullen, would meet on Saturday mornings to plot the future. "We'd run a regular work day," Peoples said.

At one of these meetings, Peoples recalled, Fermilab physicists Bill Foster and Gerry Jackson presented an idea for improving the Tevatron. Building on an innovation first contemplated by founding Director Bob Wilson, Foster proposed putting an 8-GeV storage ring in the Main Injector to increase the intensity of antiprotons, and hence the luminosity of the Tevatron.

Like all brilliant ideas, Peoples said, this one was immediately dismissed as ridiculous. But Foster and Jackson persisted, eventually developing a concept for what came to be called the Recycler.



“We wanted to go after the **top quark**.
That was the **BIG THING.**”



Photos by Reidar Hahn

Peoples said that, in the beginning, he was probably more enthusiastic about the Recycler than Steve Holmes, project manager for the Main Injector, but that was understandable. In shutting down the SSC, Peoples was dealing with a budget of a billion dollars. By comparison, \$10 million for the Recycler seemed positively cheap. Holmes, however, was responsible for completing the Main Injector not only on time but on budget, and \$10 million could very well break his bank.

Peoples won DOE's support by "peddling Ernie Malamud's notion that it would be cheaper [to use Foster's and Jackson's permanent magnets] for an 8-GeV transfer line from the Booster to the Main Injector" than to use the standard dipoles. The construction of that leg of the accelerator complex, commissioned in record time, "was the critical point," Peoples said, convincing DOE and even Fermilab management that the Recycler, with its unprecedented ring of permanent magnets, would work. Foster's and Jackson's persistence paid off. And they did persist, even when those much-trumpeted permanent magnets turned out to have





“ I know that **our physics** will go on
in a **great way....**

But **don't forget** the **WOODS**,
the **beauty** and the **buildings.**”

some “terrible temperature properties.” Foster and Jackson “kept coming up with improvements,” Peoples said.

The birth and success of the Recycler, Peoples emphasized, “is typical of what goes on at Fermilab. When an idea comes up that’s practical, implementable, and affordable, it gets a lot of consideration.”

As it turned out, the Recycler wasn’t needed to find the top quark, he said, but “who knows what we will discover” with the new machine.

Reflecting on other matters, Peoples commented that, “for reasons I don’t understand,” from its inception, “Fermilab had been given a rare opportunity to go its own way.”

“Maybe it started with Wilson,” he said. Glenn Seaborg, who headed the Atomic Energy Commission, probably recognized that “you either had Wilson build the lab he wanted, or you might as well get rid of him.” And DOE, Peoples said, did not stand in the way: “As a consequence, we were all allowed to go off and design our own buildings.”

Of course, Wilson didn’t always approve the designs; he put his arm through the model of one

proposed building he didn’t like. But still, Peoples said “we all got a chance at making the site organic and beautiful.”

Peoples said that when he recently escorted Dan Goldin, NASA administrator, on a tour of Fermilab, he told Goldin about “all the characters who had run this laboratory” and showed him the novel laboratory buildings, Goldin was impressed, remarking that “you couldn’t do this in the government today.”

Then, turning to his successor, Mike Witherell, who was sitting in the audience, Peoples said, “I hope, Mike, that you will continue to be one of the characters.”

And he enjoined Witherell to “keep the place beautiful.” After all, he said, “the director is in charge of beauty.” In fact, “the director is in charge of all kinds of interesting things in this place, including the woods.”

“I know that our physics will go on in a great way,” Peoples said in closing, “and I’m confident that we will be blessed by great machines some day.

“But don’t forget the woods, the beauty and the buildings.” 🌳

“Fermilab had been given
a **rare opportunity** to go its own way.”



Photo by Jenny Mullins

Stephen Pordes, deputy head of the Particle Physics Division, wearing an E760 Charmonium T-shirt, composed the verse for John Peoples and described Peoples's contributions to the Charmonium experiment at the Antiproton Source.

Onward SDSS Soldiers...

*Composed, annotated and read by
Stephen Pordes at the June 10 symposium
honoring Director John Peoples.*

Peoples, John, our retiring Director
From HEP, he is now a defector;¹
Champion of the Main Injector²
He's looking at another Sector.³

No more onion-peeling layer by layer,⁴
No more of Fermilab site the Mayor,⁵
Of Astrophysics, he's now a purveyor;⁶
Of the Universe, he's a digital surveyor.⁷

No more talk of calorimeter or quark
No more cryo quenches or septa that spark.
It's galaxies, mirrors, seconds of arc.
Happy he'll be when it's really dark⁸
And each little photon hits its little mark.⁹

With the SDSS, the knot he's tied.
Perched high up on the mountain side¹⁰
A brand new telescope is his pride
Taking a survey two π wide.¹¹

On and on, I could go¹²
About this business of APO¹³....
But now I hear the lunchtime bell.
Time to say: John, we wish you well.



- ¹ There are high-energy interactions in space, but “accelerator-based HEP” wouldn’t fit the meter of the poem.
- ² This is the first time I’m aware of that that title has had any use.
- ³ Economists used to talk about “sectors;” now the term is fashionable among physicists.
- ⁴ We used to say that high-energy physics peeled away the layers of matter.
- ⁵ See previous article.
- ⁶ A purveyor is a high-class word for a seller of something, like jam.
- ⁷ An oh-so-subtle reference to the Sloan Digital Sky Survey.
- ⁸ Originally, this line was “...when he’s really in the dark.”
- ⁹ A reference to LOW energy—and to the holes drilled in the SDSS plates to match the galaxies.
- ¹⁰ It’s not quite on the top.
- ¹¹ OK, OK It may not be two π , but please...
- ¹² [Note: At this point in the reading of the poem, Ruth Pordes, wife of the author, began ringing Fermilab’s famous cowbell, announcing the end of the morning session.]
- ¹³ Apache Point Observatory.

CONSTRUCTING

PEOPLES EQUALLY
ADEPT AT HANDLING
BIG PROJECTS AND
TRICKY POLITICS.

A LEGACY

by Mike Perricone

Fermilab's successes in exploring new particle physics in the 21st century will depend heavily on the new Main Injector, the new and unique Antiproton Recycler, and the extensively upgraded Antiproton Source—three machines whose origins can be traced directly to John Peoples.

The 10 years of Peoples' directorship (1989-1999) span the entire Main Injector project, including the Recycler, from concept to commissioning. His role went well beyond simple oversight.

"I would summarize John's role as being tireless and relentless," said Beams Division Head Steve Holmes, the Main Injector project manager from its outset. "John was so dogged on this thing, he made sure it was going to go through one way or another."

Before becoming Fermilab's third director, Peoples had served as project manager for construction of the Antiproton Source from 1981 to 1985. He altered the concept of the Accumulator and Debuncher rings to conform with the Lab's high-energy level of operation, and guided the machines' completion through technical challenges and managerial nightmares.

"The Antiproton Source can accurately be described as a technological *tour de force*," said Gerry Dugan, part of the Antiproton Source design team, who later served as head of both the Antiproton Source and the Accelerator (now Beams) Division. "The one responsible for the leadership, the direction and the inspiration of all of it was John Peoples."

A CHANGE IN DESIGN

Dugan, now a professor of physics at Cornell University, recalled that the original design of the Antiproton Source relied exclusively on electron cooling, which is effective at low energies but not at the high energies most useful for providing beam to the Tevatron collider.

Peoples directed the daunting process of revising the Antiproton Source design, from electron cooling to the technically complex stochastic cooling system. Invented at CERN, the European particle physics laboratory in Geneva, Switzerland, stochastic cooling uses microwave signals that must travel a straight line across the ring faster than the near-light-speed beam travels around the ring. Stochastic cooling shifts the positions and energies of particles within the beam, and reduces the size of the beam and its momentum spread.

"Technically, these are the most difficult systems in the Antiproton Source," Dugan said.

Building the Antiproton Source involved digging new tunnels for beam transfer to and from the Tevatron enclosure, as well as several service buildings on the surface. Dugan pointed out that the Booster Tower as well as the BZero and DZero collision halls, and many roads around the site, were also completed as



Photo by Jenny Mullins

part of the project, formally called "Tevatron I" by the Department of Energy.

The target hall for antiproton production had to be completed after the contractor went broke. Dugan recalled that another contractor's business failed during fabrication of the more than 1400 power supplies, and Peoples arranged to send technicians out to California for as much as six months to complete the construction.

Peoples also coordinated the process of prebaking the vacuum chambers for the dipole magnets at 800 degrees C, to squeeze hydrogen impurities out of the stainless steel. The only facility large enough to handle the huge chambers was in Wisconsin, meaning they had to be shipped there for baking, then brought back to Fermilab and installed in the tunnel.

Installation (by day) and commissioning (nights and weekends) ran through 1984 and 1985.

The very small initial numbers of antiprotons had to be accelerated in the Main Ring, transferred to the Tevatron, and accelerated again there.

"Finally, in October of 1985, we produced proton-antiproton collisions," Dugan said. "There weren't many, but there were enough to show that we had accomplished it."

A CHANGE IN STRATEGY

In 1989, Holmes, Peoples and the Main Injector began an association that lasted a decade. Holmes worked with a team on a design report for the Main Injector, aiming for a 50-fold Tevatron luminosity increase in conjunction with a Linear Accelerator upgrade. Peoples was the new director, Dugan was head of the Accelerator Division, the Tevatron collider program was up and running, and Texas had been chosen as the site for the ill-fated Superconducting Super Collider.

Pushing back the snow, the March 22, 1993 groundbreaking ceremony for the Main Injector secured the funding and the future for the \$260 million accelerator, according to Steve Holmes. Wielding the shovels are (from left) John Peoples, Representative Dennis Hastert, Senator Carol Moseley-Braun, Senator Paul Simon, and Bill Hess of the Department of Energy.





John Peoples served as project manager for the Antiproton Source, which former Accelerator Division Head Gerry Dugan described as a “technological *tour de force*.”

The SSC project made a new machine for Fermilab a tough sell. Despite a successful DOE review in 1990, and two favorable recommendations by High Energy Physics Advisory Panel subpanels (first the Sciulli Panel, then the Witherell Panel), a funding request for FY1991 was turned down by Congress.

“In the early days,” Holmes recalled, “when this project was trying to come to life, John played a very critical role, working hard to enlist political support to get this thing going. The Illinois congressional delegation was engaged, as was the Governor’s office and a group called the Illinois Coalition, a local business advocacy group. John got them all in the loop to try to press the case forward.”

DOE cut off funding in 1992, even though the appropriations had been signed into law. Peoples again coordinated an effort by the Illinois Congressional delegation, and President Bush restored the funding for FY1993. But the project was fraught with restrictions—such as initially allowing the construction of a tunnel section only as long as the service building over it, a tight fit for a two-mile-long accelerator.

“The critical part of getting the project going was a \$2.2 million challenge grant from the State of Illinois, secured through John’s leadership,” Holmes said.

That grant enabled the Lab to prepare environmental assessments and engage the architectural engineering firm of Fluor Daniel to begin the design work. But Holmes asserted that the move finally securing the Main Injector’s future was Peoples’s idea to hold a groundbreaking ceremony.

“At some level, I think John was challenging people not to show up,” Holmes recalled.

But show up they did, on March 22, 1993, with a morning snow yielding to climbing temperatures. Wielding the shovels were Peoples, Bill Hess of the Department of Energy, Illinois Senators Paul Simon

and Carol Moseley-Braun, and Representative Dennis Hastert of the 14th Congressional District, another instrumental contributor to the Main Injector effort.

“Once we had broken ground, there was pretty much no going back,” Holmes said. “Everybody was on board, DOE was enthusiastic, and the funding profile stabilized.”

The SSC demise in the fall of 1993 secured Fermilab’s premier position for at least another decade, and Peoples exhorted the invigorated Lab to “keep the dream alive.” Meanwhile, Gerry Jackson and Bill Foster were proposing an idea well out of the mainstream: an antiproton storage ring using permanent magnet technology, which could share the Main Injector tunnel at bargain-basement prices.

Holmes soon advised Peoples that the Main Injector project was underrunning the cost estimates, and both recognized the sense of incorporating the Antiproton Recycler, at a cost at about \$12.5 million. Peoples’s strategy: call the new machine an “engineering change request.”

“We had a DOE Lehman review in November 1996, and it was accepted,” Holmes said. “It was probably the single biggest engineering change request ever submitted, but it was formally integrated into the project in April 1997. And 25 months later, we had circulating beam in the Antiproton Recycler.”

COMPLETING THE LEGACY

“I think the Main Injector is really John’s legacy to the Laboratory,” Holmes concluded. “He understood its importance to the future of Fermilab and to the U.S. high-energy physics program. He never lost sight of where we were trying to go, and he supported us through good times and bad.”

Holmes then addressed the Director directly.

“Thank you, John, for your support,” he said. “Those of us who continue at Fermilab expect to be able to demonstrate the wisdom of your commitments over the next decade.” ☛

Orr portrays multifaceted directors

by Mike Perricone

Rich Orr's career at Fermilab spanned all or parts of the first three directors' administrations from 1970 to 1990, and his wide range of roles—from riding horseback with Bob Wilson to serving as associate director for administration—gave him acute insights into the personalities of Wilson, Leon Lederman and John Peoples.

"All three are multifaceted," Orr told the Ramsey Auditorium audience at the John Peoples Symposium. "Not a single one was a one-dimensional person, either pure physicist, or pure administrator. Or pure dictator—though they would have liked to be."

Here are summaries of Orr's word portraits of the three directors:



Robert Rathbun Wilson

Robert Rathbun Wilson (1968-1978)

"A crisis manager without peer, and he had to be. We had crises like crazy, and most of them were Bob-generated. He built crisis into this place. I think he was an artist almost before he became a physicist. Someone telling him how to run a laboratory was like someone looking over Picasso's shoulder and telling Picasso how to paint. He stamped Bob Wilson all over the 6800 acres of Fermilab. This place looks like it does, feels like it does, is like it is, and the staff is like it is, because of Bob Wilson. His heart and soul are in every square inch of this place."



Leon Lederman

Leon Lederman (1978-1989)

"Leon put a world-class cachet on our experimental program. Educator, lecturer, author, leader—Leon was also a great diplomat, and he had to mend a lot of fences after Bob. I know a lot of hostile people ended up being Leon's best friends. Having him as our director increased our standing quite a bit. We were almost a great laboratory waiting to happen, but we had to have a strong experimental program. Leon had been guiding us in that direction already. Bob relied on Leon more than anyone else for advice on our experimental direction."



Photo by Reidar Hahn

Rich Orr (left) takes hold of the handle to turn off power for the decommissioning of the Main Ring in 1997. Completing the crew, from left: Andy Mravca, John Peoples and Bob Mau.

John Peoples Jr. (1989-1999)

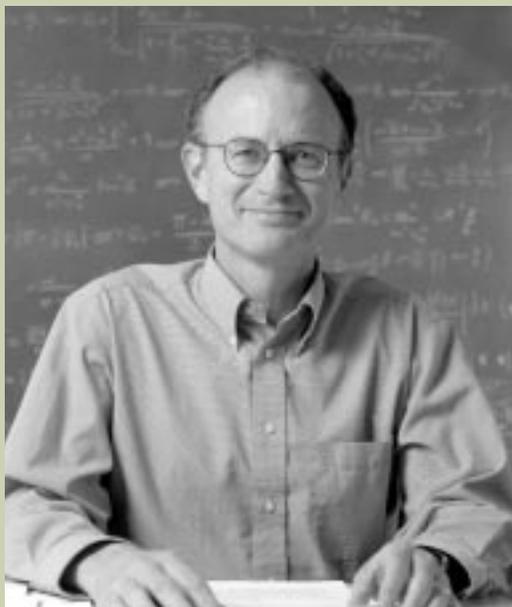
"John is a physicist of the first rank, but he is also a CEO of the first rank. I firmly believe John could go out and run any company in this country, including General Motors. A problem solver of the first order. An incredibly quick study. He'll come in and solve a problem before everyone else knows what the problem is—but with one caveat, which we called 'ready, fire, aim.' He was too good in too many directions at once. Sometimes you had to hold off a few days to make sure he didn't come back with another decision 180 degrees away. He was our best talent scout. John was perfect at picking and recruiting really first-class young physicists and plugging them into the program. He puts good people in good places, an important thing for a director to do."

Orr concluded with words of guidance for new Director Mike Witherell.

"He faces a problem convincing the people and the present Congress that we need basic research in this country if we're going to survive," Orr said. "I think what we do here is the basis for everything else that's going on, even the basis for the '.com' corporations are putting after their names to make billions. The World Wide Web was invented by high-energy physics. It's important that we keep doing basic research. It's important that Fermilab stays alive. That's Mike's job, and we wish him well." 🌱

WITHERELL STARTS WORK

NEW DIRECTOR
ADDS HOLMES, SHAEVITZ
AS ASSOCIATE DIRECTORS.



Mike Witherell began his term as Fermilab's fourth director on July 1.

by Judy Jackson

Fermilab's fourth director, Michael S. Witherell, officially began his job as leader of the nation's largest high-energy physics laboratory on Thursday, July 1. As he moved into the traditional Fermilab director's office on Wilson Hall's second floor, Witherell called on the support of all at the laboratory.

"This is a time of great opportunity for Fermilab," Witherell said, "but we also face many challenges and hard decisions about the future. Our success will require the active involvement and the best efforts of the entire Fermilab community, all of us working together."

The director announced the establishment of two new positions to create a scientific leadership team in the Fermilab directorate. Former Beams Division Head Stephen Holmes will serve as associate director for accelerators. Columbia University physicist Michael Shaevitz, former director of Columbia's Nevis Laboratory, will be the new associate director for research. Deputy director Kenneth Stanfield will continue in his current position.

"We need a strong team in the Directorate to manage the Lab," Witherell said. "I have appointed associate directors to oversee the two main scientific components of the laboratory, the accelerators and the research program. I will have many other responsibilities, including dealing with people in Washington. With such a large and diverse laboratory, we need people to worry full time about our scientific mission. I am delighted to have a strong team—Ken Stanfield, Steve Holmes and Mike Shaevitz—in place to work with me on the scientific program."

Some aspects of lab management will remain constant.

"The administrative and operations side of the laboratory is working very well," Witherell said, "and I am pleased that Bruce Chrisman and George Robertson have agreed to stay on in their respective positions as associate director for administration and associate director for operations support."

Fermilab physicist John Marriner will become head of the Beams Division, and Tom Nash will serve as special advisor to the director on computing and government policy, with responsibility for computer security and related matters. Particle Physics Division Head John Cooper, Technical Division Head Peter Limon and Computing Division Head Matthias Kasemann will continue in their positions.

FERMILAB: THE PLACE TO BE

Shaevitz brings the perspective of a long-term Fermilab user to his new post as associate director for research.

"My research career over the past twenty years has centered on Fermilab, and I am glad to be able to offer some return on the Lab's investment," Shaevitz said on accepting the appointment. "Over the next decade, Fermilab will be at the forefront in the field with, in my opinion, the most promising



Among many reasons Columbia University physicist Mike Shaevitz cited for joining the Fermilab team: "Fermilab has the best sand volleyball courts."



Former Beams Division Head and Main Injector Project Manager Steve Holmes is the new associate director for Accelerators.

Photos by Reidar Hahn

program for making fundamental discoveries. Combined with the potential for future projects at the energy frontier, this makes Fermilab the place to be. Having an opportunity to shape the future of particle physics is important to me, and Fermilab offers the most diverse opportunities. Over the next five years, I would like to help exploit the physics opportunities at the Lab and set up the groundwork for future projects. I am looking forward to working with Mike Witherell and others to make this all happen."

For Holmes, the move from an office just a few feet from the accelerator's Main Control Room, to the Wilson Hall second floor, represents an opportunity to shift focus from managing the Main Injector project and operating the Fermilab accelerators to a consideration of the future direction of accelerator physics at Fermilab and for the field.

"Having relinquished responsibility for day-to-day accelerator operations, I now have time to work with the Beams Division and the Technical Division on long-term issues," Holmes said. "My primary goal is to get accelerator people from different divisions in position to be a strong resource for establishing the future direction for our lab and for our field. These are people who built and operate the highest-energy accelerator in the world. I am here to assist them in pursuing the accelerator R&D that will establish our future. One of my roles is to be an advocate in the Directorate for accelerator R&D."

Holmes said he is leaving Fermilab accelerator operations in good hands.

"John Marriner, the new Beams Division head, has worked on nearly all aspects of Fermilab's accelerators, and he is widely recognized both within the laboratory and beyond as one of the world's foremost accelerator experts. I think he knows as much about how Fermilab's accelerators work as anyone on the planet."

Meeting last week at Fermilab's annual Physics Advisory Committee retreat in Aspen, Colorado, physicists from many other institutions echoed the sense of optimism and excitement combined with concern for Fermilab's future expressed by Witherell and his new leadership team. Holmes summed up the prevailing view at the start of a new chapter in the Laboratory's history.

"This is a crucial period for Fermilab," he said. "We are on the threshold of what promises to be a golden age for physics at our laboratory. We are uniquely positioned at the forefront of particle physics, with upgrades that will greatly extend our scientific reach. But the time will come when we are no longer in this position. The challenge is to define the future. The answers are not obvious, and there are many constraints, but we are committed to finding them." 🌀

Right On Target

by Mike Perricone

Meanwhile, back at the Lab, the beam goes on. Beam is going to experiments, and experimenters are going to meetings.

Through its External Beams Department, the Beams Division is sending a particle beam out to experimental areas for early work in the fixed target run. Ed Blucher and Bob Tschirhart are two of the experimenters getting in their early work each morning, attending a meeting held by the Beams Division.

"Ed and I go to those 9 a.m. meetings every day, and everyone is very helpful," said Tschirhart, co-spokesperson with Blucher for KTeV (Kaons at the Tevatron). "Everyone has the common goal of getting the maximum performance from the beam."

Early reports say the beam is performing well.

"We're really quite pleased with the way the accelerators have come up," said Craig Dukes, co-spokesperson for the HyperCP experiment, searching for CP violation in hyperon particles. "We're looking forward to a very productive run."

Beam is also running to the target area of the Antiproton Source—not yet for antiproton production, but for testing target prototypes for the long-baseline MINOS (Main Injector Neutrino Oscillation Search) experiment of NuMI (Neutrinos at the Main Injector).

"We're trying to choose the material and the configuration for the target," said NuMI/MINOS experimenter David Boehnlein. "We're working with graphite and beryllium, testing the stresses when the beam strikes the target. We have to be sure the target can withstand those stresses."

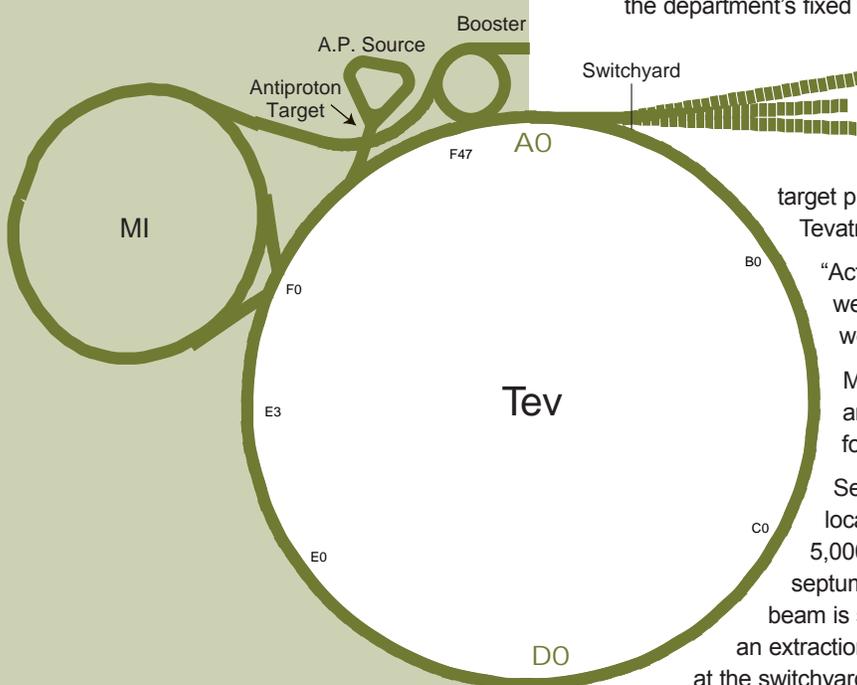
For Craig Moore, head of the External Beams Department, and Rick Coleman, the department's fixed target coordinator, sending beam to fixed target

experimenters is the harbinger of an entirely new routine with the Main Injector in operation. Replacing the old Main Ring, the Main Injector gives Fermilab the capability of running fixed target experiments simultaneously with collider experiments. So the fixed target program will not have to stop when Collider Run II of the Tevatron begins next year.

"Actually, it will be even better for us," said Moore. "In the past, we had periods of intense activity and then periods where we weren't sending beam to experiments."

Moore and Coleman cited Walter Kissel of Operations, and beamline physicists Tom Kobilarcik and Rick Ford, for making the startup "unbelievably smooth."

Sending beam to the fixed target areas begins at the DZero location of the Tevatron ring. Home to one of Fermilab's two 5,000-ton collider detectors, DZero also houses an electrostatic septum (from the Latin *saepium*, for partition). There, part of the beam is split off and sent on to the AZero location, where it meets an extraction magnet and is sent out toward the switchyard. The septa at the switchyard can then split the beam in as many portions as needed by the experiments; there were 10 experiments in the last fixed target run.



Getting beam at fixed target areas has experimenters lining up their sights.

The two kinds of septa, magnetic and electrostatic, operate on the same principle. A plane separates a field area from a non-field area, either a magnetic field or a stationary electric field. Circulating beam goes through the non-field area; extracted beam goes through the field area, which gives it a “kick” and changes its direction. The extraction magnets are called Lambertsons after their developer, accelerator physicist Glen Lambertson of Lawrence Berkeley National Laboratory, who has also conducted experiments at Fermilab.

The beam is first magnetically distorted or “squeezed” to produce tendrils that resemble airplane propellers. The tendrils pass by the plane of wires (each roughly 10 feet long and only 50 microns, or millionths of a meter, wide). The electrostatic field kicks part of the beam into an extraction channel and on toward a Lambertson magnet.

The process is identical to the resonant extraction process that served as the Main Injector’s final commissioning goal, and it will be used by the Main Injector to send beam to NuMI, KaMI (Kaons at the Main Injector, successor to KTeV) and other experiments.

Experimenters now are “gearing up.” At KTeV, where experimenters have seen direct CP violation in neutral kaons, the work focuses on calibrating their detectors for the next data-taking run.

“Essentially, we throw out 99 percent of the kaon decays that occur inside the detector,” Tschirhart explained. “To make sure we’re keeping all the good kaon decays, the detector has to be very well calibrated. If not, we’ll be throwing out good decays and not knowing it.”

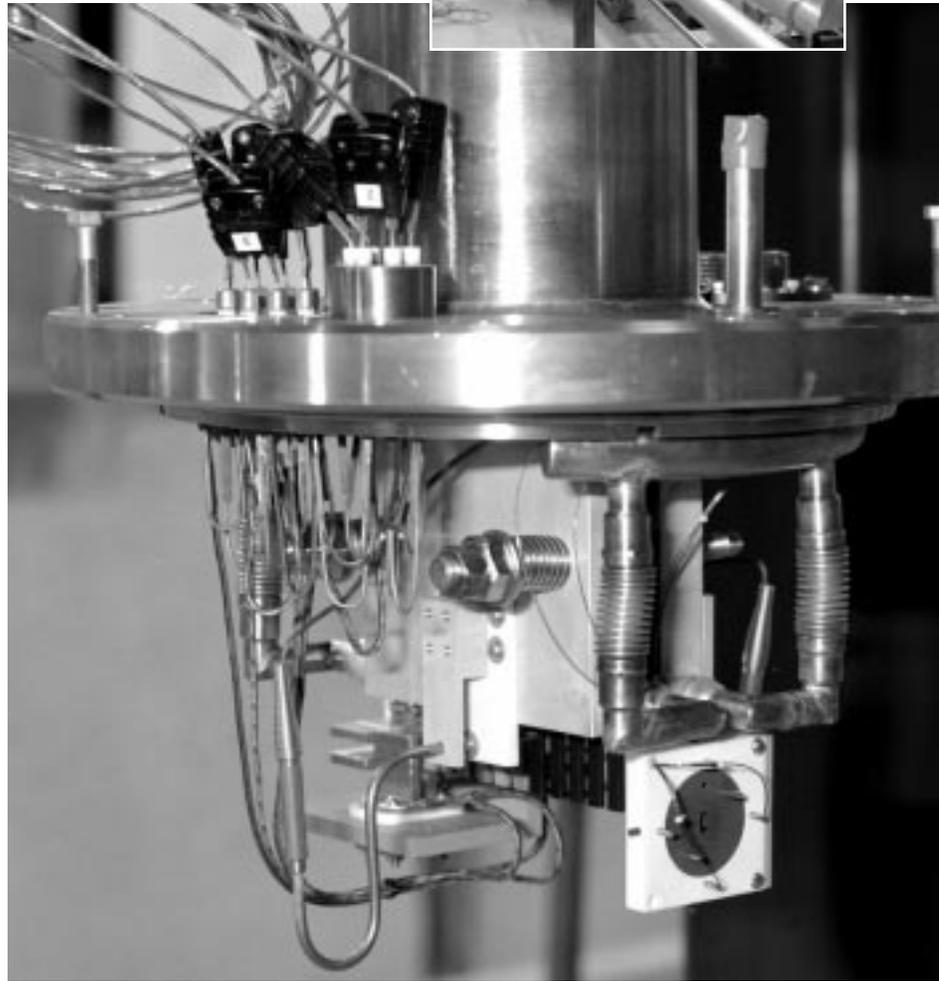
HyperCP, examining hyperons (particles composed of three quarks, including one or more strange quarks) for CP violation, has a rebuilt spectrometer and trigger system to bring up to speed.

“Basically, every component has changed, and timing is everything in this experiment,” said Dukes. “We receive the beam in buckets that are 19 nanoseconds (billionths of a second) apart. If our trigger timing is sloppy, the next or previous bucket can affect what we’re trying to measure. We have to be pretty fastidious in our timing.”

Checking the target area of the Meson test beam line are (from left) experimenter Max Chertok of Texas A&M, beamline physicist Tom Kobilarcik, and External Beams Department Head Craig Moore.



Photos by Reidar Hahn



For the NuMI target, which resembles a comb, the choice between graphite and beryllium hinges on which material can produce the highest yield of pions (which decay into neutrinos) from the smallest area. The proton beam will hit the center of the two-millimeter target, focused to within a few tenths of a millimeter.

“We don’t know what these materials will do under high amounts of beam impact,” said Jim Hylan, in charge of running the tests. “If one of the two materials can provide a very thin target that stands up to the very high intensities, that will be the one we select.” 🌀

Tests on the NuMI target prototype at the Antiproton Source will determine whether graphite or beryllium is the best material for the target.

the

t a l k

Simon Stops to Smell the Flowers

Flowers did not always line the east end of the DZero building; but thanks to Pete Simon, they always will. For the past four years, Simon has been working early mornings and during his lunch time to transform the dirty gravel on the east side of the DZero building into a colorful garden.

Simon thought DZero had a reputation for being too boring and business-like. "Somebody thought DZero was a little industrial," he explains. "When you look around, there's not much that's nice." So Simon decided to take matters into his own hands.



Simon, the building manager, organized the planting of the flowers on the east side of DZero. First, he got dirt from Roads and Grounds for the garden. Then, by posting fliers and signs requesting donations from other

employees, he was able to acquire a large variety of bulbs and blossoms to plant. He continues to pull weeds and plant for a few hours each week.

However, Simon does not want full credit for the garden. He says he had tremendous help from everyone, from secretaries to experimenters to engineers. Most of the flowers he receives are from other people. For example, Simon said that one person donated \$30 or \$40 worth of bulbs for the springtime, including peonies, tulips, daffodils, and crocuses. Unfortunately, the recent rain has washed some of the flowers away.

Simon does confess that there are weeds growing on the land. "It's basically a wild, weedy garden, but if a weed has flowers on it, that's okay, we keep it," he says.

Simon wants to keep the plants under control. He says that sometimes he has to "pick flowers like they are weeds" so they do not intrude on the bike path.

Simon enjoys gardening in his spare time; when he has spare time, that is. "It is relaxing, you get outside and you can get dirty," he admits.

As for the future, Simon definitely plans to keep working on the garden and possibly doing more, though his biggest request to Roads and Grounds has always been for a 200-year old oak tree. "I don't know; they are probably still growing it for me."

—Stephanie Holmes

About that chair...

The poster heralding the John Peoples Symposium featured the departing Director wearing a trademark sweater, seated in his favorite chair, against a background of wood wainscoting in his home library, with his faithful canine companion close at hand. One can imagine a cozy fireplace just out of the frame.

"That photo," deadpanned Fred Bernthal, president of Universities Research Association, the Lab's contracting organization of 89 universities "really represents John's audition to replace Alistaire Cooke as the host of 'Masterpiece Theater.'"

Among the gifts Peoples received at his tribute gathering were a plaque from Fermilab's Graduate Students' Association, in appreciation of his support; a framed photograph of the Peoples's home in Geneva, taken by Visual Media Services Head Fred Ullrich and presented by



Technical Division Head Peter Limon, who said the director was also "a good friend, there when you need him;" and an "appreciation plaque" from John O'Fallon of DOE, who apologetically explained that Peoples had previously been presented with the Department's Distinguished Service Award, its highest honor, which is given just once to any recipient.

The climactic gift was presented by Bernthal, who dashed off into both wings of the stage ("I don't have an assistant here and I don't even know where this thing is," was his disclaimer) before locating a sumptuous leather office chair, which he pushed back out to center stage and presented to Peoples on behalf of URA.

the

"You've heard of retiring to a Chair," Bernthal said, an academic allusion, "well, we don't have Chairs at Fermilab—other than the real thing. We thought about a couch, but we decided to stick with retirement to a chair. So there it is, John, and congratulations."



Peoples assumed his position in the new chair, and began delivering his closing remarks, saying: "Since this is being recorded, it's nice to get a few things down for history."

—Mike Perricone

MILESTONES

URA Scholarship AWARDS

Christopher J. Becker, son of Michael Becker, FES/Roads and Grounds who plans to attend Northwestern University.

Nathaniel W. Grobe, son of Deborah Grobe, ES&H section who plans to attend Northwestern University.

Alice Hsiung, daughter of Yee Bob Hsiung, PPD/Exp. Physics Projects who plans to attend Amherst College in Amherst, MA.

Rachel Mackenzie, daughter of Paul Mackenzie, PPD/Theory Group who plans to attend Stanford University.

Paul Michelotti, son of Leo Michelotti, BD/Beams Physics Department who plans to attend Illinois Wesleyan University in Bloomington, IL.

Peter Poole, son of Patti Poole, PPD/Conference Office who is undecided on where he will continue his education.

Aravind Raghu, son of Usha Raghyu, LS/Library who plans to attend University of Illinois in Urbana-Champaign.

Parminder Reehal, daughter of Jagir Reehal, BD/Cryogenic Systems who plans to attend University of Illinois-Chicago.

Peter Schmidt, son of Eugene Schmidt, PPD/CDF who plans to attend Wheaton College.

Gregory Schuh, son of Keith Schuh, PPD/CDF who plans to attend Indiana University.

Frances Spalding, daughter of William Spalding, PPD/CDF who plans to attend Cornell University.

Matthew Strait, son of Jim Strait, TD/Technical Support who plans to attend Carleton College in Northfield, MN.

RETIRING

John Satti, I.D. # 72, on August 19 from the Beams Division/AS/Mechanical Support. His last work day will be July 30.

John Venard, I.D. #8287 on July 2 from the Directorate.

LAB NOTE

Go to www.fnal.gov/orgs/fermilab_users_org/users_agenda_99.html for more information on the Users' Meeting.

Users Meeting / Festa Italiana

Fermilab users will hold their annual Users' Meeting on July 7 and 8, 1999, at Fermilab. The traditional Users' Meeting reception at the Users' Center at 6:00 p.m. on the evening of Wednesday, July 7, will be followed by a Festa Italiana, sponsored by the Fermilab Italian community, beginning at 7:30 p.m. at Kuhn Barn in the Fermilab Village.

Users will devote the day on Wednesday, July 7, to a consideration of the future of Fermilab and of particle physics in the U.S. Speakers include Fermilab's Mike Witherell and Chris Quigg, theorist Fred Gilman of Carnegie Mellon University and DOE's Peter Rosen. A panel will discuss the question "How does U.S. HEP consider, organize for, decide on and get to the future?"

All in the Fermilab community, including the users, are invited to the Festa Italiana, whose highlights will include the 6:30 p.m. opening of an exhibition of works by Italian painter and engraver Giancarlo Tognoni, with a silent auction of his works; a feast of Italian dolci, or desserts, and music at Kuhn Barn at 7:30; and a raffle of paintings on silk by Gianpaola Pauletta, also at the Barn.

LUNCH SERVED FROM
11:30 A.M. TO 1 P.M.
\$8/PERSON

DINNER SERVED AT 7 P.M.
\$20/PERSON

LUNCH WEDNESDAY, JULY 7

Closed

DINNER THURSDAY, JULY 8

Closed

LUNCH WEDNESDAY, JULY 14

*Grilled Vegetable
and Fresh Mozzarella Salad
with Basil*

Tropical Cheesecake

FOR RESERVATIONS, CALL X4512
CAKES FOR SPECIAL OCCASIONS
DIETARY RESTRICTIONS
CONTACT TITA, X3524

[HTTP://WWW.FNAL.GOV/FAW/EVENTS/MENUS.HTML](http://www.fnal.gov/faw/events/menus.html)

DINNER THURSDAY, JULY 15

*Vidalia Onion and Blue Cheese Tart
with Swiss Chard and Bacon
Seafood Kebabs*

*Pine Nut Lemon Rice
Corn Salad*

*with Roasted Poblano Peppers
Blueberry Turnovers with Ice Cream*



F E R M I N E W S

F E R M I L A B
A U.S. DEPARTMENT OF ENERGY LABORATORY

FERMINES is published by
Fermilab's Office of Public Affairs.

Design and Illustration:
Performance Graphics

Photography:
Fermilab's Visual Media Services

The deadline for the Friday, July 23, 1999, issue is Tuesday, July 13, 1999. Please send classified advertisements and story ideas by mail to the Public Affairs Office MS 206, Fermilab, P.O. Box 500, Batavia, IL 60510, or by e-mail to ferminews@fnal.gov. Letters from readers are welcome. Please include your name and daytime phone number.

Fermilab is operated by Universities
Research Association, Inc., under
contract with the U.S. Department
of Energy.



CLASSIFIEDS

FOR SALE

- '97 Truck (4 x 4) Ram 1500 Club Cab Laramie SLT, lots of extras, well maintained vehicle, white/light Driftwood, cap/bedliner/running boards, stereo, \$18,500 obo. Please call (630) 406-6080 after 5 p.m.
- '93 Geo Metro pink convertible, 29K miles, auto, like new condition, \$4,900. Call & leave message (847) 428-3714.
- '89 Dodge Caravan, auto, 7 passenger, P/W,P/L, AM/FM cassette, 143K miles, very good cond., \$2,200 obo. Jeff x2404, (630)406-8809.
- '88 Mazda 626, 4 drs, 5 spd shift, am/fm cassette, recent tires, 150K miles, good condition, \$1,500 obo. Frederic, x5631 or (815) 372-1404.

- '85 Toyota Camry LE 5-dr Hatchback, fits bikes/skis, 97K miles, a/c, power locks/windows, all maintenance records, runs great, \$1,500 obo. Zoltan, x6381 or zoltan@fnal.gov.
- '81 XLCH Harley Davidson Sportster (custom) air shocks, Barnett clutch, chrome front end, chrome side covers, more!! forward controls, custom paint, etc. Asking \$6,700. James, x3821 or james@fnal.gov.
- Ten new plus two used (erasable) lomega Zip disks (100 MB each). Epson lomega 100 disk drive, power cord, software/install disk, cable & custom carry case, \$125 obo. Call Mary, (630) 377-9252.

RENT

- Immaculate house, Plainfield, 3 bdrms, 2-1/2 baths, large kitchen, family room, living room, 2 car garage, large deck, freshly painted. Available 8/1/99, \$1,425 mo. Frederic, x5631 or (815) 372-1404.

WANTED

- Bicycle trailer for hauling children, Burly or like product which can fold and/or fit in car trunk. Please contact Dana x3891, (847) 742-6932 eves or dgcw@fnal.gov.
- Old refrigerator for the garage, just needs to be working. Call Alma, x3452.

CALENDAR

JULY 7-8

Annual Users Meeting

JULY 9-10

New Perspectives 99 student conference.

JULY 9

International Film Society Presents: *Henry Fools* Dir: Hal Hartley, (USA, 1997, 138 mins). Film at 8 p.m., Ramsey Auditorium, Wilson Hall, \$4. (630) 840-8000.
http://www.fnal.gov/culture/film_society.html

Web site for Fermilab events: <http://www.fnal.gov/faw/events.html>

JULY 17

Art Series presents: *Koko Taylor and Her Blues Machine*, \$17. Performances begin at 8 p.m. in Ramsey Auditorium, Wilson Hall. For tickets call (630) 840-ARTS.

JULY 23

NALWO Potluck Supper at the village barn. Drinks at 6 p.m. dinner 6:30, barbecue, soda provided. For more info call Maria (630) 231-5047.

ONGOING

English Classes, Thursdays at the Users' Center from 10–11:30, classes are free. NALWO coffee for newcomers & visitors every Thursday at the Users' Center, 10:30–12, children are welcome. In the auditorium, International folk dancing, Thursdays, 7:30–10 p.m., call Mady, (630) 584–0825; Scottish country dancing Tuesdays, 7:30–9:30 p.m., call Doug, x8194.

http://www.fnal.gov/directorate/public_affairs/ferminews/



F E R M I L A B
A U. S. D E P A R T M E N T O F E N E R G Y L A B O R A T O R Y

Office of Public Affairs
P.O. Box 500, Batavia, IL 60510

First-Class Mail
U.S. Postage
PAID
Bartlett, IL
Permit No. 125