

# F E R M I N E W S

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



Buffalo **6**

Photo by Reidar Hahn

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Number 19



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# BREAKING THE BOTTLENECK

C M S C O M P U T E

by Mike Perricone

**T**he Atlantic Ocean effectively separated Europe and the Americas until the end of the 15th Century and the great age of exploration, and it still poses problems in this age of the Internet.

In transmitting their data between America and Europe by network over the ocean, scientists in multinational collaborations find the available bandwidths are significantly narrower and slower than over land, where computer communications systems are highly developed.

"Bandwidths across the ocean are a bottleneck, and they will probably remain a bottleneck for some time," said Fermilab Computing Division Head Matthias Kasemann.

Until a permanent project manager is hired, Kasemann is heading up a project to establish a data sharing system between Fermilab and CERN, the European Particle Physics Laboratory, for the U.S. collaboration of the Compact Muon Solenoid detector. Fermilab will become a Regional Center for storing and distributing data when the CMS experiment begins generating physics results from CERN's Large Hadron Collider.

Computing Division Head Matthias Kasemann (right) confers with Computing Division physicist Vivian O'Dell on plans for the US/CMS regional center at Fermilab.



Photo by Reidar Hahn

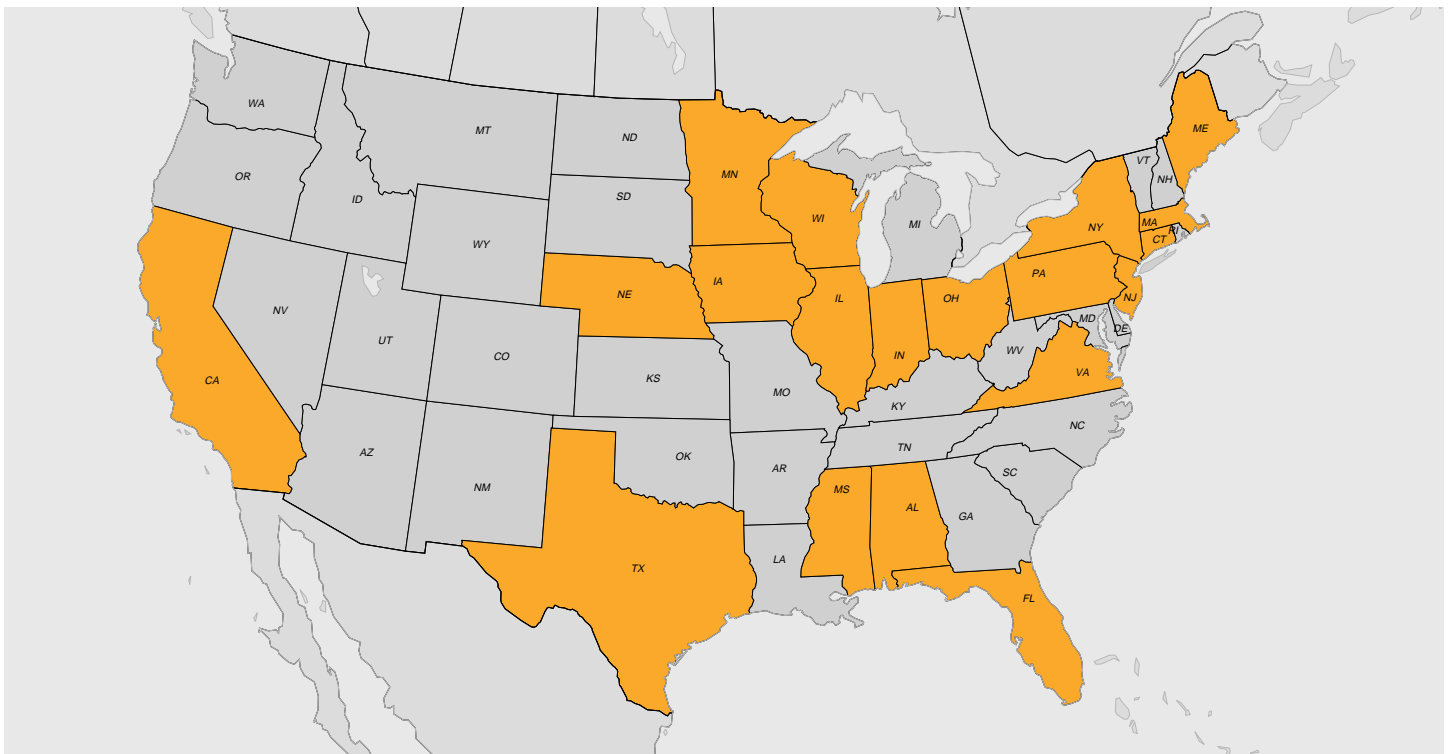
Kasemann estimated that the overseas bandwidths would have to be enlarged by a factor of 100 to handle the huge amounts of data generated by the CMS and ATLAS experiments at CERN. Until that expansion, the most likely method of transfer would involve recording data on tapes at CERN and flying them to Fermilab for storage in a tape robot system. Fermilab would then transmit the data electronically to the member institutions and scientists of US/CMS.

The project has received initial approval and some funding from the Department of Energy and the National Science Foundation. Fermilab, the host laboratory for the U.S. collaboration building subassemblies of the CMS detector, would also become the collaboration's host laboratory for software, analysis and computing support. As host, Fermilab will have a continually updated copy of all the data used for analysis at CERN, and make it available to all scientists at all universities and laboratories in the U.S. collaboration of 35 institutions in 19 states.

# FERMILAB BEGINS BUILDING COMPUTING HUB FOR US/CMS COLLABORATION.



The MONARC project, with a monarch butterfly logo, is assembling Models of Networked Analysis at Regional Centers for LHC Experiments.



## US/CMS MEMBERS

### Alabama

University of Alabama

### California

University of California at Davis  
University of California San Diego  
Lawrence Livermore National Laboratory  
University of California at Los Angeles  
California Institute of Technology  
University of California at Riverside

### Connecticut

Fairfield University

### Florida

University of Florida  
Florida State University

### Illinois

Fermi National Accelerator Laboratory  
University of Illinois at Chicago (UIC)  
Northwestern University

### Indiana

University of Notre Dame  
Purdue University

### Iowa

Iowa State University  
University of Iowa

### Maryland

Johns Hopkins University  
University of Maryland

### Massachusetts

Boston University  
Northeastern University  
Massachusetts Institute of Technology

### Minnesota

University of Minnesota

### Mississippi

University of Mississippi

### Nebraska

University of Nebraska-Lincoln

### New Jersey

Rutgers  
Princeton University

### New York

University of Rochester

### Ohio

Ohio State University

### Pennsylvania

Carnegie Mellon University

### Texas

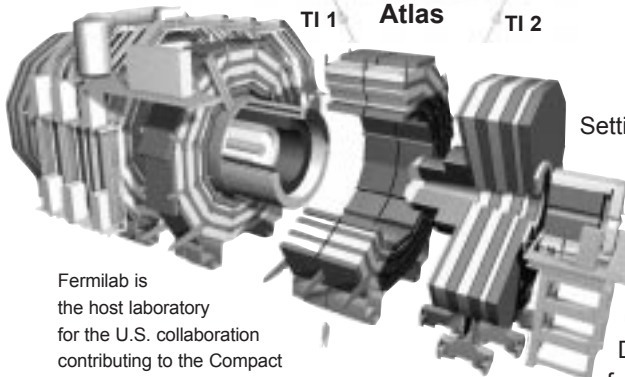
Rice University  
Texas Tech University  
University of Texas at Dallas

### Virginia

Virginia Polytechnic Institute

### Wisconsin

University of Wisconsin



Fermilab is the host laboratory for the U.S. collaboration contributing to the Compact Muon Solenoid detector for CERN's Large Hadron Collider.

Setting up as a regional center will require about \$10 million in computer equipment, equivalent to that used in each of the CDF and DZero upgrades for Run II. DOE and NSF started

funding for the hiring of computing professionals for the project, and Kasemann estimates 30 to 35 people will eventually work on the computing effort, with many drawn from current Fermilab resources as Tevatron Run II preparations are completed. The software and support have to be ready to go on the first day CMS is running, and the experiment's lifetime is projected at 15 to 20 years.

"Now we're really entering into a long-term relationship between the collaboration, the Laboratory and the funding agencies," said Fermilab's Dan Green, Project Manager for US/CMS. "You can build a detector, but the ultimate aim is to do physics with that detector."

Because the scale of the computing needs for the LHC experiments seemed to exceed its capabilities, CERN initiated a project called MONARC—an acronym for Models of Networked Analysis at Regional Centers. Under the MONARC model, each major collaborating country will set up what is called a Tier 1 regional center for data storage and analysis, and for support of the collaboration members. Brookhaven National Laboratory on Long Island, New York, is the host for the US collaboration on ATLAS. Other regional centers will be set up in France, Italy, England and Japan for one or both of the experiments, and discussions are underway for a possible regional center in Germany. The concept of the regional center grew from the goal of having data and analysis tools close to the scientists who need it.

"This takes us all the way from soup to nuts," Green continued. "In the past, you'd typically have to be where an experiment is running to do any

competitive analysis. The goal is for U.S. physicists to do physics at home, and not have to live at CERN, not have to keep flying there. This is important to the overall success of the experiment."

Fermilab's experience in providing computing support to large collaborations made it a natural choice as the computing hub for US/CMS. Both of Fermilab's detector experiments, CDF and DZero, have between 400 and 500 collaborators, similar in scale to US/CMS. Fermilab is also well practiced in analyzing proton collisions, and the resources of the Feynman Computing Center give Fermilab the most extensive computing infrastructure within US/CMS.

The challenge of what is called "distributed computing," however, extends into realms beyond the technical tasks of making computing data and tools timely and useful for a large number of far-flung scientists. As a computing hub, Fermilab will be storing all data generated from CERN, providing all scientists with the opportunity to work with all the results. Physics data easily and necessarily crosses national borders, offering a potential conflict with efforts in the U.S. aimed at restricting access by foreign scientists to U.S. computers.

"It is always the understanding in every international collaboration that every scientist has access to all the potential physics data of an experiment," said Kasemann, who is from Germany. "This is a very sensitive point in how high energy physics works, and how we work together. It's completely impossible to limit access, and say that certain nationalities or certain members cannot have access to data. That makes the whole idea of working together in collaborations like CMS, CDF and DZero impossible."

Kasemann emphasized that only multinational collaborations can build the experiments and analyze the seas of data they generate.

"These are world experiments," Green added. "In order to do them, you have to use the resources of all the countries involved." □



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London  
underground  
or the  
Manhattan  
skyline,  
but the  
future of  
high-energy  
physics

# CIRCLE LINE TOUR

by Sharon Butler

**T**his is not a pub crawl at each of the tube stops along London's Circle Line. And it's not a circumnavigation of Manhattan island, the Circle Line Tour its promoters bill as America's best boat ride.



Paul Grannis

Photo by Reidar Hahn

This is a series of high-brow, technical talks on the physics possibilities at potential future accelerators—whether the circular muon or the very large hadron collider, or some form of linear electron collider.

The series began on September 9 and 10 with talks by Ian Hinchliffe and Michael Peskin on prospects for studying supersymmetry at the LHC, the collider now under construction at CERN, and a linear collider. These experts were plied with questions beforehand, and their responses were posted on the Web as background, along with links to relevant scientific papers. The schedule for the talks allows two hours for presentation and extensive discussion.

The physics that scientists want to investigate will determine the outlines of a future collider, said Paul Grannis and Chris Quigg, the tour's organizers.

Practical and political considerations will have a bearing on the issue, of course. Is a muon collider even feasible? Is a very large hadron collider affordable? How long will construction take? Can the international community come together on which project to undertake? Will Congress and the governments of other countries provide the requisite funding? No matter which collider is contemplated, numerous technical questions, as well as economic constraints, need to be addressed.

In fact, many discussions have already taken place on practical problems. But, said Grannis, "until you get a good consensus on the physics you're after, the research community won't line up behind any particular collider."

Discussing the physics at a collider even more advanced than the LHC is complicated by the unknown. In the near and intermediate future, physics results are expected from experiments now or soon to be underway at LEP, the existing circular electron collider at CERN, at Fermilab's Tevatron, and at the LHC.

"To evaluate the potential of any future collider and to help build the consensus needed to focus worldwide support for a new accelerator, it will be essential to understand the capabilities of LEP2, Tevatron, and, in particular, LHC experiments as completely as possible within the confines of realistic physics scenarios," Grannis said.

The organizers are hoping that the discussion in the Fermilab community will lead to follow-on workshops to delineate the desired characteristics of a future accelerator (its beam particles, luminosity and energy, for example).

The next talks, by Hitoshi Murayama, of Lawrence Berkeley National Laboratory, and Daniel Denegri, of CERN, are scheduled for October 21 and 28 at Fermilab.

Watch for postings, and come on board. □

# Where The BUFF

by Mike Perricone

**D**on Hanson has been Fermilab's buffalo herdsman for 16 years, although two parts of that statement are not entirely accurate.

First: strictly speaking, those aren't buffalo at Fermilab.

The term "buffalo" is commonly but somewhat inexactly applied to the North American bison (*Bison bison*), a hoofed, short-horned, hump-shouldered member of the cattle family that can reach a height of more than five feet and a weight of 2,500 pounds, give or take—and can run at a speed of 30 miles an hour, usually when in an ill humor.

Of the bison's grazing and cud-chewing cattle-family cousins, the water buffalo (*Bubalus bubalis*), native to Africa and Asia, has widespread, curving horns; the European bison or wisent (*B. bonasus*) is even bigger than the North American bison. For a little additional hide-splitting, the Fermilab bison are plains bison, distinguishing them from woods bison found farther north in Canada. Woods bison tend toward slightly smaller heads and humps than plains bison, though they can be equally disagreeable.

But accurate or not, buffalo is the name they'll go by. "Buffalo" lends itself to symbol, which is the role of the Fermilab herd: a symbol of the frontier, in this case the frontier of high-energy physics, and a link to the origin of the Lab's site as land of the great midwestern prairie. "Buffalo" speaks of a time of big sky, of thundering herds huge enough to shake the earth beyond the horizon, of Plains Indians and their ponies on the hunt, and of sharpshooting Buffalo Bill. ("Bison Bill?" Don't think so.)

As to the second part of that opening statement that is not entirely accurate, a herdsman is defined as someone who drives a group of animals.

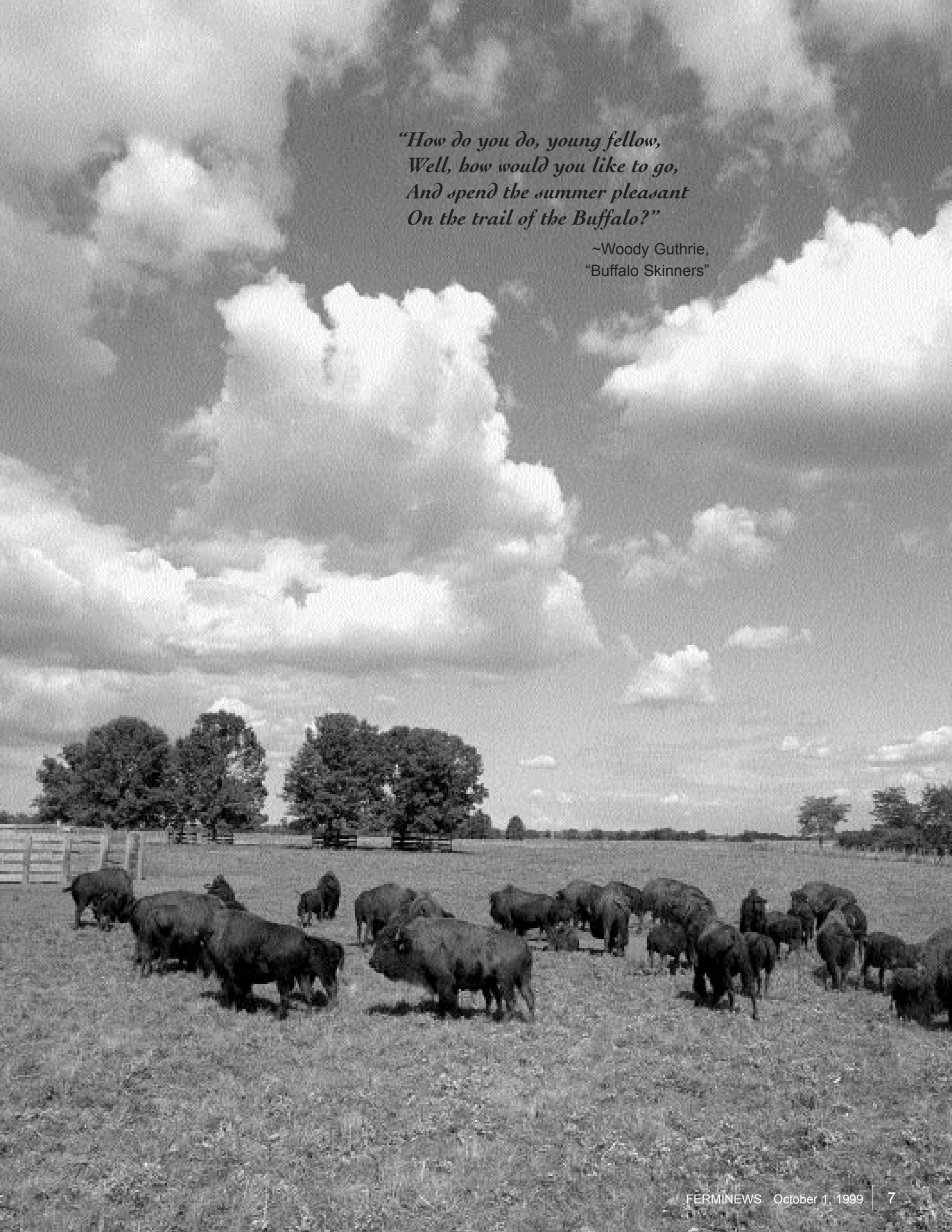
"You absolutely cannot drive buffalo," Hanson says with a knowing shake of his head. "You have to kind of lead them. Coax them. Once they think you're trying to push them, they'll just start running like crazy and there's no controlling them whatsoever."

When Hanson slowly drives his truck out onto the 80-acre pasture to give a visitor a closer look at the herd of bulls, cows and calves currently numbering 76, "closer" ends up being 30 or 40 yards away. He describes the buffalo personality in one word: unpredictable. Then he expands on the idea: very, very unpredictable.

"They look so docile, you think you could get right up close and pet them," he says respectfully. "But they snap. One minute, you drive by with the truck and it's no problem, they just kind of look at the truck with curiosity. You can drive by a cow with a calf, and one moment she'll be fine, but the next—she comes at you and hits the truck. They're wild animals. You can't trust them."

*“How do you do, young fellow,  
Well, how would you like to go,  
And spend the summer pleasant  
On the trail of the Buffalo?”*

~Woody Guthrie,  
“Buffalo Skinners”



# HO



Don Hanson has been at Fermilab for 23 years, serving 16 years as buffalo herdsman.

There are two fences around the pasture for the herd. The outer fence keeps buffalo-watchers out, separated by about 12 feet from the inner fence, which keeps the buffalo in. The inner fence is electrified, although the buffalo are not completely sanguine about it, and they do have horns. Inspecting the fence is a weekly responsibility, to check for breaks in the wire and for electrical insulators knocked off the fence posts. The grassy borderland between the fences makes up about an acre, and takes a full day to mow.

Fermilab purchased its first bull from a breeder in Cheyenne, Wyoming, adding six cows from another breeder in Longmont, Colorado. Then in 1971, the herd made a big increase when the State of Illinois donated 21 head to the Lab. Since then, the herd's bloodlines have been augmented by rotating the roster of bulls, selling off the bulls and bringing in new blood lines every two or three

years. By the age of six or seven years, the bulls get so big (well over a ton) that they're hard to handle. They also don't breed well. Cows, however, will produce calves throughout their lifetime of 20 to 25 years; by contrast, Hanson said, beef cattle produce calves for a maximum of about eight years.

At 76, the herd is currently right at the edge of the density recommended by the State of Illinois Department of Natural Resources; that recommendation is one cow-and-calf unit per acre of the kind of grassland present onsite. The herd will be reduced in size with the sale of 36 or 37 head by sealed-bid auction in October, a change from recent years when the sale was an open auction. After the sealed bids, the animals sold are usually picked up and transported by the breeders through November.

Hanson said that running an effective open auction every other year means carrying over several dozen extra buffalo through the winter, with the herd growing again when calves are born in the spring. With 30 new calves expected from a herd this size, the population would grow to over 100 and risk overgrazing. A yearly sealed-bid auction maintains the herd at a steady level.

Buffalo breeders are located all over the country; the last open auction drew bidders from 13 states, as far away as Florida. With the switch to sealed bids, bidders are concentrated in Minnesota, Wisconsin and southern Illinois. Mike Vogel, a regular bidder from Minnesota, is starting a second herd composed solely of animals purchased from Fermilab. Vogel supplied the tame bull used in one of the scenes of the film, "Dances With Wolves."

"They keep this huge bull separate from the rest, as a pet," Hanson said. "Mike's wife feeds it Oreo cookies."



# Home at the

It might be nice to think of buffalo leaving Fermilab to serve as symbols in other places, but breeding is a lucrative field, with buffalo hides a popular (and pricey) source of clothing ranging from boots to jewelry. Buffalo meat is also marketed as a low-fat, low-cholesterol (but higher-priced) alternative to beef. Breeders and wildlife protective measures have brought the North American bison population back, from a low of about 600 in 1889 to current estimates of more than 200,000.

At Fermilab, the buffalo eat well. They graze during the growing season, and eat hay in the winter. Hanson and the Fermilab Roads and Grounds crews plant and harvest their own hay, from seed produced on the site. The crews cut and bale the hay and put it up in a barn for winter—about 4,000 bales, each weighing about 50 pounds. The buffalo are also fed a supplement of corn and protein, about eight pounds a day in summer and increasing to 14 pounds during the winter.

Before winter comes (and before the auction), the buffalo are “coaxed” into the three-acre corral area for inoculations, worming and ear-tagging. With cows and their calves staying together, they move on a circular route through a crowding system of corridors and alleys and end up in a restraining area. Here, cow and calf are separated, each in a stall that adjusts to the size of the animal. A veterinarian provides the inoculations called “Triangle 9,” controlling nine different diseases. One shot goes into the shoulder, one into the rump. The inoculations clear the buffalo for shipping to any other state. A worming solution is poured on an animal’s back, and absorbed through the skin. Hanson attaches an ear tag with a herd identification number and a state vaccination number for each buffalo, while they’re pinned in the stall.

To accommodate the large, unpredictable buffalo, the gateposts in the corral area are 12”-by-12” and sunk into 30 inches of concrete; other posts are 8”-by-8” and sunk in limestone. Hanson adapted the design for the crowding system from standard methods in cattle-breeding, and from his own experience. He comes from five generations of farmers and livestock breeders and some of his favorite childhood memories are of long truck trips from Elburn, Ill. (not far west of the Lab site) to the stockyards on the south side of Chicago.

The old family farm has been sold, but Hanson, who has been at Fermilab for 23 years, recently bought a spread in southern Illinois. When he retires, he and his wife will keep horses and breed livestock.

“Cattle,” he says with a knowing nod.

“Not buffalo.” □



Photos by Reidar Hahn

# New Plumbing for Wilson Hall

by Sharon Butler

**D**iners in the cafeteria sat up in 1993 when a chunk of concrete from the 15th floor tumbled down through the sloping glass wall on the south side of Wilson Hall.

Elaine McCluskey, of Fermilab's Facilities and Engineering Services Section, is in charge of Wilson Hall's renovation project.



Four years later, people bolted right out of their chairs when a distribution pipe broke on the 6th floor, creating an unwelcome waterfall that flooded the atrium.

Such anecdotes will be things of the past when construction work begins on a much-anticipated two-year project to right everything that's wrong in this architectural innovation unimagatively dubbed, originally, the Central Lab, and now the High-Rise.



The Beauvais Cathedral in France served as inspiration for the design of Wilson Hall. The church's unfortunate history during the Medieval Ages might have forewarned the High Rise's architects of troubles to come. The cathedral was never completed west of the choir and transepts. And in 1284, its roof caved in, requiring the choir to be reconstructed and strengthened by additional piers. Nevertheless, it was the loftiest building of its time in Europe, and a daring achievement in Gothic

architecture. Its structure is held together internally only by a network of iron tie-rods.

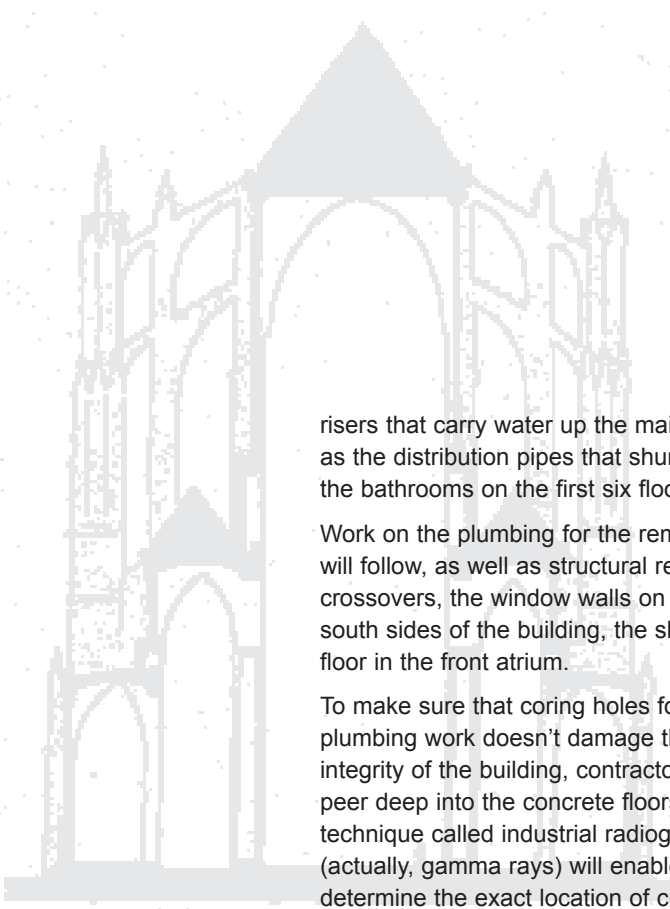
Like the Beauvais Cathedral, Wilson Hall is itself constructed of two lofty towers, connected by crossovers on each floor. The crossovers are tethered on the east side, while a series of joints connects the crossovers with the west tower. The joints were intended to "give" only during construction, to permit proper "tensioning" of the internal reinforcements. At the time, no one guessed that they would move with weather-related expansion and contraction. But that is exactly what happens. Hence, the concrete-on-concrete joints break rather than slide. The result has been broken windows, cracked concrete and falling pieces of cement.

Renovations, funded by the U.S. Department of Energy, will start the first week of October with an overhaul of the building's plumbing: the central

Thanks to the renovation project, Wilson Hall will soon have chilled, filtered drinking water.



Photos by Reidar Hahn



risers that carry water up the main shafts, as well as the distribution pipes that shunt the water to the bathrooms on the first six floors.

Work on the plumbing for the remaining floors will follow, as well as structural repairs to the crossovers, the window walls on the north and south sides of the building, the skylights and the floor in the front atrium.

To make sure that coring holes for the new plumbing work doesn't damage the structural integrity of the building, contractors will have to peer deep into the concrete floors using a standard technique called industrial radiography. The X-rays (actually, gamma rays) will enable engineers to determine the exact location of crucial structural components.

Don Cossairt, associate head for radiation protection at Fermilab, emphasized that the process is absolutely safe: It leaves behind no radioactive materials. Moreover, the radiography, like the rest of the plumbing work, will be performed only at night, between the hours of 6 p.m. and 6 a.m. The areas being analyzed will be closed off, with access given only to those people working on the radiography. (Notices on closures will be posted when details become available.) Licensed technicians will operate in accordance with state and federal regulations, Cossairt said.

Elaine McCluskey, the Fermilab engineer who is overseeing the entire renovation project, said that the contract restricts the plumbing work to after-hours so that most workers will not be disturbed by the noise.

Fermilab employees should be pleased with the results of the new plumbing. There won't be any more vile-tasting discolored water requiring the purchase of Sparkling Spring canisters. The drinking fountains will finally carry water that's chilled and filtered. □



A crack monitor.



A typical steel bracket used to support crossover beams until permanent repairs are completed.



A deteriorated wall on the 15th floor, seen here with reinforcement bars and steel brackets, has been repaired.

Photos by Reidar Hahn

# the

## Liberty. Equality. Supersymmetry.

From an article in the Paris newspaper "Le Monde," August 19, 1999, by Jean-Paul Dufour—

### headline: "Course contre la montre derrière une particule fantôme"<sup>1</sup>.

*"Les physiciens du CERN espèrent identifier le boson de Higgs avant deux ans sur leur accélérateur 'gonflé'*



"Trouvera, trouvera pas? Les physiciens du laboratoire européen pour la physique des particules (CERN) de Genève

viennent de lancer une course contre la montre pour tenter d'identifier une particule fantôme qu'ils traquent en vain depuis une dizaine d'années. Depuis le début d'août, le LEP (Large electron positron collider), l'accélérateur géant don't ils disposent actuellement, fonctionne à l'extrême limite de ses possibilités. Avec, pour mission, de trouver le boson Higgs avant décembre 2000, date à laquelle il sera, en principe, arrêté pour travaux....

"Il n'y aura plus alors, dans le monde, d'accélérateur en fonctionnement susceptible de mettre en évidence ce boson fantôme. Les physiciens devront attendre, pour compléter leurs théories, la mise en service de LHC, prévue pour 2005 au plus tôt, ou celle de son futur concurrent américain, le Tevatron du Fermilab, à Chicago, dans sa version améliorée "Run 3," qui, si financement est voté, produira ses premiers faisceaux à la même époque..."

### <sup>1</sup>. Race Against the clock in pursuit of a phantom particle

*CERN physicists hope to find the Higgs boson in the next two years at their souped up accelerator*

Will they find it, or won't they? The physicists at CERN, the European Laboratory for Particle Physics in Geneva, have begun a race against the clock to try to identify a phantom particle that they've been chasing in vain for a decade. Since the first of August, LEP (the Large Electron-Positron Collider), the giant accelerator currently operating at CERN, has been running flat out. Its mission is to find the Higgs boson before December 2000, when it will be closed for construction...

No other accelerator now operating in the world is capable of discovering this phantom boson. [If they don't find it at LEP], physicists will have to wait for the start of the LHC, planned for 2005 at the earliest, or for their future American competitor, Fermilab's Tevatron, in Chicago, in its upgraded Run III, which, if funding comes through, will produce its first beams at the same time...

From the September 2, 1999 issue of FAST, ("French Advances in Science and Technology") an electronic "free review of mainstream French press on issues of science and technology," produced and written by Timothy Carlson—

From: FAST<fast@amb-wash.fr>

To: jjackson@fnal.gov

Date: Tuesday, September 7, 1999

Subject: FAST – September 2,1999 –Issue #109

# of

### headline: "A souped up CERN closing in on Higgs boson before closing

"Physicists at CERN, the European Particle Physics Center, have been driving the Large Electron Positron Collider (LEP) pretty hard this summer, reaching an energy level of 200 giga-electron volts and thereby sparking hopes among physicists everywhere that Higgs's theoretically splendid but experimentally elusive boson particle will show itself. Scottish physicist Peter Higgs posited the existence of a universal force field which would supply the missing element in the 'standard model' description of matter: the source of particle mass. Since, according to quantum theory, to every force field there corresponds a particle, Higgs's boson must



exist. With the last quark recently hunted down and the standard model looking better and better, particle hunters are more keen than ever on bagging the boson. Recent experiments at CERN have led to more precise estimations of its likely mass (expressed in energy) and 200 GeV might well be enough juice to detect Higgs's particle. There is one hitch; the LEP is slated to be torn down beginning in December 2000 to be reborn in five years as the Large Hadron Collider (LHC). Since the LEP is the world's most powerful accelerator and the only one remotely capable of flushing a heavy boson, scientists are pushing themselves as

# the

hard as their machine in an effort to get the job done before they are forced to wait 5 or 6 long years for another try. (Le Monde, August 18 [sic], Jean-Paul Dufour)”

From: Judy Jackson <jjackson@fnal.gov>  
 To: fast@amb-wash.fr  
 Date: Thursday, September 09, 1999 10:05 AM  
 Subject: LEP most powerful? Au contraire!

Timothy,

Au contraire! As any CERN physicist will confirm, the Tevatron particle accelerator at Fermi National Accelerator Laboratory, just west of Chicago, is the world's most powerful particle accelerator, with a center-of-mass energy of two trillion electron volts. It is eminently capable of flushing a heavy boson such as the postulated “light” Higgs. Moreover, the good news is that the world's particle physicists will have to wait not “5 or 6 long years” but only 5 or 6 short months to take up the search for the Higgs after LEP shuts down.... When Fermilab's Collider Run II at the souped-up Tevatron begins in 2000, scientists at Fermilab will be going after the Higgs with the utmost energy!

Regards, Judy Jackson  
 Fermilab Office of Public Affairs



From: Timothy <tcarlson@worldnet.fr>  
 To: Judy Jackson <jjackson@fnal.gov>  
 Date: Tuesday, September 21, 1999 4:37 AM  
 Subject: Re: LEP most powerful? Au contraire!

Dear Judy,

Thank you very much for the light you shed on this matter. I recontacted Le Monde, who went in turn back to CERN, and their clarification along with yours forms the basis for a rectification of the Higgs chase discussion that you will find in a forthcoming issue of FAST. I welcome of course any further comments you may want to make, since the purpose of FAST is, as I hope readers know, information and understanding, not boosterism.

Thanks again, Timothy Carlson

From: Judy Jackson <jjackson@fnal.gov>  
 To: Timothy <tcarlson@worldnet.fr>  
 Date: Tuesday, September 21, 1999 9:13 AM  
 Subject: Re: LEP most powerful? Au contraire!

Timothy,

Thanks for your gracious response. I'll watch with interest for the new story on the Higgs chase. In fact, FAST doesn't come across as boosterish at all.

Incidentally there are five French institutions among the 60 member institutions of the DZero collaboration here at Fermilab. DZero is one of the two collaborations that will be taking up the Higgs search at the Tevatron when the collider run gets under way next year. Physicists (37 in all) from SACLAY, l'Institut des Sciences Nucléaires de Grenoble, le Centre de Physique des Particules de Marseilles, Paris VI et VII, and le Laboratoire de l'Accélérateur Linéaire are among the 450 or so DZero experimenters searching for the Higgs here in Chicago. In addition, France has contributed substantially to the construction of the DZero detector. If you think this might make an interesting FAST story, let me know and I'll be glad to put you in touch with some French experimenters from Day Zayro.



Regards, Judy Jackson

From: Timothy <tcarlson@worldnet.fr>  
 To: Judy Jackson <jjackson@fnal.gov>  
 Date: Tuesday, September 21, 1999 5:18 PM  
 Subject: Re: LEP most powerful? Au contraire!

Dear Judy,

Yes, I'd love to cover Day Zayro. If you send me a contact, I'll follow up when I get back from a trip to the States sometime in mid-October. Looking forward to staying in touch.

Best regards, Tim Carlson

From: Hugh Montgomery <mont@d02ka.fnal.gov>  
 To: Judy Jackson <jjackson@fnal.gov>  
 Cc: Timothy <tcarlson@worldnet.fr>  
 Date: Tuesday, September 21, 1999 8:02 PM  
 Subject: Re: LEP most powerful? Au contraire!

Judy,

Thanks for the plug for our French colleagues. In the spirit of Day Zayro you should know that one of the poky little conference rooms out in our trailers is called the Salle des Héros.



Mont, Co-Spokesperson, Day Zayro

## CALENDAR

### October 2

Art Series Presents: *Ahmad Jamal*, \$22. Performance begins 8:00 p.m. Ramsey Auditorium, Wilson Hall. For more information call (630) 840-ARTS.

### Effective October 4

ISS Stockroom Hours of Operation will be 8:00 a.m. until 3:00 p.m. The stockroom will be open during the lunch break of 11:45 a.m. to 12:30 p.m. Thank-You

### October 8

#### Fermilab International Film Society Presents:

*Psycho* Dir: Alfred Hitchcock, USA (1960), 109 Min. Original classic thriller. Revered by many as the greatest horror movie ever made. Film 8 p.m., Ramsey Auditorium, Wilson Hall, \$4 (630)840-8000.

### October 10

Barn dance in the Kuhn Village Barn from 7 to 10 p.m. Music is by Joe, Sam, and Jerry and calling is by Bill Sudkamp. All dances are

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

taught and people of all ages and experience levels are welcome. Admission is \$5, children under 12 are free (12-18 \$2). The barn dance is sponsored by the Fermilab Folk Club. For more info, contact Lynn Garren, x2061 or Dave Harding, x2971.

### October 23

Fermilab Prairie Harvest. 10 a.m. to 2 p.m. Bringing a large group? Call ahead. (630)-840-3303.

### RECREATION FACILITY

Recreation Facility Y2000 memberships are available this month in the Recreation Office, Wh15W, from 8:30-5:00 Monday-Friday. You may renew your 1999 membership through the mail by sending a completed application form and waiver (copies can be found at <http://fnal.pubs.fnal.gov/benedept/recreation/facility.html> and a check payable to Fermilab to M.S. 126. New members that purchase their memberships the beginning of September receive 13 months for the

price of 12. Membership costs are \$70.00 for student memberships (visiting graduate students only). All 1999 memberships expire October 1. There will be an open house on October 8th and 15th from 8:30-5.

### FALL & WINTER MUSCLE TONING CLASSES -

Call Recreation Facility-Class size is limited-call now! Must be a current facility member.

### ONGOING

English Classes, Mondays and Thursdays at the Users' Center, 9:30 a.m. to 11:00 a.m. Free classes can be joined at any time. For more information call Selitha Raja 305-7769. NALWO coffee for newcomers & visitors every Thursday at the Users' Center, 10:30-12, children welcome. In the auditorium, international folk dancing, Thursday, 7:30-10 p.m., call Mady, (630) 584-0825; Scottish country dancing Tuesdays, 7:30-9:30 p.m., call Doug, x8194 or e-mail [folkdance@fnal.gov](mailto:folkdance@fnal.gov).

## MILESTONES

### Married

Deborah L. Quintero, PPD to Bruce Bonifas on September 11, 1999.

### Retiring

Holly Clark, ID 2364, effective October 8, 1999 from FES-OP-Mechanical.

Marcia Streetman, ID 4358, from PPD-Support Service Team, on September 30, 1999.

Ed Pietras, ID 1941, Business Services/Accounting on September 30, 1999.

### Honored

Kevin McFarland, CDF scientist and assistant professor of physics and astronomy at the University of Rochester, with an Outstanding Junior Investigator award from the U.S. Department of Energy.

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

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

## Chez Léon MENU

FOR RESERVATIONS, CALL X4512  
CAKES FOR SPECIAL OCCASIONS  
DIETARY RESTRICTIONS  
CONTACT TITA, X3524  
[HTTP://WWW.FNAL.GOV/FAW/EVENTS/MENU.HTML](http://www.fnal.gov/faw/events/menu.html)

### LUNCH WEDNESDAY, OCTOBER 6

*Roasted Lake Trout*  
*Lemon Rice Pilaf*  
*Vegetable of the Season*  
*Apricot Walnut Mousse*  
*with Lemon Shortbread*

### DINNER THURSDAY, OCTOBER 7

*Booked*

### LUNCH WEDNESDAY, OCTOBER 13

*Eggplant Towers with Tomato Sauce*  
*Romaine, Red Onion and*  
*Black Olive Salad*  
*Butternut Squash*  
*Pecan Pie*

### DINNER THURSDAY, OCTOBER 14

*Fish Soup*  
*Asian Flavored Flank Steak*  
*Spaghetti Squash with Scallions*  
*Napa Cabbage Salad*  
*Crepes with Pears and Almonds*

## F E R M I N E W S

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

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The deadline for the Friday, October 15, 1999, issue is Tuesday, October 5, 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](mailto:ferminews@fnal.gov). Letters from readers are welcome. Please include your name and daytime phone number.

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## CLASSIFIEDS

### FOR SALE

- '99 Goldwing SE (Silver) Under 11K Miles - Runs Great, MUST SELL. Asking \$16,300 has Markland Receiver Hitch and (5 pin) OEM trailer wiring kit, Markland floorboards, foam grips and an extra windshield. Also 2 headsets for the intercom one full-face helmet model and one that can be used either on a full-face or open-face. Still has 2+ yrs on original (Unlimited Mile) Warranty. Can get another 3 yrs extended (Unlimited Miles). Call Terry X4572 or e-mail [skweres@fnal.gov](mailto:skweres@fnal.gov)
- '96 Ford Explorer, Eddie Bauer 4 dr, V8 all wheel drive 27K mi., lady driver, green/tan interior loaded. \$23K. Mike, 847-426-1596 or X3924.
- '96 Olds Ciera SL Sedan 4D. V6 3.1 Liter, Auto trans, a/c pwr steering, windows, door locks. Tilt wheel, cruise, AM/FM stereo cassette pwr seat backs pwr outside rear view mirrors. BB beige with velour interior. x-cond't. Jack@ x4191, 815-436-7848.
- '95 Mercury Tracer, 1.9L, auto, a/c, dual air bag, am/fm cassette, power brakes, pwr steering, mirrors, rear window defroster, rear spoiler, intermittent wipers, new tires. Only 43,500! Runs great! \$5300 (that is 35% off Edmund's recommended market price!) Sasha, x-4734 or (630) 208-6214
- '95 Dodge Grand Caravan SE, V6 3.3 liter, 79K loaded-all power equipped, new generator, digital dash board, compass, ABS, power seat, power windows, VG condition. \$8,700 obo. Leaving country; must sell. [gctiver@fnal.gov](mailto:gctiver@fnal.gov)
- '92 Dodge Dynasty (42k original miles) Great Condition \$5,000. Rick x4270 or [ret@fnal.gov](mailto:ret@fnal.gov)
- '92 Toyota Camry LE (White), 81k auto, AC, PS, PB, pwr window/lock, pwr sunroof, cruise, AM/FM stereo cassette, no accidents, first owner, 70k maintenance, \$7,500. Maotung Cheng, x6084.
- '90 Pontiac Bonneville, 75k, auto, AC, PS, PB, cruise, AM/FM/cassette stereo, recent tires and battery, reliable, \$5,000. Call Jay x3238 or [Theilacker@fnal.gov](mailto:Theilacker@fnal.gov)
- '89 VW Jetta, x-cond't, new battery, belts, brakes, exhaust, shocks, tires. Black 5-speed with AC, PS, PB, AM/FM stereo cassette, 109k miles, service records available, clean, \$ 1,950 obo. Michael Klasen, (630)252-8560 or [klasen@hep.anl.gov](mailto:klasen@hep.anl.gov).

- '86 Mercedes-Benz Model 190-D, 5 cylinder, 4-spd. Automatic gray w/gray interior, sun-roof, power seats, lots of extras, average mileage, asking \$7,200 obo. Mike, 847-426-1596 or X3924.
- '86 Alfa Romeo Spider Veloce, 5 spd manual, 2-seat red convertible, only 66K miles, runs well, \$4,000 obo. [frieman@fnal.gov](mailto:frieman@fnal.gov) or call Josh at x2226.
- Antique "Ladies" White wicker desk w/matching chair \$450, unpainted antique wicker rocking chair w/cushions \$275, white wicker library table w/oak top \$300, round white wicker table w/oak top, \$250. Pine dry sink w/tin lined top \$400, small pine chest 27"H \$275. Barbara x 3865, or 393-7885.
- 2 leather jackets, ladies, w/opossum lining-black, small-\$250 brown, medium - \$500 - (630) 840-3644 or (815) 729-9072 between 5 & 7 PM.
- Sony CFD454 portable CD/Radio/ Cassette-Corder. DC and cassette need work. Great fixer-upper for electronic enthusiast! Will accept best offer. Call Shelley x 5809 or [krivich@fnal.gov](mailto:krivich@fnal.gov).
- Afghan - hand crafted by my 92 year old grandmother. 66"X48". The colors are egg shell with mauve and green stripes. Has fringe. Makes a great Christmas gift! \$75 or best offer.
- Canna Lilly Bulbs to Swap: I have many red-leaf Presidential Canna Lilly bulbs (tall, red flowers). Would like to swap for other colors/varieties after they are dug up in fall. Dennis x6410, e-mail [nicklaus@fnal.gov](mailto:nicklaus@fnal.gov)
- Norwegian Elkhound Puppies. Quality AKC puppies, In-Home raised. Champion Bloodlines. Contact Jeff Clark @ Ext. 3825 Or at Home @ (630) 552-3006
- Ping Pong Table, like new, only used a few times. Original price \$169, will sell for \$75 call Cliff at (630)-859-8441.
- Refrigerator. Older model, good for a spare. \$50. Call Henry x4157 or P. 0141
- Full size upright frost-free freezer \$100, [treend@fnal.gov](mailto:treend@fnal.gov).
- Light tan couch & matching chair \$125. DP Aereo cycle \$25, cherry wood night stand \$30, small early American cabinet 30"x 15"x30"H \$25, air powered drill new \$35, impact wrench new \$45.

- Entertainment cabinet vg cond't \$50 Kitchen table butcher block, round \$25. 6 piece bdrm set Spanish design, dbl dresser with dbl mirrors, chest, night stand, hdbd and hamper \$250. Wood with leather top storage cabinet - coffee table \$25. Console radio turn table, 8-track (yes, 8-track) make an offer. Carol days x 2992 evenings (630) 876-3293
- Mahogany Dining Room Set: Duncan Phyfe drop leaf table w/pads, 6 chairs and china cabinet \$2,500, Bonnie @ (630) 495-3790
- Original 1950's-era school desk. Wooden desk top lifts opens to large storage compartment; wooden seat w/ backrest is attached to desk's metal base. Desk and seat are independently height-adjustable. All offers considered. e-mail [wb@fnal.gov](mailto:wb@fnal.gov) or call x2784.

### FOR RENT

- 2 BR house with wash & drier, 1-1/2 Bath, no garage, East side Batavia, Available on Oct. 1, \$750/Month, Call Helen@978-3673
- Apartment in Aurora, newly refurbished 2 bedroom apartment with laundry hookup at \$695/month. Call Carl (630) 892-5257.
- Brick ranch in West Aurora. 3 bd, 2.5 ba, cntry kit/see-thru fpl from fmlyrm to formal living rm, 3 season rm, 2 car garage. Lovely home situated in a mature neighborhood, 1/4-acre, new furnace-a/c, [treend@fnal.gov](mailto:treend@fnal.gov). \$169,500.
- House for rent, St Charles, old neighborhood, two bedroom, large yard nice location, close to river and bike bath.\$900 [steinbru@fnal.gov](mailto:steinbru@fnal.gov) or phone 587 9464.

### WANTED

- Mentors. The National Electronic Industrial Mentoring Network for Women in Engineering and Science needs women mentors. For more information contact Carol Muller, 408-924-4070 or [cbmuller@e-mail-sjsu.edu](mailto:cbmuller@e-mail-sjsu.edu).
- Metal detector. Call Henry X4157 or P 0141.

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