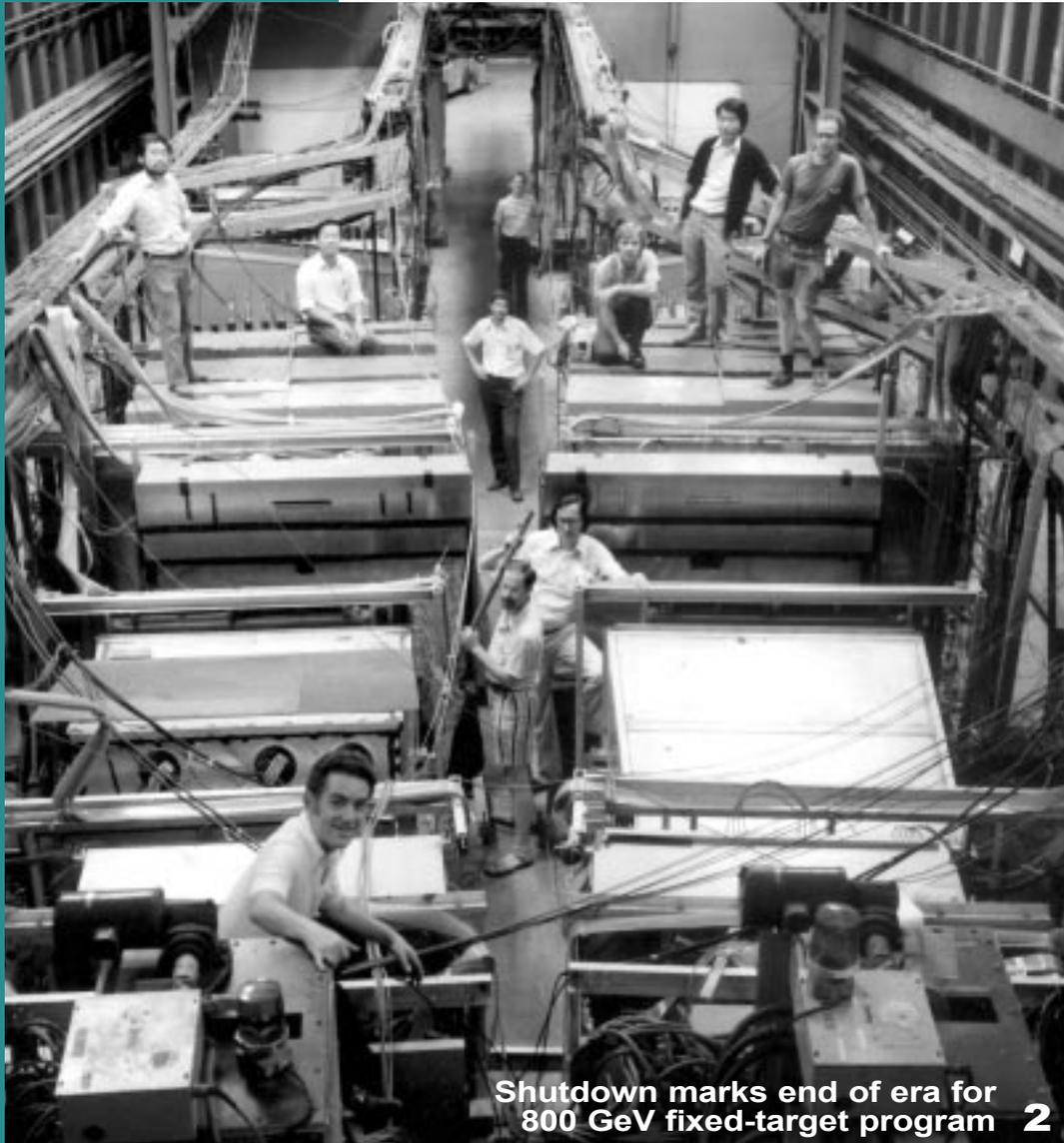


F E R M I N E W S

F E R M I L A B

A U.S. DEPARTMENT OF ENERGY LABORATORY



Shutdown marks end of era for 800 GeV fixed-target program **2**

Fermilab Photo

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The END...

by Mike Perricone

COVER: The early days of Fermilab's fixed-target program produced one of the major discoveries in particle physics in 1977—the u quark, or bottom quark. The experimenters shown are Chuck Brown (foreground), with Dan Kaplan, Hans Sens, Jeff Appel and Bob Kephart lined up behind him; and atop the detector apparatus, from left to right, Al Ito, Dave Hom, Ken Gray, Koji Ueno and Steve Herb.

It was an era of great growth, sometimes instantaneous growth.

“One of my fondest memories is of becoming an extraction expert,” said Roger Dixon, whose Fermilab career began in the Switchyard, extracting beam from the old Main Ring and sending it to the fixed-target experimental areas, a quarter-century ago or thereabouts.

About two months into his Lab career, Dixon received a 3 a.m. call at home. There was a beam problem. He jumped into his car and sped to the Lab.

“When I arrived,” he recalled, “I was greeted by a message on Channel 12 of the Laboratory television system that said something to the effect of ‘Expert Has Been Called.’ I thought, ‘Me? Surely, they don’t mean me.’ Yet there it was, right on the screen, big as life. I was expected to be an extraction expert, and perform some magic.”

Somehow, he did.

The 800 GeV fixed-target program at Fermilab drew to a close on Friday, January 21, when the beam was turned off from the Main Control Room. The shutdown marked the end of an era with antecedents in the very earliest days of the Laboratory, an era producing not only great discoveries but magical memories, and mirthful ones, too.

The shutdown marked the end of an era extending back before colliding beams, and before experiment collaborations numbering in the hundreds, an era when firing particle beams at fixed targets dominated the Lab’s experimental program, an era when the energy booster called the Doubler produced new phenomena in unexpected places.



Photo by Reidar Hahn

Steve Baginski was on duty in the Main Control Room when the 800 GeV fixed-target beam was shut down for the final time.

and The BEGINNING

SHUTDOWN of 800 GeV fixed-target program closes one era but opens another.

"The day we went from 400 GeV to 800 GeV," recalled John Cooper, now head of the Particle Physics Division, "the cafeteria served a 'Doubler.' Two hamburger patties on one bun."

A DIFFERENT CULTURE

The new phenomena included major breakthroughs in physics, including the discovery of the upsilon particle, or bottom quark, in 1977.

"We were a dozen guys on a mission out on the prairie, keeping our high-tech toys together with duct tape and aluminum foil," said Dan Kaplan, who worked as a graduate student on the experiment led by Leon Lederman, alongside other emerging stalwarts including Fermilab physicists Jeff Appel, Chuck Brown and Bob Kephart.

It was a time when young physicists were beginning significant journeys. One such early journey produced pioneering work in hadronic production of charm particles; precision measurement of charm lifetimes; some of the first uses of the silicon vertex detectors that have since become the mainstays of present-day collider experiments; and led to the prestigious W.H.K. Panofsky Prize in particle physics in 1990 for Michael Witherell, who was named Fermilab's fourth director in March 1999.

It was a different time with a different feel.

"So many of us lived in it, grew up in it, had our formative experiences in that [fixed-target] program," said Joel Butler. "We saw the evolution of the field, from bubble chambers to very sophisticated high-speed electronics, silicon detectors, massive amounts of computer data. The early days were pretty crazy, and a lot of

people poured a lot of their energy into that program to make it work. In some ways, there may have been a closer feeling around the Lab. I did my thesis on an experiment with 36 collaborators, and that was regarded as a huge group."

Today's collider detector collaborations approach 500.

But Mike Shaevitz, a fixed-target experimenter as early as 1975 and now the Lab's Associate Director for Research, sees a change, not an end: a transition to a new direction using the Main Injector beam at 120 GeV, allowing the simultaneous operation of fixed target experiments and Tevatron collider experiments.

"It really isn't the end of the fixed target program at Fermilab," Shaevitz said. "We've gone through 400 GeV, then 800 GeV. Now we're dropping back to 120 GeV but with very high intensity.

"Neutrino interactions will continue to be a real focus of fixed target experiments," he continued. "The energy is lower but the beam intensities



Fermilab Photos

Above: Named Fermilab's fourth director in March 1999, Michael Witherell was the spokesman for experiment E567 ("Search for Charm Production in Hadron Interactions") in 1979.



Left: The 800 GeV line played a major role in Fermilab history.



Now the Lab's Associate Director for Research, Mike Shaevitz was the spokesman for the NuTeV experiment and a veteran of fixed-target experiments since 1975.

will be far beyond what we used to have. With MiniBooNE here, and with MINOS sending a beam to Minnesota, this will be one of the major places—if not THE major place—for investigating neutrino oscillations at accelerators. We believe there will be a strong kaon program at the Main Injector, for CP violation studies. What makes fixed-target experiments unique is that one can have a clever idea, and think about an experiment with a smaller group. It's a complementary program to the collider program."

A HISTORY OF ACHIEVEMENT

The shift from the 800 GeV beam to the Main Injector program stems from a combination of science and economics.

"There are a lot of other experiments out there we could probably do," Cooper said, "but we're now in an era when you can't simply do an experiment just because you thought of it. When you first start in a new energy range, just looking is interesting. But as programs age, just looking is no longer interesting. Somebody has already done that, it takes a lot of money, and it may be deemed by the scientific community in some general way that it's not as compelling as going off to work at [the Large Hadron Collider at CERN]. Experiments must be competitive at Fermilab, and competitive in the world environment as well."

There's no questioning the historical competitiveness: the fixed target program represented the energy frontier for the first half of Fermilab's existence. The major directions of particle physics research trace their origins to the fixed-target program, and Shaevitz described the linkages.

The earliest experiments, he said, focused on neutral current and neutrino interactions, a key to establishing the soundness of electroweak theory, unifying the electromagnetic and weak nuclear forces. Neutral current was proposed in the electroweak theory work of Sheldon Glashow, Stephen Weinberg and Abdus Salam (they won the Nobel Prize in 1979), and Shaevitz said early neutrino fixed-target experiments at Fermilab (then the National Accelerator Laboratory) clearly demonstrated neutral current events—as did an additional observation at CERN, the European particle physics laboratory.

Further precision measurements hinted that the top quark was heavy, heading experimenters down the trail that led to evidence for the top quark in 1994, and then the announcement of its discovery in 1995, during Collider Run I of the Tevatron, completed in 1996. It was a \$55-million upgrade of the Tevatron that pushed the energy frontier from 400 GeV to 800 GeV in 1984, a project managed by Ken Stanfield, then head of the research division and now the Lab's deputy director. At 800 GeV, the fixed-target program remained the Lab's main experimental thrust until about 1987.

With Fermilab experiments establishing its credibility, the electroweak theory pointed to the Higgs mechanism as the source of mass for the W and Z bosons. They were discovered at CERN, and finding the Higgs would be a major coup for Run II of the Tevatron. And measurements by NuTeV (Neutrinos at the Tevatron), an 800 GeV fixed target experiment for which Shaevitz was spokesman, combine with W mass measurements at CDF, DZero and CERN to point to a light Higgs particle—possibly within reach of the Tevatron when Run II opens in 2001.

So many of us **LIVED** in it, **GREW UP** in it, had our **FORMATIVE EXPERIENCES** in that [fixed-target] **PROGRAM.** ~Joel Butler.

Discovering the u particle, Shaevitz noted, has led to a “B-physics frenzy, with B-factories everywhere looking for CP violation in the B-system.” The study of CP violation, the behavioral difference between matter and antimatter that might explain the very nature of the universe, took major steps just within the last two years with results from KTeV (Kaons at the Tevatron). KTeV, one of the final 800 GeV fixed-target experiments, observed both time asymmetry and direct CP violation.

The list goes on. Fixed-target experiments have been instrumental in establishing quantum chromodynamics (QCD) theory, investigating how quarks behave inside protons and neutrons—also a critical factor in collider experiments.

The increasing energy levels at Fermilab brought high hopes to neutrino physics, with the promise of greatly increased interaction rates. Shaevitz noted that current accelerator neutrino experiments are closely related to the work of Lederman, Jack Steinberger and Mel Schwartz at Columbia University and Brookhaven Lab in the early 1960s—for which they won the Nobel Prize in 1988.

“We’ve just gone to higher energy,” Shaevitz said. “I think their rates were a few a day, and we were getting 30 events every minute now at 800 GeV.”

THE FUTURE

The 800 GeV program is going out on top, if KTeV is an indication. Experiment spokesman Bob Tschirhart said the final, nine-month run in 1999 produced fully 70 percent of all of the data accumulated since 1996. The experiment’s total data sample essentially tripled in the final run, with a major boost in quality, thanks to improvements in the detector and electronics. And there might be more discoveries as the latest data is analyzed.

Borrowing a phrase from another physicist, Tschirhart described the 800 GeV beam as “a proton blowtorch,” the ideal tool for producing high intensities. But many in KTeV’s 80-member collaboration are already preparing for a shift to

the proposed KaMI (Kaons at the Main Injector) experiment, to continue their investigations into kaon decays and CP violation. If approved, KaMI and CKM (Charged Kaons at the Main Injector) would join the neutrino experiments as the core of the 120 GeV fixed target program.

“We feel as if we’ve fully exploited the KTeV apparatus, and we’re at a point of diminishing returns,” Tschirhart said. “But it’s a good feeling, that we built the experiment, we ran it, and we got everything we could out of it. Now we have to prepare for the next opportunity.”

HyperCP, the other participant in the final fixed target run, couldn’t quite match KTeV’s finishing kick. The experiment doubled its total data sample, but had hoped to increase it by a factor of four. HyperCP is searching for CP violation in hyperon decays (a longstanding element in the fixed target program) and in charged kaon decays, but, besides data analysis, has set no follow-up direction.

“What we have to do is look over the hill and see what we’ll be doing in the long term future,” said experiment spokesman Craig Dukes. “What’s the next experiment going to be? It’s always fun to think about that next project.” 🍷



Bob Hsiung inspects the calorimeter at the heart of the KTeV detector during installation in the summer of 1996.

Photo by Reidar Hahn

COMING BACK *to make a* DIFFERENCE

by Mike Perricone

For Jane Monhart, all roads have led to home.

An inveterate hiker and traveler, from Maine to Kilimanjaro, the new manager of the Department of Energy's on-site Fermi Group is happily resettling in the western suburbs of Chicago where she grew up and maintains many connections with family and friends.



Jane Monhart

Monhart attended the University of Illinois at Chicago to study political science and government, before moving on to graduate school in public administration at the University of Illinois in Champaign-Urbana.

Her first professional responsibilities at the Department of Energy involved working as a management intern with DOE Chicago Operations at Argonne, helping set up the hiring, salary and management structure for the new facility down the road that would later be named Fermilab.

To say that things have changed since then is an obvious understatement. But the most striking change she has perceived is not an alteration to old familiar places. It is an alteration in the political outlook she has witnessed at other stations and during her tenure at DOE headquarters in Washington, D.C.

"I came of age in a time when we saw government as a way we could make a difference in the world," she mused while moving into her new office on the sixth floor of Wilson Hall. "And I think people had an appreciation that they could make a difference in government. I'm not sure we have that appreciation any more."

Monhart sensed a consistent perception about DOE in the atmosphere of Washington, one she found troubling, but one she felt immediately and strongly contradicted at Fermilab. And here, she again sees the potential for making a difference.

"In D.C., we hear criticism every day," she said. "Taxpayers have a negative view of the Department of Energy, and the media questions whether we're serving the public well. But Fermilab doesn't fit that picture. This Lab is in a good position to provide leadership across the DOE complex to change that perspective.

"It's a pleasure to come to a place where people are excited about what they're doing, and where there is community support," she continued.

"I couldn't ask for a better assignment. When [Chicago Operations manager]

Jane Monhart returns to familiar settings with DOE Fermi Group

Bob San Martin offered me this position, that was really a memorable day.”

Speaking of her day: “I need more than 24 hours,” she said with a laugh.

No wonder, with this array of interests: Reading history, from the American Revolution and Thomas Jefferson, to World War II and Winston Churchill. Downhill skiing, tennis, golf. Hiking in the Alps, and in exotic locales, such as Nepal, and camping at a Buddhist monastery near Mount Everest.

“We were in a valley, but our elevation was 13,000 feet and the mountains were still soaring over us,” she recalled.

Also: Windjammer cruises off the coast of Maine, where her mother and father now live. Photo safaris to Tanzania, and climbing Mount Kilimanjaro. New Zealand is her next travel goal.

Her continuing professional goal is making a difference, which she has made a priority at each step in her career. She has been a DOE contracting officer, negotiating with such industrial giants as GE and Westinghouse, and a deputy area manager at the Brookhaven National Laboratory office. Moving to DOE headquarters in Washington, D.C., she worked on environmental restoration for the Hanford, Washington site, then served five years as deputy director of the Contract Reform Project Office with a focus on overhauling contracting policies.

And now, the road home.

“Little did I know that I would come full circle,” she said. “Now, being at one specific site, I can work on some ideas that have grown over the last five years. Taxpayers expect outstanding service, management and value for their tax dollars. Fermilab is in a good position to provide leadership in that direction. It’s very clear that Fermilab is a premier, well-managed science institution.” 🌱



Setting into her new office in Wilson Hall, Monhart says “I need more than 24 hours” in a day.

Photos by Jenny Mullins

No Accident:

Keeps Safety Record

by Mike Perricone

Wayne Smith has seen a lot of changes in Fermilab since his first day on the job.

"There was no High Rise [Wilson Hall] then," said Smith (ID 00841), a driver in the Lab's Business Services Section who marks his 30th anniversary on March 30.

But one of the most significant changes he's witnessed has taken place in just the last two years: a dramatic improvement in safety around the entire Lab.

"We do our jobs safely no matter what it takes," said Smith, a member of the Laboratory Safety Committee. "That feeling is Labwide now. In the past, that wasn't necessarily the case every time. Now, it's the safe way or no way."

Fermilab once again set safety records in 1999. The goal for the year was to keep the number of injuries to Fermilab employees and subcontractors below 34. The actual yearlong total was 24 (17 for employees, seven for subcontractors). That produced a lost workday case rate of 1.13, easily surpassing the Labwide goal of less than 1.6 for 1999.

Just two years ago, the final 1997 statistics showed 69 lost workday cases. That means the 1999 record represents a reduction of more than 65 percent from the 1997 level, which was even higher than the 12-year average of 65.6 during the years 1986-1997.

Smith and all his colleagues in Business Services won an award in June, 1999 for the most improved safety record throughout the Lab. Smith said the safety message has come through loud and clear, starting at the top levels of Lab management. He noted the safety emphasis in Director Michael Witherell's presentation during the all-hands meeting of December 1999.

"Safety isn't just a word, it's a matter of fact, every day," Smith said. "The Lab director said that, and people have taken it seriously. Lab management is getting the message out to the people."

Smith is one of 20 members of the Laboratory Safety Committee, chaired by Associate Director for Operations George Robertson, which meets monthly to provide feedback from employees around the Lab and then bring back policy directions and suggestions.

"We're seeing the positive evidence reflected in planning and hazard analysis," said safety committee secretary Bill Griffing, head of the Environment, Safety and Health Section. "The quality of those assessments is increasing. There's more willingness to do them, because people are seeing the value."



Photo by Jenny Mullins

Business Services Section employees (from left) Tony Villa, Dwayne Foster, Ken Peterson and Wayne Smith display their section's "Most Improved" safety award in June 1999.

Improving

Griffing also reported a “delayed effect” in worker’s compensation costs, which are beginning to decline in response to the two-year safety turnaround.

In addition to the monthly safety committee meetings, Smith described the employee meetings that have become part of the routine at Site 38, the Lab’s shipping and receiving center. Any suggestions for safety measures are given to Smith to offer at the safety committee meetings.

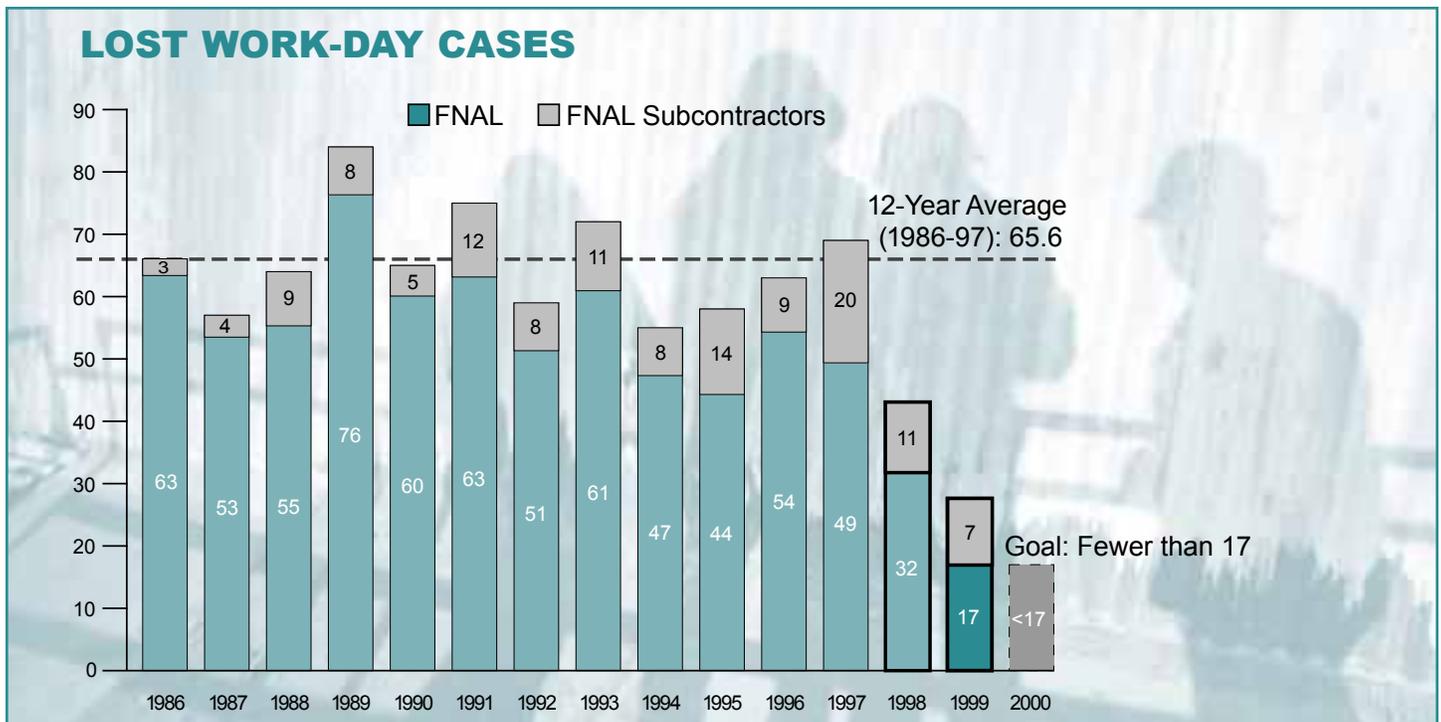
Those suggestions carry the highest credibility, coming from the people who actually do the work. Smith cited two important examples that originated from employee suggestions:

- a portable roller system to deliver the 160-plus packages arriving daily from United Parcel Service, which cut down the back injuries to employees who previously had to lift and move each package;

- fold-down ladders mounted atop trucks and tractors, which cut down injuries to employees who would jump off the backs of vehicles because no ladders were handy.

Smith said the people in Business Services go beyond working with the resources at hand, developing their own ideas or examining trade magazines for new safety products.

“We try to work as a family, to help each other, and even watch out for people in other areas of the Lab, too,” said Smith, who will serve on the safety committee until 2001. “It’s nice to be able to have input. I hear some things firsthand, and pass them along to the committee. And I have the minutes of the committee meetings available for people here to see. We share experiences and solutions and pass them along. We call them lessons learned—or close calls. We try to learn from everything.”



Elaine McCluskey's Guide to **WILSON HALL CONSTRUCTION**

Part One

The two-year project that will put Fermilab's Wilson Hall back on the list of "Tall Buildings of Northeastern Illinois That Are Not Falling Apart" is about to begin in earnest. Floor by floor, the crumbling concrete joints will be rebuilt and the problem plumbing fixed. Floor by floor, Wilson

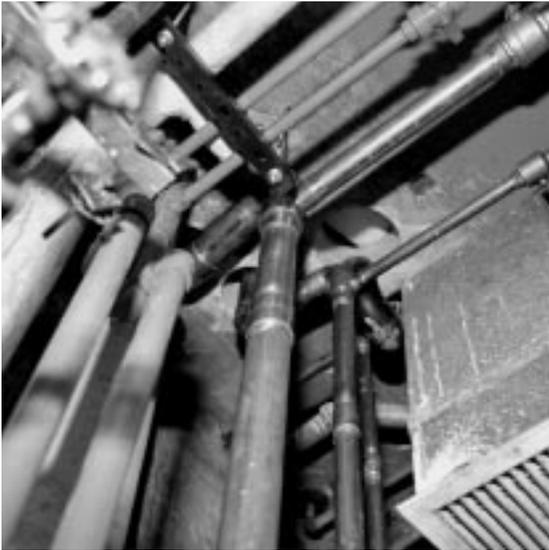
hall's occupants will be relocated, to be moved back in again when work on their levels is complete. The conductor for this complex performance in several acts is Fermilab engineer Elaine McCluskey. For the benefit of Wilson Hall's long-suffering residents and visitors, McCluskey has prepared Part One of a guide to the opening stages of Wilson Hall reconstruction. Watch this space for Part Two.

—Judy Jackson



Photo by Reidar Hahn

Elaine McCluskey examines blueprints for Wilson Hall repair work.



PLUMBING

1. PLUMBING

Work began in late October. The contract has a value of, \$904,000; the contractor is Masoncorp, Inc.; and the work is scheduled for completion in May 2000.

Scope:

- new riser pipes to bring water from basement to each restroom;
- new chiller/filter units on 16th floor for drinking water;
- new pipes to each floor for new drinking fountains;
- new pipes in restrooms on floors 1-6;
- new drinking fountains on floors 1-6;
- remove old water coolers at south end of building.

As of mid-February 2000, riser work is about 70 percent complete, pipes to new drinking fountains are about 50 percent complete, old water cooler removal is 95 percent complete and new pipes for restrooms are 12 percent complete.

First floor restrooms are done. Beginning in February, floors 2, 4, and 6 rest rooms and drinking fountains will be done simultaneously. Later: rest rooms on floors 3 and 5 plus chiller/filter units for drinking water.

2. STRUCTURAL REPAIRS

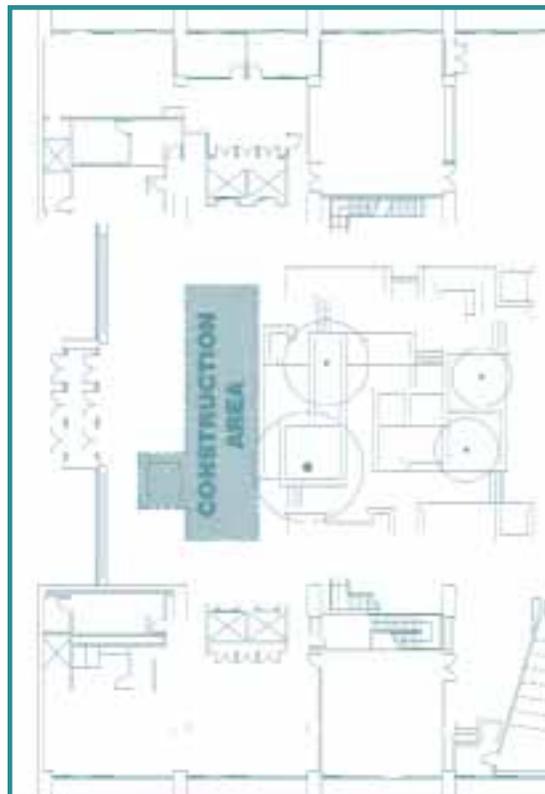
The subcontract for structural repair began in mid-November. It has a value of \$4.6 million; the subcontractor is Fred Berglund & Sons, Inc.; and it is scheduled for completion by August 2001.

SCOPE:

- repair structural problems on floors 7-16 N and 13-16 S;
- replace pipes in rest rooms on floors 7-15;
- replace drinking fountains on floors 7-15.

From November to the beginning of January 2000, the subcontractor worked with consultant structural engineers to determine how best to erect the shoring required to support the north crossover floors 7-9 during structural repairs. These plans have undergone a "shop drawing" review by Fermilab. Structural steel shoring is scheduled for delivery to Wilson Hall beginning the third week of February.

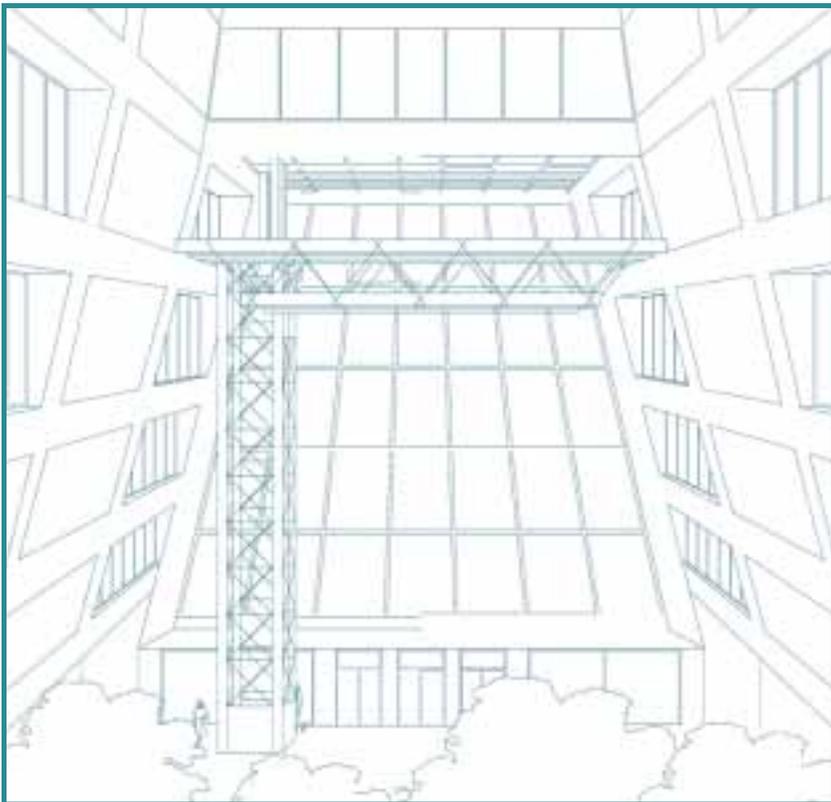
The contractor will bring three steel trusses into the atrium via the front doors and place them in a temporary staging area in front of the planters, two trusses at a time. A fourth will be assembled amidst the planting area to better position it for hoisting. The trusses will then be hoisted to their positions at the sixth-floor level, to be supported at the west and east atrium edge beams.



Plan of Wilson Hall atrium showing the staging area for steel floor trusses.

Keep up on Wilson Hall construction on the web: <http://fess-wh.fnal.gov>

CONSTRUCTION



Shoring tower and steel truss in Wilson Hall atrium.

These trusses will support the south and center sections of the north crossovers. Each truss will weigh approximately 7000 pounds and will support a load from the floors above of as much as 56,000 pounds.

A shoring tower will support the north section of the crossover. Originally, the contractor planned to erect trusses similar to the other four here too; but practical difficulties led to the proposal for a shoring tower. The tower will rise from the first floor to the seventh floor. Shoring will be installed from the first floor down to the mezzanine level, and then from the mezzanine to the ground floor. This will ensure that the 160,000 pounds of load that the tower carries will be taken down to a solid foundation.

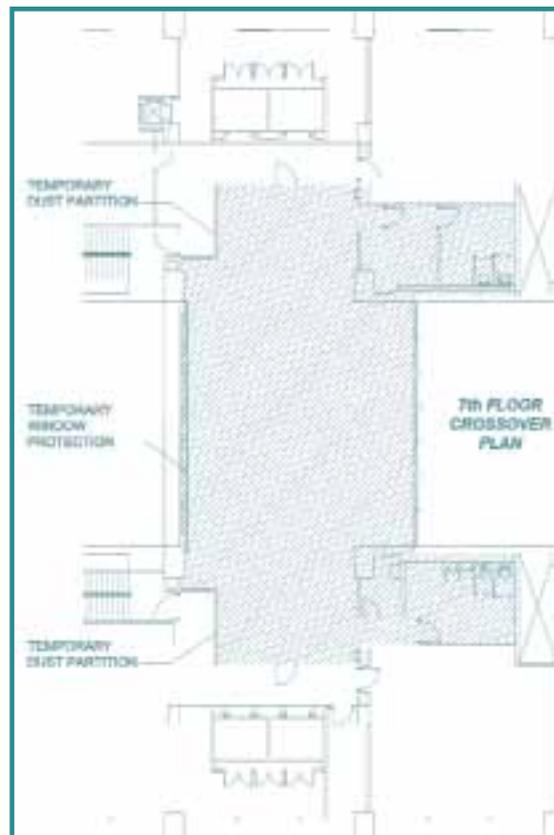
All the shoring should be in place below the seventh floor by the end of February.

The shoring will be installed at night, from 6 p.m. to 6 a.m. The front doors of Wilson Hall will be closed during this night-time work, and people will enter through the ground-floor entrances. Once the shoring is in place, there will be no restrictions

on use of the front entrance until the summer of 2000 when the north window wall glass will be replaced.

Starting the week of January 10, 2000, the seventh-floor crossover and rest rooms became inaccessible. They will open again when the ninth-floor crossover structural repairs are complete, sometime in May 2000. Then the shoring under the seventh floor may be removed.

The subcontractor has installed a "hoist and swing stage" on the fifteenth floor north crossover, to allow access to the concrete joints that need repair along the atrium side of the crossover. The stage (or platform) is suspended from the fifteenth floor when work is underway, and hauled back to the seventh floor at the end of each night. The hoist will be used for material moves to each of the north crossover floors. The enclosure for the hoist area is painted plywood walls, locked so it is inaccessible to anyone but the subcontractor and authorized Fermilab personnel. Its 15-foot-square presence is unmistakable on the fifteenth floor against the atrium windows. 🚧



the

talk

Get the picture?

We had a sneaky feeling that *FERMINEWS* would win some kind of nomination for an Ig-Nobel Prize somewhere along the line, after our story about 1999 Nobel Prize winners Martinus Veltman and Gerardus 't Hooft (see "Nobel '99: A Strong Vote for Electroweak Theory," *FERMINEWS*, V. 22 N. 24, Dec. 17, 1999).

Sure enough, we got that Ig-Nobel nomination right up front—for our cover, featuring the pictures of 42 winners in particle physics over roughly the last half-century.

Even though we placed as many pictures onto the cover as we could, intending the photomosaic as an art and design

element and not as a list of record, we raised hackles throughout the field by leaving out a few faces from the cover whose owners were listed in the article.

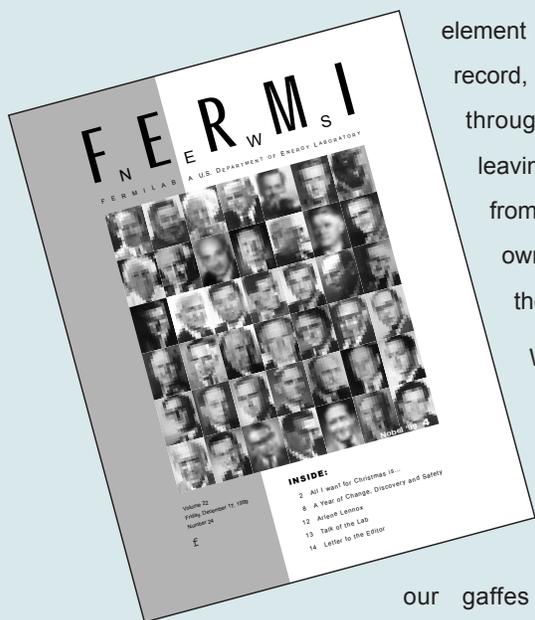
We didn't mean to slight anyone. Honest!

But to cover

our gaffes on this cover controversy, we now present the

identities of the AWOL physicists. They are—

Not so fast: They're part of a three-part quiz.



Part One: Identify the five left-out physicists, the Nobel Prize winners in particle physics whose photos did not appear on the cover.

Part Two: Identify ALL the physicists on the now-infamous *FERMINEWS* cover, in the order in which they are shown (left to right, top to bottom). For a closer look, check the world wide web at: [http://www.fnal.gov/directorate/public_affairs/ferminews/ferminews 99-12-17/fmi.html](http://www.fnal.gov/directorate/public_affairs/ferminews/ferminews%2099-12-17/fmi.html)

Part Three: Identify the winner whose field wasn't particle physics, who wasn't listed in the article, and who should not have been on our cover in the first place.

The answers (no cheating, now) are printed upside-down at the bottom of this column.

—Mike Perricone

of

the

Answers

Part One: Robert Hofstadter; Frederick Reines; Chen Ning Yang; Max Born; Walter Bothe. All were listed as particle physics winners, but not pictured on the cover.

Part Two: Top row, left to right: Gerardus 't Hooft; Martinus Veltman; Leon Lederman; Burton Richter; Richard Feynman; C. F. Powell; Stephen Weinberg. Second row (l-r): Martin Perl; Georges Charpak; Melvin Schwartz; Carlo Rubbia; Jack Steinberger; Pavel Cherenkov; Luis Alvarez. Third row (l-r): Richard Taylor; Norman Ramsey; Samuel Ting; Lord Patrick Blackett; Felix Bloch; Owen Chamberlain; Sir John Cockcroft. Fourth row (l-r): Henry Kendall; Emilio Segre; Igor Tamm; Val Fitch; Sheldon Glashow; Abdus Salam; Hideki Yukawa. Fifth row (l-r): Polikarp Kusch; Il'ja Frank; Willis Lamb; C. F. Powell; Ernest Walton; James Cronin; Tsung-Dao Lee. Sixth row (l-r): Jerome Friedman; Donald Glaser; Murray Gell-Mann; Julian Schwinger; Simon Van Der Meer; Sin-Itiro Tomonaga; Rudolf Mossbauer.

Part Three: Rudolf Mossbauer.

LETTER TO THE EDITOR

Dear Editor,

I was surprised to read Drasko Jovanovic's Letter to the Editor (*FERMINEWS*, Volume 22, Number 24) in which his disappointment was registered with regard to Dick Lundy's being referred to as an "engineer."

Having cut my teeth in the business of engineering in support of science with the likes of Lundy and Jovanovic while a member of ANL's ZGS HEP Experiment E1 team and as a participant in subsequent HEP-related activities, I learned that successful scientific undertakings require the close, coordinated, and cooperative efforts of scientists, engineers, technicians, and support personnel. It has always remained clear that the scientists were the visionaries and the source of science trust, and that the contributions of the engineering staff were critical in achieving the intended science objectives. This synergistic relationship has been confirmed and reinforced repeatedly over the years in my meanderings through the national labs while

participating in scientific endeavors whose acronyms include HEP, OTEC, MHD, SMES, HTc, SSC, APS, SNS, etc.

Being associated with Dick Lundy both professionally and personally over the years has been for me both an opportunity and a source of stimulation. In fact, at his retirement celebration, I had the honor of bestowing on him the title of Honorary Fermilab Engineer and of presenting him with the traditional engineer's cap. I know that even now in retirement, Dick continues vigorously with his engineering endeavors.

It was also of interest to me that the same issue of the *FERMINEWS* featured an article on the highly coveted Nobel Prize. It should be noted that Alfred Nobel, the founder of the Nobel Prize, was an engineer.

Sincerely,
Ralph C. Niemann
Downers Grove, IL

HELP WANTED: FERMILAB

Oracle DBA

As an Oracle DBA, the successful candidate will provide technical Leadership and planning for the Business Services Section Oracle and PeopleSoft database environments. This includes planning and implementation of new PeopleSoft and Oracle Applications releases, database software upgrades, capacity planning and database performance analysis and tuning. These efforts will also involve management of the sections four Oracle database servers on Digital UNIX and management of multiple Windows NT Oracle software installations. This position requires extensive customer interaction and support, as well as creation and maintenance of necessary documentation including architecture, procedures, and project plans.

Qualified candidates will possess three plus years of recent Oracle database administration experience on UNIX, with an emphasis on database performance tuning and application support (Digital UNIX is preferred, but not required). Must have a strong knowledge of Oracle database administration.

Experience in two or more of the following areas is required: Oracle 7 administration, Oracle 8 administration, Designer/2000, Digital UNIX administration, Oracle Applications v10.7, PeopleSoft HRMS v7.5. Excellent analytical, organizational, and communication skills are essential. Must be able to investigate, isolate, and resolve complex technical problems. Good troubleshooting skills and ability to work through challenges independently. Availability for occasional out-of-hours or weekend work required. Bachelors degree in Computer Science or the equivalent experience is required. Job Code: **FN/990083**

Programmer/Analyst

As a Programmer Analyst, the successful candidate will participate in the design, implementation, debugging, documentation and maintenance of code for high performance controllers and subsystems based on embedded 16 and 32-bit processors. Major emphasis is placed on seamless integration into a highly distributed data acquisition and control system for the accelerator complex and beamlines. Will be responsible for the design, implementation, debugging, documentation and maintenance of C/C++ programs, as well as the integration of software and hardware into a highly distributed data acquisition and control system. Will also work closely with software and hardware engineers in establishing extensions to the system and consult with users of the control system.

Qualified candidates will possess a Master's degree in Computer Science or Engineering, or combined equivalent work experience. Candidate must demonstrate ability to work independently and take responsibility for small to medium scale projects. In-depth knowledge of C or C++, as well as demonstrated competence working with real-time computer systems is necessary. Familiarity with VxWorks, Arcnet, TCP/IP, MS Windows, Java and assembly languages is desirable. Excellent verbal and written communication skills, as well as the ability to work independently and in a team are essential. Job Code: **FN/990023**

Fermilab offers a challenging work environment as well as excellent benefits including medical/dental/life, tuition reimbursement, fitness center, onsite daycare, and access to our 6,800-acre nature preserve. To be considered for a career at Fermilab, please forward your resume to: Attn: Employment/_____ (Job Code), Fermi National Accelerator Laboratory, P.O. Box 500, Batavia, IL 60510-0500. Fax: (630)840-2306. E-mail: jlwando@fnal.gov. We are an Equal Opportunity Employer. M/F/D/V

CALENDAR

ARTS SERIES PRESENTS:

Leo Kottke, February 19, 2000
SOLD OUT

Solas, March 11, 2000

CANCELED

Replaced by Mick Moloney's Irish Music and Dance Festival (\$18) on that same date.

FILM SOCIETY PRESENTS:

Fireworks (Hanna-Bi) February 25, 2000 Ramsey Auditorium, Wilson Hall 8:00 p.m. \$4.00

Dir: Takeshi Kitano, Japan (1997), 103 min.

Stylish, violent, and tremendously moving. A direct descendant of Dirty Harry and the Wild Bunch. A thrilling combination of action and sentiment.

CORRECTION:

The date for the Chicago Lakefront Cruise was listed incorrectly in the last issue. The correct date is Saturday, March 18. The deadline for signups is February 11. Call the Recreation Office x2547 for information.

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

FERMILAB LECTURE SERIES presents:

March 3

Dr. Fred Smith, Northern Illinois University will discuss "Neanderthals and the Origins of Modern Humans," Ramsey Auditorium, Wilson Hall. Tickets \$5.00, call (630) 840-ARTS for more information.

ONGOING

English Classes, Thursday at the Users' Center, 10-11:30 a.m. (free).

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.

BARN DANCES

Sunday, Feb. 13

Barn dance in the Kuhn Village Barn from 7 to 10 p.m. Music provided by Jennifer Jeffries & Roger Diggle, with calling by Bill Sudkamp.

Sunday, Feb. 20

Afternoon barn dance in the Kuhn Village Barn from 2 to 5 p.m. Music will be by The Prairie Shufflers, with calling by Dan Saathoff.

All dances are taught and people of all ages and experience levels are welcome. Admission is \$5, children under 12 are free (12-18 \$2). The dance is sponsored by the Fermilab Folk Club. For more information, contact Lynn Garren x2061 garren@fnal.gov or Dave Harding x2971 harding@fnal.gov, or see <http://www.fnal.gov/orgs/folkclub/>

LAB NOTE

URA SCHOLARSHIP INFORMATION

Candidates for Universities Research Association (URA) scholarships are reminded that applications are due March 1. Applications are available from and should be returned to Human Resources, WH 15SE, Mail Station 124. Scholarships are awarded

on the basis of S.A.T. (Scholastic Aptitude Test) scores. URA awards a number of scholarships to regular, full-time Fermilab employees' children who are currently high school seniors and who will begin a four-year college degree program next fall. The maximum amount of the scholarship is

\$3,000 for tuition and fees and is renewable for four years if the student progresses in good academic standing. Applicants will be notified regarding the scholarships in early April.

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

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

Cheez Léon MENU

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)

WEDNESDAY, FEBRUARY 16

*Cornish Hens
with Middle Eastern Spices
Roasted Winter Vegetables
with Balsamic Vinegar and Thyme
Apple Strudel with Ice Cream*

THURSDAY, FEBRUARY 17

*Curried Scallops
and Vegetable Chowder
Leg of Lamb with Garlic and Cognac
Potato and Root Vegetable Puree
Vegetable of the Season
Spinach Salad
Tiramisa Parfait*

WEDNESDAY, FEBRUARY 23

*Grilled Marinated Flank Steak
Corn Curry
Tomato Scented Rice
Chocolate Pecan Tart*

THURSDAY, FEBRUARY 24

CARNIVAL
*Sancocho
Roast Suckling Pig
Rice and Pigeon Peas
Stewed Chayote
Pineapple Flan
with Tropical Fruit*

F E R M I N E W S

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A U.S. DEPARTMENT OF ENERGY LABORATORY

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The deadline for the Friday, February 25, 2000, issue is Tuesday, February 15, 2000. 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.

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CLASSIFIEDS

FOR SALE

■ '99 Goldwing SE (Silver) with extras PRICE LOWERED less than Kelley Blue Book (01/18/00 \$16,500) Priced at \$15,000 11k - excellent condition and runs great. MUST SELL - will even store for the remainder of the winter. Has Markland receiver hitch and (5 pin) OEM trailer wiring kit, Markland floorboards, foam grips and extra windshield. Also have 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 as of Nov. 5 (Unlimited Miles) Warranty. Can get another 3 yrs. extended Unlimited Miles). Call Terry X4572 or e-mail skweres@fnal.gov.

■ '95 Mitsubishi Mirage 2dr coupe, 100k, red, automatic trans, AC, p/s, p/b, AM/FM, dual air bags. New: tires, battery, timing belt. Good condition. \$2900 obo. Call Oleg Kurnaev X 4308 or (630)784-0048 or e-mail Kurnaev@fnal.gov.

■ '93 Honda Prelude VTEC, 5 speed, red, CD player, low mileage 66k, \$10,500. Call Tom at x 3203.

■ '91 Honda Civic DX, 3 door hatchback, AC, stereo, manual trans., 108k, well maintained, no rust or leaks, \$2500 obo Volker Sander, sander@mcs.anl.gov, (630) 985-1995 (h) (630) 252-7497(w) Argonne National Laboratory Fax: (630) 252 - 5986.

■ '90 Toyota Corolla Deluxe Wagon 5D, automatic, AC, power steering, cruise control, AM/FM stereo and cassette, 92k miles, new tires, new battery, new exhaust system. Runs very well. The car is in a very good condition due to regular maintenance. Small amount of rust. Kelly Blue Book retail value of more than \$5000. Asking \$4000 obo. For more information: mishra@fnal.gov x4094.

■ '90 GMC V1500 Gimmy, SLE 92K, vgood cond't inside & out. 5.7 Litre V8, auto t, ac, security system. \$9575 obo. waw.fnal.gov, or x 3169, home (630) 325-4608.

■ '89 Dodge Colt, Red-150k. Moonroof, , AM/FM Stereo, manual trans, new brake system, cellular phone included. \$1590 contact Juan Pablo Fernandez x 8630, fernand@fnal.gov.

■ '89 Ford Taurus 4Dr GL Sedan Sandalwood, 94k miles, auto, loaded, original owner, good condition, new brakes, \$2,300, chou@fnal.gov or x5489.

■ '87 Jeep Cherokee Laredo, navy, 6 cyl. 4.0 l, 4WD, auto transmission, tilt, AC, 2 dr, power locks & windows, AM/FM stereo/cassette, 165k miles, good condition, very little rust. \$2,800 obo. Marek x2373 or (630)983-8635, marek@fnal.gov.

■ '86 Honda Accord, AC, etc., 128k miles, runs reliably, no rust, \$1500 obo;

■ 19" color TV, \$100; changing table \$40; vacuum cleaner \$50; air filter \$80; all less than a year old. Frank, x4828 or mail to: tecker@fnal.gov.

■ Electronic organ, Conn model 626M Rhapsody, contemporary style, has two 61 note independent manuals and 25 note pedalboard. Made ~ 1964. \$150. obo. reply to Jim Engelbrecht X4073.

■ 1" x 60' roll of new copper tubing..new \$98 sell for \$50 Dijk@fnal.gov or Ed x6300.

■ 21" color TV Zenith with stand, cable ready. \$30. Available Jan 28. May deliver to Fermilab. Oleg Kurnaev, x 4308 or Kurnaev@fnal.gov.

■ Duncan Phyfe (drop leaf) mahogany dining table with triple pedestal and 4 matching chairs with lyre backs, circa 1940. Need refinishing. Asking \$325.00. Contact Shelley at ext. 5809 or krivich@fnal.gov

HOUSES FOR SALE

■ Batavia - West side \$197,000 3 bedrooms, 2.5 bath, 2 car garage, partial basement, large lattice enclosed deck, stone fireplace. Please call (630) 761-0221.

■ Charming Bungalow in Wheaton. 2BR, 1.5 Bath, lr, dr, frpl, eat-in kitchen, playroom/3rd bdrm, loft. Walk to town, train, schools, Prairie Path. \$157,000. Call (630) 690-1288 for appt. Jim Kerby x3595.

■ 2 Bedroom, 1 bath apt/studio cottage situation on 2-1/2 acres, on the edge of Fermilab property. Please call (847) 446-4957.

FOR RENT

■ Room for rent, Batavia, west side, at \$375 per month. Available for one person, nonsmoking. Shared kitchen, washer and dryer available. Cable connection and separate phone are possible. Please call Sharon x2536, pg (630) 905-3305, or e-mail, saustin@inil.com

■ 2 bedroom, 1-1/2 bath duplex for rent in the Woodland Hills subdivision in Batavia. Beautiful area, convenient to the Laboratory. Rent: \$950 per month. No pets. Available February 1. Please call 232-6006 Roger Dixon x2576.

SIGNUP

Have an urge to hit something with a stick? The Tuesday Prestbury Golf League has openings for singles or teams. For more information, contact Dean Sorensen (deans@fnal.gov, X-8230) or Rod Klein (rklein@fnal.gov, X-4682).

MILESTONES

RETIRING

Ralph Pryor, ID 4975 BD-AS-Mechanical Support Dept., March 20.

Karlheinz Koepke, ID 1790 BD-AO April 28.

Rosemary Fellhauer, ID 7447 BD-Environmental Safety & Health, April 6.

David Smith, ID 845 PPD-Engineering & Tech Team, April 7.

DIED

Adela Ramirez, an employee of Fermilab subcontractor LBR, January 28.

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

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