The Village Crier

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FERMILAB COMMISSIONS HIGHEST ENERGY ELECTRON BEAM

Fermilab's Proton Experimental Area recently commissioned the world's highest energy electron beam. Reaching 225 BeV in its test run, the Fermilab electron beam is more than ten times higher in energy than is available at such special installations as the Stanford Linear Accelerator Center where the energy is about 20 BeV.

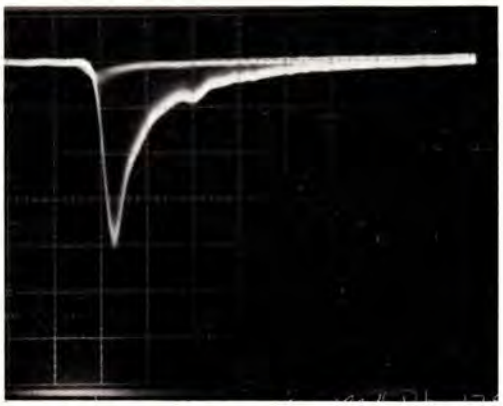
Fermilab's electron beam line has been under construction for two years in the Proton East experimental area, under the leadership of Dr. Tom Nash and the physicists, engineers, and technicians of the Proton Department currently headed by Dr. Roy Rubinstein, and previously headed by Dr. John Peoples.

Almost all of the staff of the Proton Department was involved in the construction of the electron beam facility. "The installation corresponds in magnitude to a significant fraction of all previous Proton Area beam installation," Dr. Nash reports. "It is a tribute to the care and dedication of all of the people involved that monoenergetic electrons were observed only a day after the beam was turned on."

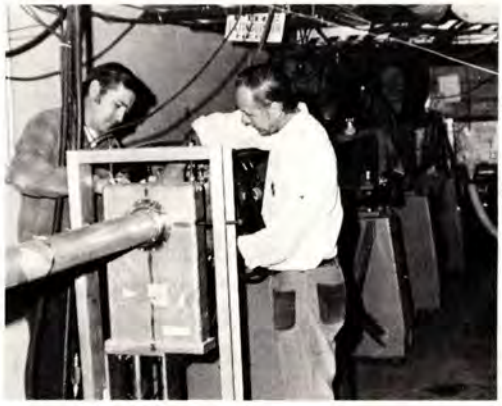
Group leaders in the Proton Department are Ron Currier, in charge of mechanical work; Age Visser, electrical; Brad Cox, instrumentation, and Al Guthke, installation. The Proton Department will be celebrating its electron beam success during the current week and group photographs will be taken for a future issue of The Village Crier.

Working with the Fermilab staff have been members of Experiment #25 who will be the first to use the new beam in the spring of 1975. These scientists, from the University of California at Santa Barbara and from the University of Toronto, joined in the construction of the beam line, surveying magnets and helping with the vacuum system. J. Cumalat, R. Morrison, Fred Murphy, from the University of California, and Toronto's P. Davis, R. Egloff, G. Luste, and J. Prentice are members of this experimental collaboration.

High energy electron beams are one of the most important tools used in high energy physics to search for clues to the size and form of the fundamental constituents of matter. The new Fermilab beam will provide up to 10 million electrons per pulse of the accelerator,



...First electron beam recorded on October 26, 1974...



...(L-R) F. Rittgarn, R. Scherr in Proton East Area...

...Jess Shaffer (R) working on collimator controls in E-E-4; M. Kleczewski below...

FERMILAB ELECTRON BEAM (continued)

spilling out over more than one second, and thus permitting very sophisticated experiments to be done with the beam.

To produce the Fermilab electron beam, protons from the accelerator travel to the Proton Area and are focused on a thin bar of beryllium about one foot long. The protons begin a cascade or interaction process in the beryllium that creates a great spray of nuclear fragments including pi-mesons, the so-called nuclear glue. Pi-mesons break apart in one million billionth of a second and form a pair of photons which travel through many feet of magnetic field, which sweeps away all of the electrically-charged particles. Forty feet after the beryllium target, the photons strike a sheet of lead about as thick as a window pane. The collision of the photons with the lead produces electrons that constitute the electron beam. Over 15 large magnets select electrons of a particular energy and focus these to a point where they can be used for experiments. The electrons again produce photons, but this time of very high purity and known, or "tagged" energy. Experiment 25 will use the tagged photons in their experiment. The Fermilab facility is capable of tagging as many as 100,000 photons per second.

High energy photons are particularly interesting to scientists because at very high energies they are known to behave very much like nuclear matter, in addition to having the normal properties of light in the everyday world. As such, photons are at the boundary between light (the so-called electromagnetic processes) and the forces inside the atomic nucleus. In the last few years, work at Fermilab and elsewhere has led to some hope that a unifying principle may exist which unites these two forces as well as a third force seen in radioactive decay, the weak force. The Fermilab electron and photon beams will give important clues to understanding these forces.

"We were especially pleased to have this test turn out exactly as it was predicted," Dr. Rubinstein notes. "The electron beam will certainly go to 300 BeV energy and can handle the 5×10^{12} intensity when it comes from the accelerator."

Dr. Robert R. Wilson, Fermilab Director, commented at the recent Directors meeting, "If an electron beam facility such as ours had been built out in some isolated area all by itself it would be called a great achievement."

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CHARITY DEDUCTIONS OPEN

Many community service organizations in the Fermilab area are now soliciting contributions for their charitable causes. Fermilab people again are offered the convenience of payroll deduction to carry out their obligations. Employees may give to one, two, or three charities by payroll deduction; at least $12.00 must be given per year to use this plan. Deductions begin with the first pay period in 1975 and continue for the calendar year.

A pledge form is being distributed to employees with the November 15 payroll. It is to be completed in duplicate. The Laboratory will forward contributions to the designated charities.

In 1973, 25 different charities were selected by Fermilab employees and serviced in the payroll deduction manner. Employees are urged to once again consider their obligations in the community.

Call Ruth Thorson, Ext. 3324, for further information.

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BLOOD COLLECTION AT FERMILAB NOVEMBER 18

The Bloodmobile will be at Fermilab on November 18. Many friends of Darrell Drickey have expressed a desire to be supportive of him and his family. Darrell has suggested that contributing to the Laboratory blood bank program on the 18th would be an effective and appreciated gesture.

Call Ext. 3232 to make your appointment.

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WHAT'S GOING ON AT THE OLD PHILLIPS FARM COMPLEX?

Photo at left: (L-R) Chet Szerlag, Contract Administrator; Fred Assell, Warehouse Foreman; John Colson, Manager of Support Services; Norm Hill, Head of Bulk Storage/Material Supply; and Paul Bishop, Inspector, T & M Contracts, check final prints for new warehouse facility.

Photo at right: A new 100' x 400' warehouse will be built at the Phillips Farm complex...

Support Services is building a 40,000 square foot warehouse to relieve the storage dilemma at Fermilab. Completion of the new warehouse will mean consolidation of much of the storage of research and support apparatus. Hopefully, the present leased facilities in Batavia and at Argonne can be closed out. With the establishment of the central warehouse, laboratory property now stored in barns, lofts, basements, and operating areas can be put under a modern warehousing system with supervised control and access.

John Colson, Manager of Support Services, reports, "People currently storing items will shortly be notified of what they have stored and where and a decision will be requested as to requirements for continued storage or ultimate disposal instructions. The new facility will also permit direct tie-in between our physical facilities and our integrated property management program for the entire laboratory now being developed. We will then have a viable system that will give everyone a chance to see what is on hand. It will save dollars and permit re-utilization of equipment instead of new purchasing."

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WATERGATE REPORTER HERE NOVEMBER 15

Wheaton-born Robert Woodward will lecture at Fermilab on Friday, November 15, at 8:00 p.m., in the Auditorium as part of the Fermilab Auditorium Lecture Series.

Bob Woodward graduated from Wheaton Central High School in 1961, before going to Yale University, from which he graduated in 1965. He was an honor student at Wheaton Central, active in student government. "He was an inquisitive young man, willing to fight for his cause," recalls Wheaton Central principal John Schaffnit. "Woodward was ahead of his time, I think."

Now co-author with Carl Bernstein of the best seller *"All the President's Men,"* Woodward comes to Fermilab to describe some of the bizarre circumstances that surrounded his reporting for the Washington Post of the Watergate burglary. The trial now going on in Washington is but one of the historic consequences of the Watergate disclosures.

Tickets for the Woodward lecture are on sale in the Visitors Center, Central Laboratory, 1W, or from Marilyn Paul, 2E, Ext. 3027. They are $3.00 each. They will also be available at the door.

MARK YOUR CALENDAR

Friday, November 22 --- International Folk Dancing, Village Barn, 8 p.m.
Marilyn and Jim Griffin lead and instruct many different dances.
Everyone invited.

Saturday, November 23 - Hootenanny - Village Barn - 8 p.m. - 12:30 a.m.
Sing, play, or listen... Cash bar and snax. Contact Larry Robinson, Ext. 3355 or Liz Foster, Ext. 4203 if you want to play.

Sunday, December 15 --- NALREC's Children's Christmas Party, Village Barn.
For employees, visiting experimenters' children, ages 2-10.
There'll be entertainment, gifts, and refreshments.

Friday, December 20 --- Snow Ball '74 - St. Andrews Country Club, West Chicago.
6:30 p.m. - 1 a.m.
Tickets at $6 include prime rib dinner, two cocktails, dancing.
Purchase from your NALREC representative.

WEEKEND VISITING HOURS

A receptionist will be on duty in the Central Laboratory on weekends during November to greet friends and neighbors of Fermilab. They will be escorted to the 15th floor if they wish to view the site from there. A 15-minute narrated slide presentation about Fermilab is now operating on the 15th floor.

Visiting hours on Saturdays are from 1 to 5 p.m. On Sundays, from 10 a.m. to 5 p.m.

Employees who wish to escort their families or friends to the 15th floor during the visiting hours are welcome to do so.

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CENTRAL LABORATORY ELEVATOR CHANGES

On Tuesday, November 19, the elevators in the Central Laboratory will go on an "express" pattern with each elevator serving four floors plus the Atrium level. Signs by the elevator will indicate the floors served by that elevator. You may use the elevator for the floor you wish to reach or an alternate elevator and use the steps up or down. In general, the west elevators will serve the even-numbered floors; the east elevators will serve the odd-numbered floors.

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DON'T BUY THAT TURKEY YET!

Try your luck with a handful of raffle tickets now being sold by the Fermilab Music Club. Two Thanksgiving turkeys will be raffled Monday, November 25. Tickets at 25¢ each are being sold in the cafeteria during the lunch hours. You might be lucky.

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CLASSIFIED ADS

WANTED - A ride to New York City for Thanksgiving Holiday. Will help drive. Call Ernie, 3210.

CUB SCOUT CANDY SALE - Delicious Kathryn Beich (in cans) Katydids, Almonds n/chocolates, Nut caramel chews, Butter toffee, Party nuts, Golden Crumbles. J.Otavka, 3701, until November 23.

FOR SALE - Furnace humidifier, gd.working cond.; William & Mary pattern silverware, 12 place setting. Call Ed Brezina, Ext. 3580.

FOR SALE - Bicycles, one woman's, one men's, Schwinn 26" single speed, practically new. Call T. D. Hendricks, Ext. 3721 or SH1-0916.

WANTED - Styrofoam pkg. material for mailing packages long distance. M.Richardson, Ext. 3048.

SUBLEASE - Deluxe 7 room upper apt., Dec. 1. Fireplace, garage, basement. Adults only, no pets, references. $185 /mo plus util. & security deposit. Call 859-3808 evenings and weekends.

FOR SALE - '69 Olds 98 Luxury Sedan, 4-dr., a/c, AF-FM stereo radio, p/s/b/w/s/a/t. New ww/ tires, 2 snows w/studs, good mileage, 82,000 mi. $1000. Will Hanson, 469-0700, Ext. 3555.

FOR SALE - 1973 CB350G Honda, 1800 mi. $750 firm. 1919 Touring Chevy, original restoration except color. Excl. running condition. Call 495-0041 after 6 p.m.

FOR SALE - '67 Ford Galaxie tudor, 289, eng.overhauled, p/s, a/c, $450. J. Simon, Ext. 3366.

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