

FERMINEWS

 Fermi National Accelerator Laboratory

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December 7, 1978

A DECADE OF CHALLENGE - DECEMBER, 1968 - DECEMBER, 1978

On a stormy December 1, 1968, more than 500 people huddled under a large tent set up on the Schimelpfenig Farm, five miles east of Batavia, Illinois, to witness the groundbreaking ceremony for the construction of the first building of the Fermi National Accelerator Laboratory.

Looking back over ten years' issues of Fermilab's weekly newsletter, the saga of designing, building and operating Fermilab brings back memories of the struggles, the successes, and the enormous human effort involved in this project.

In the ten years since that snowy day this Illinois farmland has been transformed into an international research center. More than a million people -- scientists and non-scientists alike -- have visited Fermilab, now a place of beauty and vitality.

The Public Information Office offers this issue of FERMINEWS as a memento of this tenth anniversary.

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Weston Villagers In Final Meeting

The trustees of the village of Weston held their final board meeting in the NAL village Wednesday night, November 26.



April 10, 1969-

Illinois Gives AEC Title For NAL's 6,800 Acres

1st NAL Proton Beam

by Dr. Cyril H. Curtis
 It was at 1:45 p.m. on April 17, 1969 that members of the NAL Linac Section obtained a beam of protons from the preaccelerator, the first and smallest of four cascaded accelerators which will comprise the complete 200 BeV accelerator.



A late August aerial view of the NAL construction site showing Linac and Booster enclosures.



Work on the Linac enclosure proceeds three miles northwest of the NAL village.

Stray Particles

March, 1969

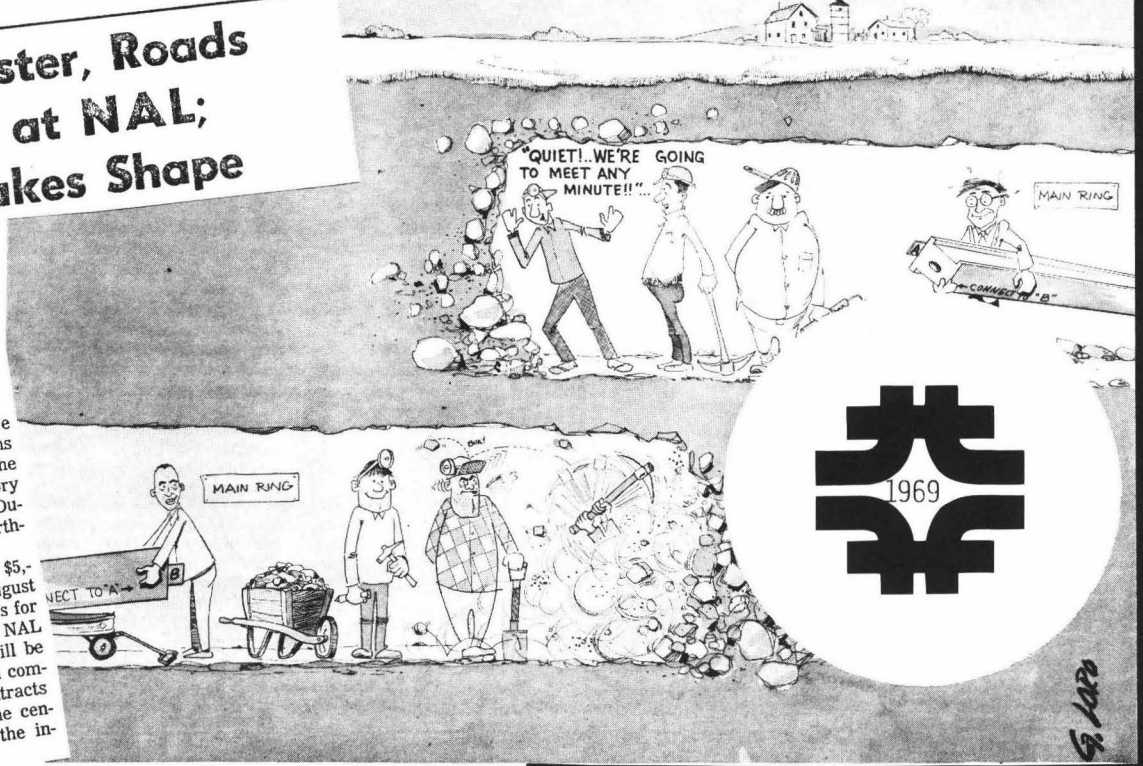
by Geno Loro

Linac, Booster, Roads Underway at NAL; Village Takes Shape

Award Utility, Main Ring Contracts

Several major contracts have been awarded in recent months for significant components of the National Accelerator Laboratory on the NAL 6,800 acre site in DuPage and Kane counties of north-eastern Illinois.

Three contracts totalling \$5,443,410 were let in late August and early September. One was for a start on construction of the NAL main accelerator, which will be 1.24 miles in diameter when completed. The other two contracts were for construction of the central utility plant and for the industrial area buildings.



G. Loro



88 PROPOSALS RECEIVED FOR EXPERIMENTS AT NAL

LINAC ACHIEVES HIGHEST PROTON BEAM ENERGY IN U.S.

....A HAPPY OCCASION: Linac staff members achieved full design energy of the NAL Linac of 200 MeV just before midnight, Monday, November 30. An informal celebration followed. Here, reviewing the console record, are (l. to r.) Donald E. Young, Linac Section Leader; Ed Hubbard, Glenn Lee, and Robert R. Wilson, NAL Director....
Photo by Anthony Donaldson



On Friday, September 25, 1970, the Linac Section achieved acceleration of beam to 139 MeV.

"OKTOBERFEST" ENDS WITH AN NAL MILESTONE

While most Chicago area residents began in late September - came to and 6:00 a.m. on Friday morning,

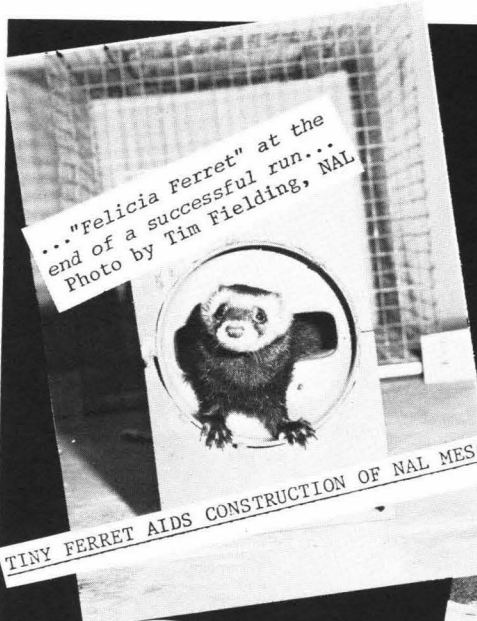
At that time, in the wee hours of the night, the beam was brought to the Main Accelerator. The beam was accelerated in the Linac on September 25, thus laying the energy proton linear accelerator.

The beam was brought to the Main Accelerator on September 1, as the first step. It was then carried to the Main Accelerator and on weekends in order not to interrupt the Main Accelerator's mission.

Many NAL employees worked on the Main Accelerator's mission. On several occasions, the Main Accelerator was shut down on Saturday evening, October 3, 1970.

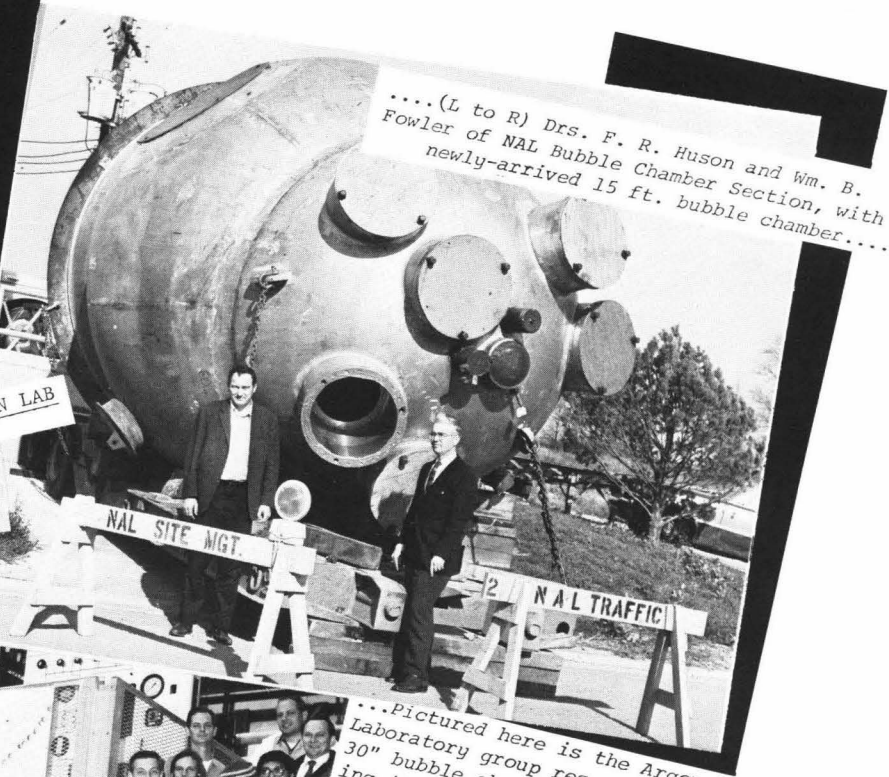
The "Oktoberfest" at NAL - which really ended with a historic conclusion between 3:30 a.m. and 6:00 a.m. at NAL "milestone."





... "Felicia Ferret" at the end of a successful run... Photo by Tim Fielding, NAL

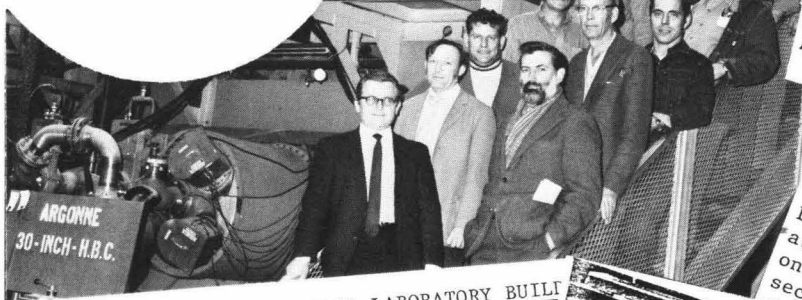
TINY FERRET AIDS CONSTRUCTION OF NAL MESON LAB



....(L to R) Drs. F. R. Huson and Wm. B. Fowler of NAL Bubble Chamber Section, with newly-arrived 15 ft. bubble chamber....



...Pictured here is the Argonne National Laboratory group responsible for moving the 30" bubble chamber from Argonne and operating it at NAL. They are, (L to R, bottom to top): V. Sevcik, R. Walker, L. Voyvodic, P. Furio, V. Shoemaker, O. P. Keefer, R. Brazzale, R. Pucci, J. Hoover, D. Wilslef, W. A. Williams, V. Sauter, R. Williams, J. Harder, V. Kubilius, J. Bayer. Absent when photo was taken was the night shift crew: G. Hodge, W. Horn, and H. Gifford. Photo by Tim Fielding, NAL



ALL SYSTEMS GO!
ON TRANSPLANTED 30" BUBBLE CHAMBER

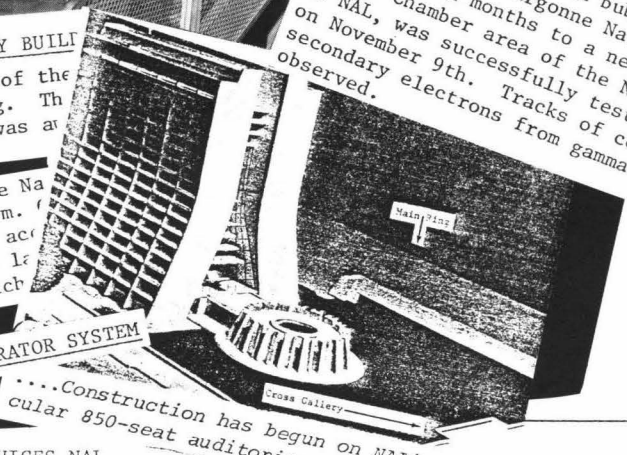
The 30" hydrogen bubble chamber which has been moved from Argonne National Laboratory in the last six months to a new location, in the Bubble Chamber area of the Neutrino Laboratory at NAL, was successfully tested in its new home on November 9th. Tracks of cosmic rays and of secondary electrons from gamma ray sources were observed.

WORK PROCEEDS ON PHASE I OF CENTRAL LABORATORY BUILDING

On NAL's Main Site, at the northern end of the on Phase I of the Central Laboratory Building. The complete despite the fact that the contract was a bit interfered with progress.

"A proton beam was guided through the entire NAL accelerator system for the first time at 6:44 a.m. The beam was accelerated to 7 BeV in the linear accelerator system and then 'coasted' through the booster accelerator system -- the main accelerator, which is now under construction."

PROTON BEAM GUIDED THROUGH ENTIRE NAL ACCELERATOR SYSTEM



....Construction has begun on NAL's circular 850-seat auditorium....

345 KV POWER LINE SERVICES NAL

Precisely at 1:45 p.m., Thursday, January 21, 1971, the 345 KV Power Substation, located about a quarter of a mile from the "footprint area" at the NAL Main Site, became operational.

BOOSTER ACHIEVES FULL DESIGN BEAM ENERGY OF EIGHT BeV

Another and a major milestone was achieved by the Booster section at approximately 2:20 a.m., Friday, May 21, when the Booster achieved its full design beam energy of 8 billion electron volts for the first time.

January 28, 1971

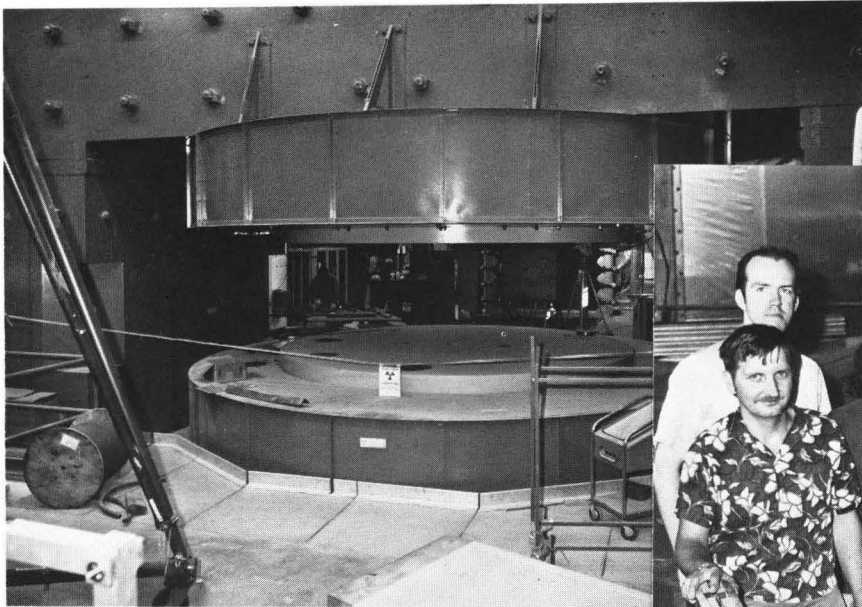


...Robert R. Wilson, NAL Director, offers a toast at the celebration held in the lobby of the Main Control Room following achievement of 200 BeV acceleration at NAL...

PROGRESS ON ACCELERATOR STUDIES
200 BeV
1:08 P. M. - WEDNESDAY, MARCH 1, 1972



...200 BeV victory in the NAL Main Control Room. Front row, seated (L to R), Francis T. Cole, Jeff Gannon, John Clarke. Standing (L to R) Dick Cassel, Ryuji Yamada, Bruce Strauss, Paul Evan, Will Hanson...

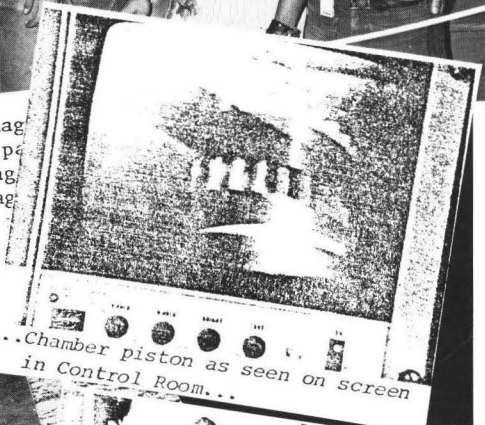


...NAL staff successfully testing magnet, brought to NAL from the University of Chicago include (front row, L-R): B. Williams, C. Worel, K. Roy, P. Burton (Oxford); (Back row, L-R): G. Woods, G. Ross, J. Walker, and D. Williamson...



...NAL's Neutrino Section becomes the second generation to prepare the magnet shown above for particle physics experiments...

NAL's Neutrino Section is completing its refurbishing of the 2500-ton magnet brought to NAL from the University of Chicago. Once the world's largest particle accelerator, a synchrocyclotron with an energy of 450 million electron volts, the Chicago machine began its journey by rail to NAL. The 53 pieces were re-assembled at the NAL Neutrino line where the magnet will now serve as a spectrometer to measure the momentum for experiments to be done there.



...Chamber piston as seen on screen in Control Room...

PROGRESS CONTINUES IN NAL MESON AREA

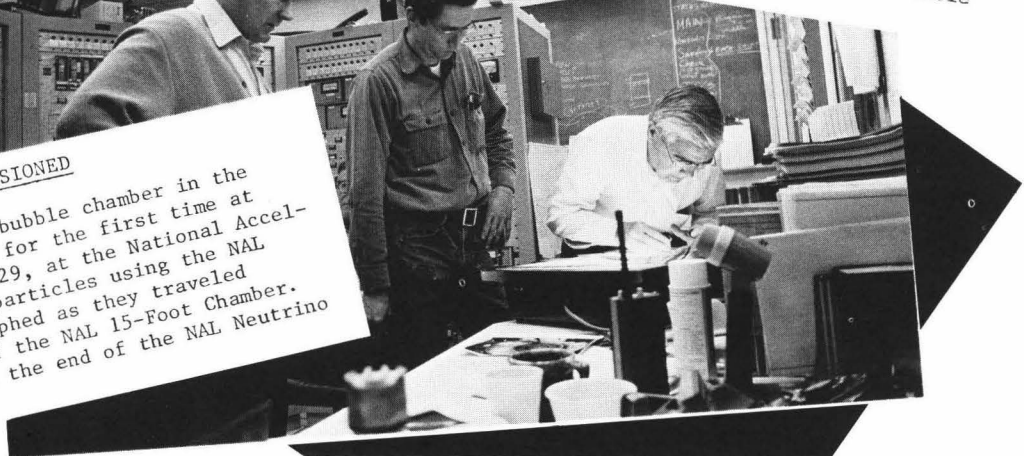


...First tracks in NAL 15-Foot Bubble Chamber...



NAL 15-FOOT BUBBLE CHAMBER COMMISSIONED

The largest liquid hydrogen bubble chamber in the world was successfully operated for the first time at 5:15 p.m., Saturday, September 29, at the National Accelerator Laboratory. Tracks of particles using the NAL Main Accelerator were photographed as they traveled through the liquid hydrogen of the NAL 15-Foot Chamber. The new Chamber is located at the end of the NAL Neutrino Experimental Line.



THE DEDICATION OF THE FERMI NATIONAL ACCELERATOR LABORATORY

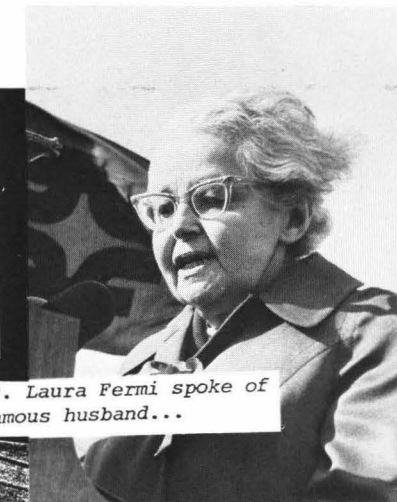
A TIME FOR DEDICATION...

At the time in its history when it is to be dedicated to an official position in high energy physics research in the United States, the National Accelerator Laboratory steps into deep traditions both of scientific achievement and of American concern for human welfare.



Enrico Fermi, 1901-1954

Enrico Fermi, for whom the Laboratory will be named on Saturday, May 11, represents the highest of scientific tradition -- the dedication, the brilliance that yields great new discoveries. Fermi's colleague Anderson, described Fermi's achievement on December 1, 1954:



...Mrs. Laura Fermi spoke of her famous husband...

10¹³ Protons Per Pulse
in
NAL Main Ring
12:40 a.m.
Wed., April 17, 1974



The NAL accelerator operators put it all together on April 17, and by 12:40 a.m. 10¹³ (ten trillion) protons were whirling around the Main Ring every 22 microseconds, the highest intensity per pulse ever achieved in any synchrotron, proton or electron, in the world. This effort and success ranks second only to the March 1, 1972 achievement of the first 200 BeV operation in the accelerator.



...after midnight on Wednesday, April 17, 1974, the operations crew achieving intensity record included: (L-R, Front) Operations Chief; Bob Angstadt, Operator; Bob Bauger, Duty Assistant; Bob Evans, Mechanical Assistant; Jeff Gannon, Operations Plant; Doug Howard, Operator.

The results of an important experiment at the FermiLab were presented at the XVII Conference on High Energy Physics that opened in London, England on July 2nd. (The XVI such conference was held here at the Laboratory and the University of Chicago in September, 1972.) The experimental results, considered to be a major advance in high energy physics, were described by the spokesman for the FermiLab total cross section experiment at a press conference held in New York City on Thursday, June 27.

PRAIRIE RESTORATION PLANNED FOR NAL MAIN RING
 A proposal presented by the Illinois chapter of The Nature Conservancy, to re-establish a native prairie on the 650 acres of land inside the circle comprising the NAL Main Accelerator, has been approved by the Laboratory.

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.

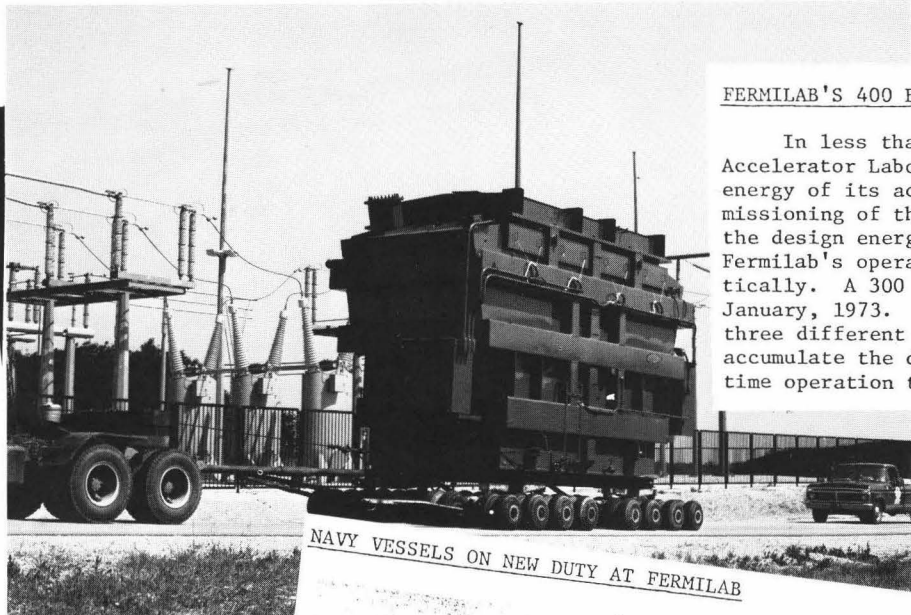


...Fermilab Director R. Wilson's spade signals start of Internal Target Addition...

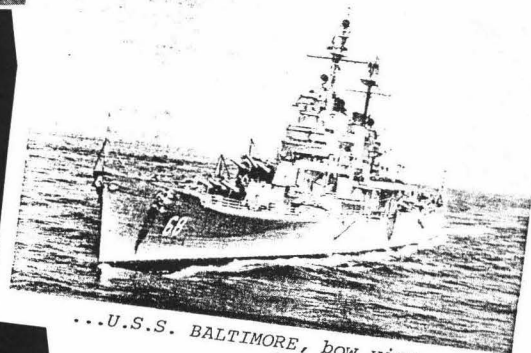
Fermilab's Internal Target Group broke ground on Wednesday, November 27, for the construction of an addition to the facilities of this experimental area. The new 40 ft. by 40 ft. enclosure, adjacent to the Main Ring tunnel at the C-zero headquarters of the Internal Target group of the Accelerator Division, will house a superconducting spectrometer.

FERMILAB'S 400 BEV ACCELERATOR

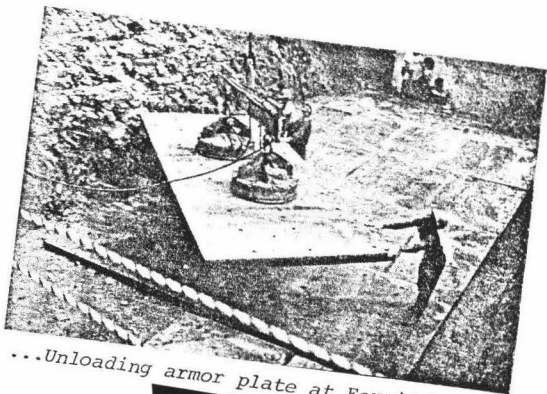
In less than 30 months, the Fermi National Accelerator Laboratory has doubled the operating energy of its accelerator system. Since the commissioning of the accelerator in March, 1972 (at the design energy of 200 billion electron volts) Fermilab's operating level has been rising dramatically. A 300 BeV energy level was adopted in January, 1973. Forays at 400 BeV were tried at three different times in the past two years to accumulate the data needed to prepare for the full-time operation that is now in effect.



NAVY VESSELS ON NEW DUTY AT FERMILAB



...U.S.S. BALTIMORE, bow view...



...Unloading armor plate at Fermilab...

FERMILAB COPING WITH RISING COSTS OF ELECTRICAL POWER

ENERGY DOUBLER EMERGES FROM DRAWING BOARDS

URA APPROVES NUCLEON THERAPY FACILITY





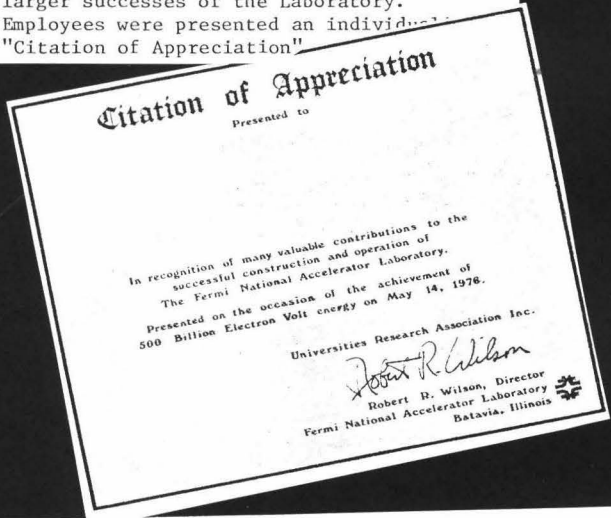
FERMILAB EXPERIMENT ANNOUNCES PARTICLE DISCOVERY

A team of scientists from the United States and six European nations has announced that their experiment, run at Fermilab, has produced evidence of the production and subsequent breakup of a new subnuclear particle.

...At a groundbreaking on October 6, (L-R) John McCook, E.L. Goldwasser, R.R. Wilson, and Leonard Grimstead signalled the start of construction of a new fire house, in the Phillips Farm area. The new station, to be in operation by the middle of 1977, brings the Fire Protection Department closer to the experimental areas as well as to the Central Laboratory. The Fire Department has been located at the end of Sauk Boulevard in the Village...

APPRECIATION AT FERMILAB

The scientific work at Fermilab paused briefly this week while administrators and supervisors paid tribute to the employees of the Laboratory, recognizing the fact that many individual efforts combine to make the larger successes of the Laboratory. Employees were presented an individual "Citation of Appreciation"



MAJOR DISCOVERY ANNOUNCED BY EXPERIMENTERS AT FERMILAB

An experimental group working at Fermilab has announced that their experimental results produce evidence of the existence of a new particle with an entirely new physical property. This new property may correspond to one that was predicted by theoretical physicists several years ago.

CTF OPENS TO FIRST PATIENT

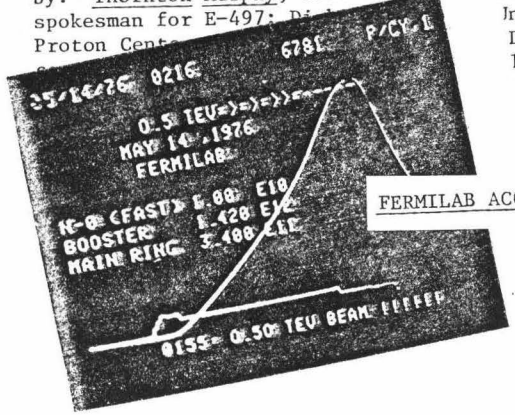
A major milestone occurred for Fermilab's Cancer Therapy Facility of Tuesday, September 7, when the first neutron dose was given to a volunteer cancer patient.

GROUNDBREAKING FOR HYPERON AREA

Friday, August 26, was a hot, humid day. Rain clouds had been gathering since early morning. At precisely 3 p.m., Mother Nature emptied the heavens.

The cloudburst is hardly news ... but this one coincided with groundbreaking ceremonies for a charged hyperon beam enclosure in the proton experimental area.

Dampened, but not dismayed, Laboratory Director Robert R. Wilson got the event underway with brief remarks and turned the first shovel of earth. Then shovels were wielded by: Thornton Murphy, head of the Proton Department; Joe Lach, proton department and University; Dave Eartly, project physicist for Division; and Sumner Sollit, president of the Proton Center. They all looked out of ankle-deep mud to light refreshments.



FERMILAB ACCELERATOR REACHES 500 BeV ENERGY



