

# The Village Enterprise



fermi national accelerator laboratory

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...Coils/Cryostats Await Assembly...

## A CHALLENGE MET

Henry Ford, father of auto mass production techniques, would have been proud.

Adapting the automaker's theories to high energy physics, Fermilab magnet makers recently won a race with time -- and under strict quality control standards -- to produce a key energy doubler magnet component.

Called a cryostat, the assembly is a sheetmetal vacuum bottle. It surrounds superconducting coils at the heart of electromagnets that will accelerate protons around the main ring for 1-TeV experiments. Some 1,000 magnets are planned for a superconducting ring proposed in the Energy Doubler Project -- a program designed to yield increased useful energy for research while saving electricity and money.

Will Hanson, magnet facility manager, says the one-a-day cryostat production trial confirmed a speculation: that the assembly could be turned out relatively quickly using industrial methods. Jack Jagger, assistant manager, added that the production goal was reached ahead of schedule -- in a relaxed but productive work atmosphere -- and with high morale by 17 crew members. "No panics, other than 'normal' panics," occurred, he said. Jagger noted too that no overtime was required. . . and that man-hours per cryostat assembled averaged 160, significantly under the 200 figure that had been projected.

The project got underway at 7 a.m. Monday, June 21, in the magnet assembly building. Guiding the handpicked crew in addition to Hanson and Jagger were: Steve Barath, chief technician; Don Tinsley, assistant chief technician; and Jim Humbert, chief inspector; and lead men on day, night and midnight shifts, Wally Medernach, Steve Kovacs and Jesse Mendoza, respectively. Louis Greenwood, expeditor, was also cited for his contributions in making sure that all parts were on-hand when needed. A week of preparation preceded the simulated production run. Small group orientation meetings briefed workers on the how and why.

According to Hanson, each magnet required about 18 major production steps and another 13 major inspections. However, each major production/inspection step involved from five, to ten separate other operations.



...Completed Magnets After Production Exercise...

## A CHALLENGE MET (Continued)

All operations had been pre-diagrammed in a work flow chart. This workers' "Bible" was co-written by George Biallas, design engineer with Bob Powers, Energy Doubler group consultant. The directions, Jagger said, proved true generally but were modified as needed to improve the assembly process.

Welding was a critical part of the procedure. To fuse the thin stainless steel into a leak-tight system, heliarc welding was specified. A cloud of helium gas acts as a shield for the electric arc. The helium combats impurities and oxidation while providing top integrity welds which withstand the shock of operating from room temperature down to  $4^{\circ}$  above absolute zero.

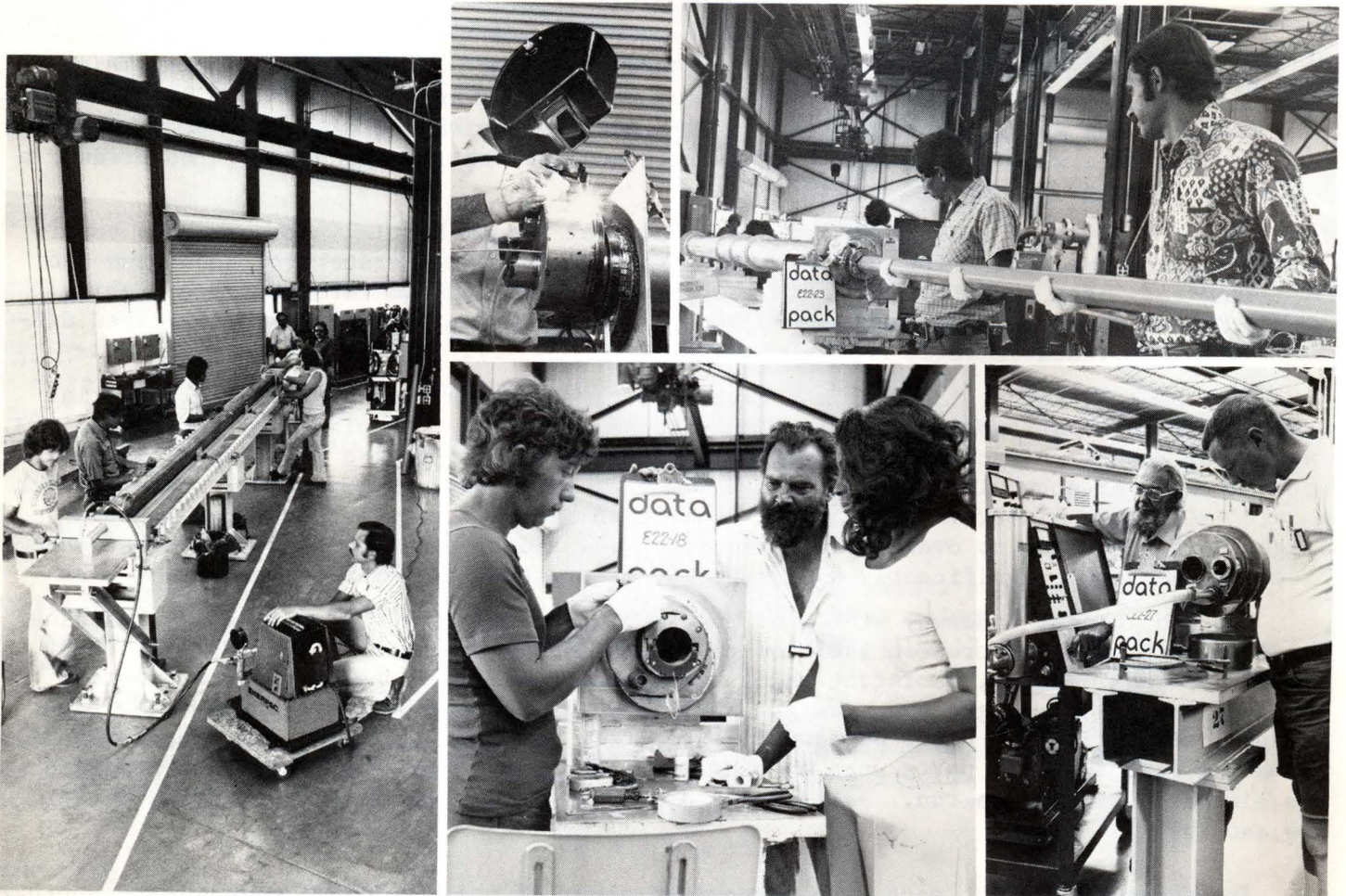
An individual "dossier" chronicling the work completed on each magnet traveled with it through shift changes. As production and inspection steps were completed, appropriate personnel initialed and dated the entries in the traveling forms.

Begun on Monday, the first magnet emerged complete on Thursday night -- a day ahead of schedule. Successive magnets were completed at a one-a-day rate.

"The real significance," Hanson said, "was that we proved that completed magnets can be produced by industry and/or ourselves within budget and a tight time schedule." 1979 is the goal for installation of the superconducting ring.

After the work was over, supervisors and crew members held a victory picnic at the Village Barn to celebrate.

A previous simulation, in which coil bundles were fabricated, was successfully conducted in April.



...Photos clockwise from left: Magnet is inserted into cryostat. J. Fay welds "can" shut; W. Medernach, G. Sliwicki insert beam tube; C. Hess, J. Jagger, D. Taylor prepare conductor lead; and B. Condor, J. McBride...



...Fireman hoses down upset gasoline truck...

#### FERMI FIREFIGHTERS LEND A HAND

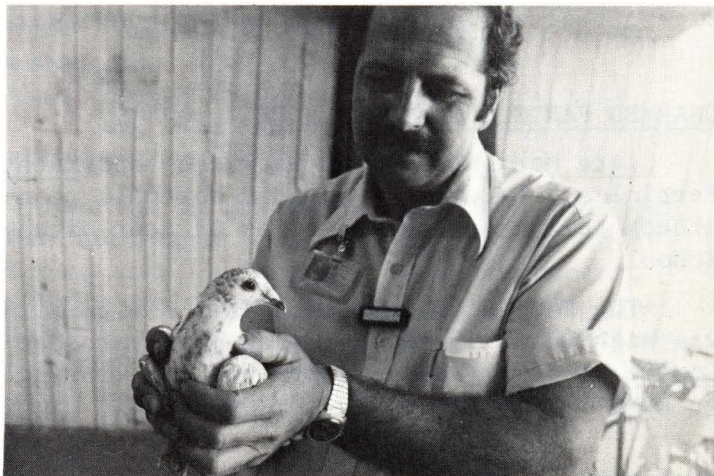
"We had great cooperation from Batavia, St. Charles and Fermilab," Geneva Fire Chief William Rosenfelder said recently. Laboratory firefighters won the words of praise after responding to a mutual aid request from Geneva June 30. About 2:30 p.m., a gasoline truck northbound on Rt. 25 lost its rear axles and tipped over near Fabyan's Forest preserve. The truck was carrying 1,800 gallons of fuel. Fermilab was contacted to bring in extra water. "A" shift firefighters Jerry Prybylski and Tom Velasquez made the run in the department's mobile tanker, a 1500-gallon-capacity vehicle. About 5,000 gallons of water, 50 gallons of foam and 20 gallons of gasoline disperser agent were used to wash away gasoline emptied from the truck's ports. The mutual aid call was among several requests for Hurst extraction equipment or scuba divers received by the Fermilab department in recent years.



...Fermi firefighters J. Prybylski (L) and T. Velasquez with tanker No. 725...

#### KEEPER OF THE KEYS

Lost your keys? Jim Chapman, site patrol dispatcher at Cl-1E, has about a dozen single keys and sets turned in for safekeeping. House keys and keys for General Motors, Chrysler and Volkswagen autos are included. Also, several small coin purses have been found.



...Rudy Dorner, Site Operations, holds a tired racing pigeon that landed on the Central Laboratory's front steps. The bird was returned to its owner...

#### \$140,718.12 PAID TO ACU SHAREHOLDERS

Argonne Credit Union's second quarterly dividend for 1977 was paid to 6,799 shareholders (1,100 at Fermilab) on record as of May 31, 1977. The ACU declared a 5-3/4 percent quarterly dividend as of May 31. June 30 statements showing each shareholder's dividend are to be distributed to members through interoffice mail this week or early next week. Other dividend dates are Aug. 31, Nov. 30 and Feb. 28. Accompanying statements will be a request to shareholders to cooperate in an annual verification of accounts. In case of a statement error, the shareholder will be advised to contact the auditing agency directly.

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#### STORK VISITS TWO FERMILAB FAMILIES

Dan Moline (Accel. E/E group) and wife Lulabella proudly announce the arrival of Debbie Lu on June 30 at 1 a.m. She weighed in at 11 lbs., 1/2 oz. and measured 21 1/2" long.

Robert Christopher Pucci, "another Neutrino event", was born to proud parents Eva and Bob Pucci (30-in. Bubble Chamber). Born July 2, Robert Christopher tipped the scales at 9 lbs, 3 oz., was 21" long and reportedly measured 14" around the chest. He also has a proud brother, John (11 1/2) and a proud sister Angela (9 1/2).

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#### THANK YOU

Recent retiree Ginny Linquist, writes, "Thanks to all my friends at Fermilab for their good wishes, their help and for their friendship."

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#### UPDATED STOCKROOM CATALOG AVAILABLE

A catalog listing items available in Fermilab's stockrooms, updated to June, 1977, has been published. The catalog can be obtained from either stockroom: CL-W ground floor or the warehouse at the Phillips Farm (Site 38).

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#### RECREATION NOTES

Helen Ecker, recreation manager, has clarified arrangements for reserving village tennis courts. She said signup sheets are posted on the bulletin board next to the tennis courts at 5 p.m. daily for the following day's play. Sixty-minute playing periods may be reserved from 6 a.m. to 8 p.m.

For physical fitness buffs, an exercise room is located at 17 Potawatomi in the Village. Equipment includes mats, bars, weight sets, universal gym and ping pong tables. Site patrol will open the room for exercisers.

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#### CHARMED PARTICLES BOUNCE BACK

Clare Morton (Support Services) and Kathy Cooper (Employment) paced the "Charmed Particles," Fermilab's women's softball team, with three hits apiece June 26. The attack fell short, however, as Officer Nicely beat the Particles 12-10 at Geneva High School.

The Particles rebounded July 5 with a 23-2 romp over Swift's Dry Sausage at Batavia High School. The Fermilab gals recorded 23 hits to six for their opponents. Leslie Bottorff (Accelerator) was the winning pitcher. Next game for the Particles will be at 6:30 tonight (July 14) at Batavia High School.

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#### FOOD WITH FLAIR

Gourmet Lunch in the Cafeteria every Tuesday; \$4.50. Gourmet Dinner at the Users Center every Thursday; \$4.75. Call Ext. 3646 for reservations.