

# The Village Grier



fermi national accelerator laboratory

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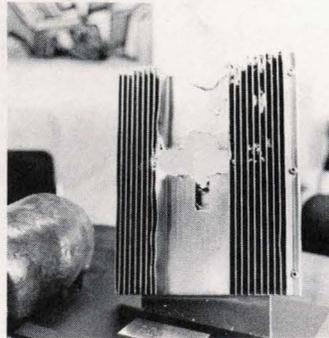
Vol. 9, No. 50

December 29, 1977

## HERE 'N' THERE AROUND FERMILAB



..1975:Glass block..



..1977:Magnet shunt..

### MORE ART FROM E-288

On Friday, December 16, Leon Lederman and his colleagues on Experiment 288 presented to Fermilab their latest artistic 'experimental artifact' -- a charred chunk of metal.

The new gift is the chrome-plated remains of a high current copper magnet shunt. It overheated, melted, and caused a fire damaging electrical circuitry in the Proton Center experimental area last summer. The fire interrupted the discovery of the new heavy particle, the Upsilon, found by the E-288 group.

In 1975, the E-288 group presented to the lab a very interesting block of glass. The block was designed to detect high energy electrons in the proton center pit but due to a mistake in its heat treatment it developed a beautiful pattern of internal fractures.

Lederman pointed out that the successes of experiments at Fermilab are duly recorded on the pages of scientific journals, but the failures, which can be even more spectacular, are not properly honored.

Laboratory Director R. R. Wilson received the gift for Fermilab. He noted that although he has seen experimental physics evolve a great deal during his career, the vagaries of experiments remain amazingly similar and amusing.

\* \* \* \* \*

### LECTURE NOTICE

Free tickets are being distributed for "Can Computers be Trusted?", the fifth program in the 1977-78 Fermilab Science and Humanities Lecture Series. Speaking in the auditorium at 8:30 p.m. Friday, Jan. 20, will be Dr. Joseph Weizenbaum, professor of computer science at Massachusetts Institute of Technology. For your tickets, contact the Guest Office, CL-1W (Ext. 3440).

### BOUQUET TO BLOOD DONORS

Despite bad weather, 51 pints of blood were donated by Fermilab employees during a Dec. 9 visit by the Aurora Area Blood Bank. The total compared to 76 units collected in July. Typically, holidays are a drain on blood supplies according to blood bank officials. Donations may also be made at the organization's Aurora offices, 1200 N. Highland Ave. Fermilab's medical office coordinates the donor days on-site.

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### THE LAST ROUNDUP

Brookfield Zoo became the new home last month for Fermilab's herd of Scottish Highland cattle. Thirteen head--including two calves--were donated to the zoo. The calves will become part of Brookfield's children petting zoo. The herd was donated to the zoo in hopes that it can be rebuilt to its former strength with fulltime care in greener pastures.

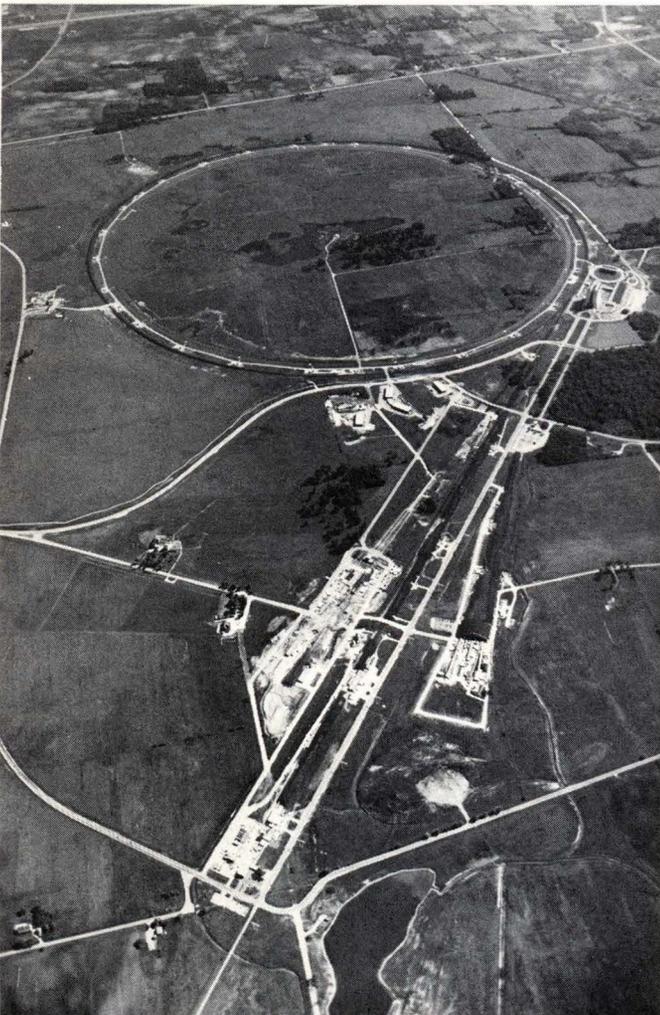


...Herdsman rounds up Scottish cattle...

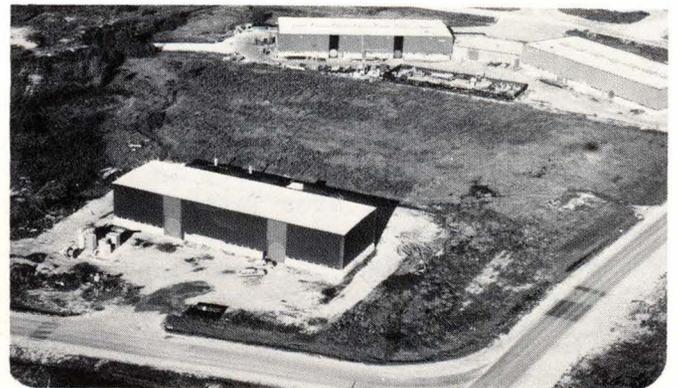


*...The Central Laboratory and booster area dominate this view looking east...*

FERMILAB'S PHOTO ALBUM was updated recently with new site aerial photographs. Above and below are a few scenes taken from the helicopter.



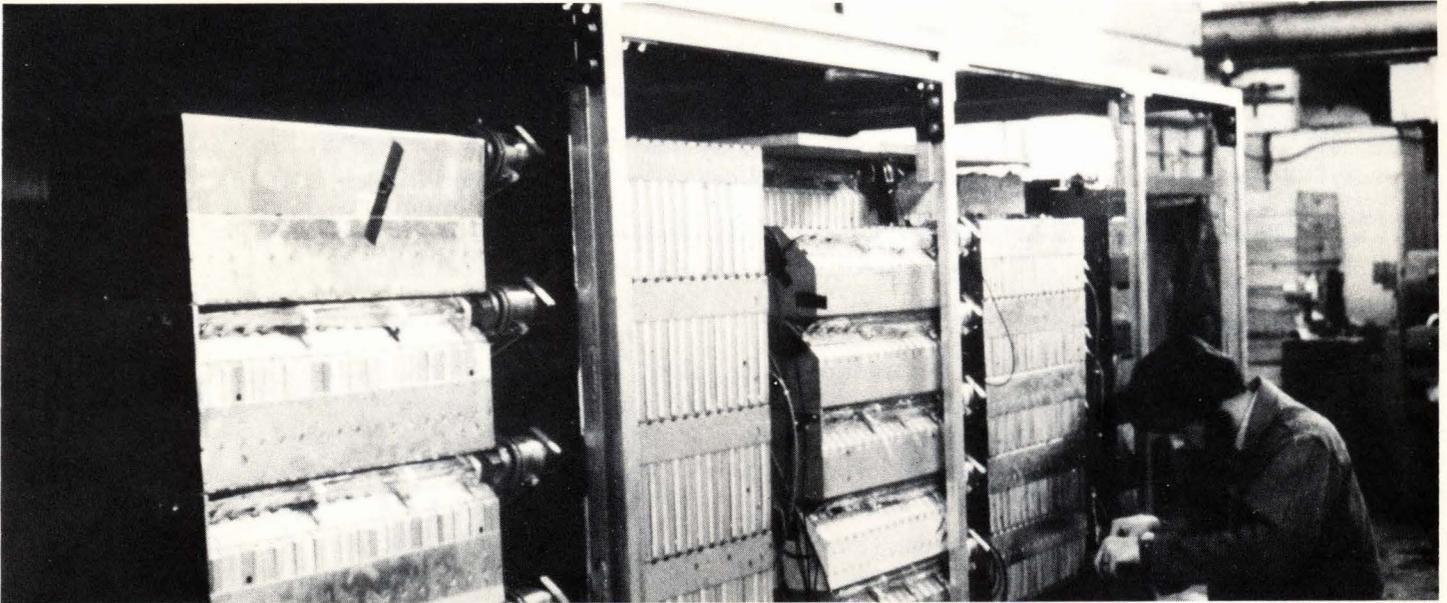
*...Beam lines extend from the main ring to experimental areas...*



*...Industrial area: central liquefier, foreground; magnet facility, background...*



*...View of Fermilab's village from the east...*



...L. Cormell of E-395 adjusts hadron calorimeter...

#### E-395 ENDS SUCCESSFUL RUN

Experiment 395 has just completed a successful run in the Meson Lab (M2 Beam Line). The experiment was conducted by the following people and their respective institutions: P. Gollon, Fermilab; A. Kanofsky, G. Lazo, Lehigh Univ.; L. Cormell, M. Dris, W. Kononenko, E. O'Neil, B. Robinson, W. Selove, B. Yost, Univ. of Penn; M. Corcoran, C. Cortez, A. Erwin, E. Harvey, R. Loveless, M. Thompson, Univ. of Wisc. (Work supported by U.S. DOE Contracts.)

The experiment was designed to study hadronic (pion-proton, or proton-proton) interactions at very large momentum transfer (high  $P_t$ ) which in turn requires very large beam energy. The apparatus consisted of a large two arm hadron calorimeter, and six drift chambers. The energy of outgoing particles measured by the calorimeter detector and charged particles are "tracked" by the drift chambers. With this information, events of the highest  $P_t$  can be studied. Scientists analyze events to study the internal structure of hadrons, i.e., the harder a hadron is struck (higher  $P_t$ ) the more deeply its internal structure is probed. It has been known for sometime from lepton scattering experiments that the hadron's inner structure is composed of some number of quarks or partons. This experiment then continues this study of hadronic constituents, but unlike the lepton experiments, it includes quark-quark interactions since both beam and target particles are hadrons. Present theories predict that if a quark hadron is struck hard enough it will be knocked out of the hadron, but rather than come out as a free quark, very strong forces cause the quark to "clothe" itself with other quarks and produce a jet of hadronic particles. With the large calorimeter of E-395 it is possible to measure these jets.

"Furthermore, since E-395 has a two arm calorimeter it can measure the expected recoil jet in the opposite arm and in that way study jet-jet correlations which presumably are determined by quark-quark interactions. Preliminary results thus far are consistent with quark-quark scattering models as briefly described above," said Larry Cormell of E-395.

"Of course, much more analysis and consequent publications will be done in the next few months to study this most important aspect of high energy physics. To further our understanding of high  $P_t$  hadronic interactions (and, ultimately quark-quark scattering) we have proposed a new experiment, P246A, of much larger magnitude and scope. Consequently, we are looking forward to continuing good relations and 'good physics' at Fermilab. We would like to take this opportunity to thank some of the many people at the lab who have made this experiment possible: T. Droege, R. Worland, T. Toohig, H. Haggerty, Meson Lab Op. Staff; E. Goldwasser," Cormell said.

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## NALREC ACTIVITIES

- Today, Dec. 29 - End-of-Year Party, 6-10 p.m., Village Barn; Music by "We Three"; Cash Bar; Cheese, sausage, crackers; 50¢ admission.
- Monday, Jan. 17 - Ice skate exchange, 11:30 a.m.-1 p.m., CL-1W.
- Saturday, Jan. 22 - Ice skating party, details to be announced.
- Pro basketball bus trip to be announced.

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## CREDIT UNION NEWS

... a BONUS dividend will be added to regular dividends to be paid on December 31, 1977, the Argonne Credit Union announced. The special one month dividend, reflecting earnings for December (based on a six percent annual rate) is being paid to align with a new dividend payment schedule to begin in 1978. The bonus dividend, plus the regular dividend for September, October, and November, will appear on statements going to members in January.

... As mentioned above new dividend payment dates effective 1978 will be March 31, June 30, September 30 and December 31.

... In a major policy change, ACU directors have approved day in-day out dividend computing. Dividend earnings will be based on shares on deposit daily. Previously, dividends were calculated on shares on deposit at the end of the quarter. Under the new system, full shares (\$5 multiples) will earn dividends from the date of deposit to the date of withdrawal.

... ROSE PARADE WATCHERS: the New Year's Day event will take on added meaning with your own 1978 Tournament of Roses Parade official program book. Copies are available, \$1.25 each, from the Fermilab ACU service office (CL-1W) while a limited supply lasts. "Down by the Old Mill Stream" will be the theme of a float entered by the Credit Union National Association.

### RACQUETBALL CLUB FORMING

A Fermilab racquetball club is being organized. Play is planned for LeBeau's Health Club, Deerpath Road, Aurora. Fee: \$5-\$10 (\$5 per hour). For more information contact Larry Allen, Ext. 3721.

## BUYING SERVICE OFFERS DISCOUNTS

Are you an Argonne Credit Union member? If so, you also qualify for a unique shopping service: United Buying Service. New products and services, at discounts, are available through UBS, sponsored by your credit union.

"The money saving values are among those most frequently requested by members and their families," said Arnold L. Watland, director of UBS. There are no membership fees . . . no dues . . . no obligation to purchase. Here's how it works:

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