

# The Village Courier

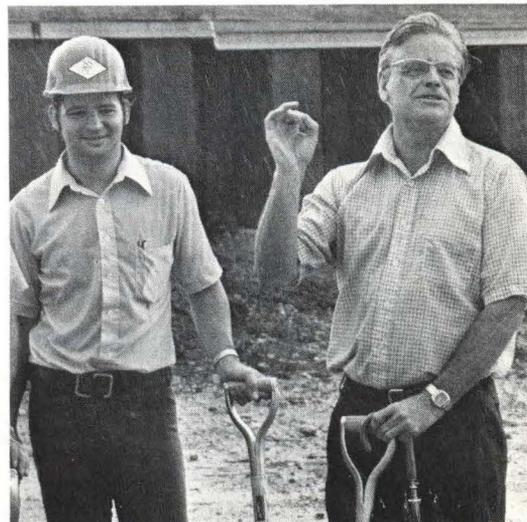


fermi national accelerator laboratory

Operated by Universities Research Association Inc.  
Under Contract with the Energy Research & Development Administration

Vol. 9, No. 34

September 8, 1977



...Hyperon groundbreakers are (L-R): J. MacLachlan, S. Sollit, J. Lach, R. Majka, R. Wilson, T. Murphy, E. Steigmeyer and R. Carrigan...

..R. Majka (L) looks on as Fermi-lab Director R. Wilson opens groundbreaking ceremonies...

## 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.

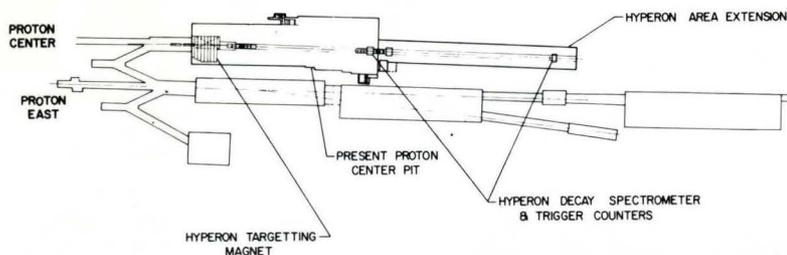
Dampened, but not dismayed, Laboratory Director Robert R. Wilson got the event underway with brief remarks and turned the first shovel of earth. Then shovels were wielded by: Thornton Murphy, head of the Proton Department; Joe Lach, proton department and spokesman for E-497; Dick Majka, Yale University; Dave Eartly, project physicist for Proton Center; Dick Carrigan, Research Division; and Sumner Sollit, president of the construction firm. The participants walked out of ankle-deep mud to light refreshments provided by Yale.

The construction of this new enclosure just downstream of the present proton center enclosure will house a new charged hyperon beam. The first experiment using this beam is E497, a joint Fermilab-Yale University collaboration. Hyperons are baryons like the familiar proton and neutron that make up most of the matter around us, but with one or more of the three normal quarks which make up these particles replaced by strange quarks. The new area is a concrete enclosure 190 feet long by 18 feet wide. It will connect onto the present PC enclosure. The extension is designed to be straddled by the Proton department travel lift which will service it through removable roof hatches. The project is due to be completed in about 90 days. Although the first set of experiments in this area will use charged hyperons, other future experiments will also benefit from having such a long enclosure.

This new enclosure will serve as a staging area for E497; providing a complex spectrometer for identifying hyperons through their decay products that can be built and tested while the present program in Proton-center concludes.

(Continued on Page 2)

## GROUNDBREAKING FOR HYPERON AREA (Continued)



...Hyperon extension to Proton Center shown in relation to present PC pit and proposed spectrometer/trigger counters...

Then the large hyperon targetting magnet will be installed. The first experiment, E497, will investigate the strong interaction of hyperons by measuring their elastic scattering properties.

Hyperons are produced by the 400 GeV proton beam striking a target. Because hyperons have very short lifetimes ( $10^{-10}$  -  $10^{-11}$  seconds) their charge and momentum has to be determined in a very short distance. This will be done by a high field magnet which will also shield the apparatus from the unwanted interactions of the proton beam.

This magnet will be one of the largest at Fermilab, having a field of 35 KG and weighing 350 tons. The hyperon beam coming out of this magnet will be capable of having about  $10^5 \Sigma^-$ ,  $10^3 \Xi^-$  and  $10 \Omega^-$  hyperons emerge per accelerator pulse. These hyperons contain 1, 2, and 3 strange quarks respectively. These intensities are far in excess of existing hyperon beams.

The  $\Omega^-$  is the "strangest" of all composed entirely of strange quarks. Since it was discovered in 1964 less than 100 have been observed. By comparison, the famous  $\psi$  and  $\psi'$  and even the recently discovered upsilon at Fermilab have been observed much more often.

The new hyperon area will provide beams of particles which contain no strange quarks (like pions and protons) to particles which contain three. It will be ideal for studying how the properties of baryons depend on their strangeness content.

There has been much recent excitement with the discovery that elementary particles exist which contain a new "charmed" quark. Much effort is being expended in studying the role of the charmed quark in our zoo of particles. But many theorists, such as Fermilab's Harry Lipkin, point out that we still have a very poor understanding of the role that the strange quark plays in the structure of elementary particles. Hyperons may provide important clues in unraveling these mysteries.

\* \* \* \* \*

### GREAT AMERICA DISCOUNT OFFER

Taken in Marriott's Great America theme park yet? Enjoyed it so much you want to make a return trip? Here's your chance -- with a \$2 discount per admission! Helen Ecker, Fermilab recreation director, announces that the Gurnee, Ill., park is offering a "Carousel Club Family Bonus" through Oct. 9. With the free Carousel Club card available from Helen (CL-1W), employees can purchase admission tickets at these rates: \$6.95, adults; \$5.95, children (ages 4-11); and children three and under, free. Anticipating closing for the winter, Great America will be open weekends only through Oct. 9; hours are 10 a.m. to 8 p.m.

### Y'ALL COME TO THE HOE DOWN

Swing your partner and do-si-do Fermilab square dancing buffs! Employees, users and their families are invited to a big all-lab square dance! NALREC will sponsor the event Saturday (Sept. 10) from 8 to 11 p.m. in the Village Barn. Nancy Peterson, an experienced caller, will be featured. Prior square dancing background isn't necessary. The caller will give some basic instruction. Cash bar and sloppy joe's with potato chips will be available for a minimal charge. Jane Pesetski (Cafeteria) and Sherry Nila (Material Support) are in charge of arrangements. Admission will be \$1 per person; children free.

Fermilab Inter/National Film Society

presents

KING OF HEARTS

Auditorium

8 p.m.

Friday, September 9

King of Hearts is a charming subtle comedy from France. The setting is World War I. A young Scottish soldier is sent into a small French town to disarm a blockhouse left to explode by the retreating German army. He finds that the inmates of the local asylum have taken over. In a strange and poignant way, they appear more sane than those outside the town. The soldier must decide which are the madmen.

The color film is in French with English subtitles and runs 100 minutes. Philip de Broca directed the 1967 production.

Admission: Adults \$1.50, Children 75¢

CL SERVICES CHANGE

Gene Plant, Central Laboratory Building Manager, has announced a service change effective Sept. 5. To better accommodate the transfer of computer paper to 7th and 8th floors, and to serve other weekend functions in the Central Laboratory, two Central Laboratory maintenance persons will be employed Tuesday through Saturday rather than the Monday/Friday sequence. As a result, the recycled paper and computer print-out waste removal will be rescheduled from Thursday/Friday to Saturday. Please arrange your paper pick-up accordingly. Call Gene, Ext. 3824, for assistance.

\* \* \* \* \*

GRAD STUDENT TOUR

Maury Goodman (L) conducts a graduate student tour last week of Proton's Photoproduction experiment 87/401. About six tours for graduate students have been arranged this year. Typically, tours are held during periodic shutdowns or on scheduled maintenance days. The next tour will be announced.



ACU MEMBERS' REMINDER

A Credit Union shares account is intended to serve only as a savings account. When more than two withdrawals are made regularly each month, the account appears to be used for "checking account" purposes.

Under law we are not allowed to maintain checking accounts for members. Our auditors have therefore asked us to present you with this reminder to please reduce the frequency of future savings withdrawals.

Occasionally nearly everyone must make more than two withdrawals a month to meet unusual circumstances or emergencies. This is completely understandable and permissible. If you are in this category we hope you are not offended by this reminder. Our purpose is only to reach those members who perhaps are unaware of this policy and have violated the rule regularly.

Thank you for your attention and cooperation.

Argonne Credit Union

HOLY COW! WHITE SOX DOUBLE HEADER BUS TRIP OFFERED

One bus is filled, but names are being taken for a second bus to a White Sox vs. California Angels doubleheader Sunday, Sept. 18. NALREC is sponsoring the excursion. Cost: \$8 per person. Included is a reserved seat plus refreshments on the bus. The Comiskey Park trip is open to Fermilab employees/users and their families. To sign up, contact Keith Schuh, Ext. 4048, by Tuesday, Sept. 13.

\* \* \* \* \*

POWER REDUCTION REPORT

Laboratory electrical power was reduced for over four hours Thursday to make an equipment repair. J. A. MacLachlan (Operations) said power was reduced from 8.2 million watts (megawatts) to 7.2 megawatts between 8 a.m. and 12:40 p.m. The breakdown Monday of a 345-KV switchgear at the master substation necessitated the reduction. According to MacLachlan, Commonwealth Edison Co. workers serviced three unit substations during the repair period. Air conditioning and water chillers in the Central Laboratory were turned off in the restriction; central computing remained in operation. The current maintenance and development shutdown lessened the reduction's impact, MacLachlan said.

\* \* \* \* \*

REDUCED POOL HOURS ANNOUNCED

Supervised swimming hours at Fermilab's pool in the Village recreation area have been reduced, effective this week. Helen Ecker, Laboratory recreation director, said lifeguards will be on duty weekends only from 11 a.m. to 7 p.m. through Sunday, September 25.

\* \* \* \* \*

MISSING POSTER SOUGHT

The "TUT" poster on the bulletin board near the Guest Office was promised to an employee. It would be greatly appreciated if the liberated poster was returned so that it can be given to the person who first asked for it. We're sure whoever took it did not realize it was "bespoke."

\* \* \* \* \*

PLAYGROUP REMINDER

Fall preschool playgroup is forming. For information phone B. Jonckheere, 879-1283, or U. Baker, 231-0339.

\* \* \* \* \*