

# The Village Courier



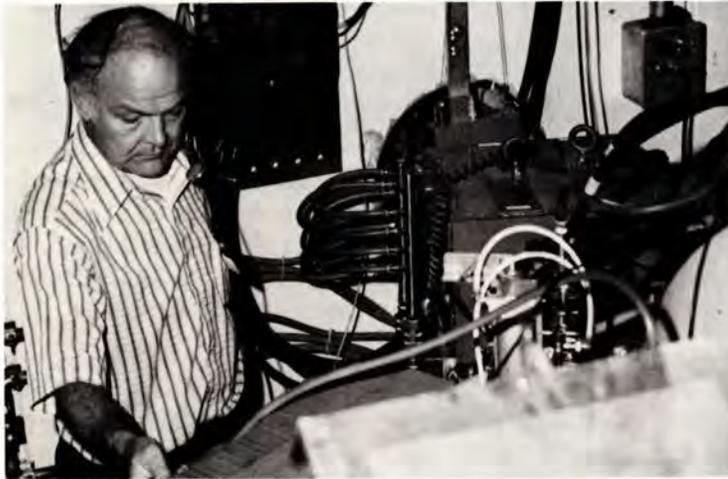
fermi national accelerator laboratory

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## FIRST BEAM IN CANCER THERAPY FACILITY



*...Don Young on test of CTF controls...*



*...Miguel Awschalom, Lionel Cohen watch final preparation...*

About 2 a.m. on Thursday, July 17, the Accelerator Division successfully created the first beam of neutrons for the Fermilab Cancer Therapy Facility (CTF).

The success comes close behind the granting of funds on June 12 by the National Cancer Institute for the operation of the Fermilab CTF for the coming year.

The two milestones bring closer to reality the hope that by the beginning of 1976 the Facility can be used to study the effectiveness of neutron irradiation in the control of certain types of cancer.

Many months of determined effort by Fermilab personnel has led to this opportunity to demonstrate the feasibility of using the Fermilab linear accelerator as both an injector in the accelerator system and as a source of radiation for medical research.

Miguel Awschalom and Don Young have directed the physics effort involved in the Fermilab CTF. They have been aided by a number of other staff people who have frequently volunteered their efforts over and above their regular jobs at the Laboratory.

The present arrangement for an adaptation of a portion of the linac gallery is a metamorphosis from several earlier ideas for applications of the linac for medical purposes. The Illinois chapter of the American Cancer Society also contributed \$17,300 to the project last February. The NCI grant covers operational funds. Funds to build the facility must be found elsewhere. High energy physics research funds are not used for this purpose.

The Fermilab linac accelerates protons to 200 MeV for injection into the other accelerators, but only .8/second out of every 6-second cycle of the accelerator operation requires the linac injection. The remaining time the linac beam is available for other use. The neutron beam to be used by the CTF is created by using 67 MeV protons from the linac, carrying them to an adjoining room where they bombard a lithium target, creating neutrons which can then be focused to a tumor site. A neutron is an uncharged, subatomic particle with a mass close to the mass of the proton, the type of particle accelerated at Fermilab. One of

(Continued on Page 2)



...(L-R) Doug Maxwell, Tom Larson, Max Palmer making CTF plans...



...Jeff Gannon (L), Russ Winje on CTF controls...

the chief advantages of fast neutron beam cancer therapy over conventional x-ray therapy is that the neutron beam does not do as much damage to surrounding healthy tissue.

In order to extract the 67 MeV protons from the linac, tank #5 of the linac was moved seven inches downstream several months ago to permit extraction devices to be installed. In recent months, as the operation schedule permitted, a hole was drilled through the linac shielding wall and other necessary work completed for the new installation. Shielding blocks for the new CTF were acquired from the former Princeton-Penn Accelerator. Software was written and tested in the linac computer.

For at least the next five months, the properties of the Fermilab neutron beam will be studied from a medical physics point of view. The size and shape of the beam, the projected dosimetry, as well as biological studies using bacteria, tissue cultures, and small mammals, will be carefully evaluated.

A large group of physicians and radiologists from the Chicago area has worked with Fermilab personnel in planning and designing the CTF. Dr. Lionel Cohen, head of radiology at Michael Reese Hospital in Chicago, serves as head of the Fermilab CTF. If initial tests are successful and work with human patients is authorized, the medical profession is expected to refer patients from all over the United States for treatment at Fermilab. The use of fast neutrons for cancer therapy has been tested with encouraging results at several other institutions in other parts of the world. About 1,000 patients a year could be treated at Fermilab in the new facility. It is planned that no patients will be housed or hospitalized here.

"This has been an effort of many people contributing time and effort in addition to their normal laboratory responsibilities," Don Young reports. "These first achievements in this intensive program, which may ultimately play a vital role in saving lives, are results of those efforts. Although more have contributed than can be mentioned here, all of these efforts are greatly appreciated. We should use this example in our future efforts to achieve the long-range goals of Fermilab."

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...Marlin Palmer surveying beam line...



...Bob Weber (L), John Larson on last minute vacuum test

1975 FERMILAB OPEN HOUSE



More than 30,000 people visited Fermilab last Sunday to view the home of the world's largest particle accelerator. Most of them saw for the first time the new dimensions which the Laboratory has added to the western suburbs. From the viewing area on the 15th floor of the Fermilab Central Laboratory, they were able to see the Chicago skyline as well as the panoramic view of the communities surrounding the Laboratory, in Sunday's ideal summer weather. They walked through a portion of the four-mile tunnel which houses the main accelerator and they listened as Fermilab staff members explained the array of electronic equipment which they use to operate the Fermilab machine. On another part of the tour they were able to see the equipment used by the experimenters. The take-home literature was designed to reinforce the glimpses they had of what goes on at a major high energy physics research laboratory. Fermilab's buffalo and the Scottish Highland cattle delighted children and adults alike.

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## FESTIVAL OF NATIONS LUNCHEON

Friday, July 25  
Fermilab Cafeteria  
11:30 a.m. to 1:30 p.m.

Western United States in the Good Ol' Summer Time  
Linda Segler, Hostess

Linda Segler grew up in Fort Worth, Texas, where barbecued ribs, baked beans and lemon cake are part of the scene when friends gather in the summer time. For miles around the tantalizing odor of hanging slabs of spare ribs cooking over an open fire and brushed with the host's own special sauce meets guests as they come from far and near for this distinctively U.S. style of entertaining.

Just returned from four years at CERN, Linda and Sam Segler are visiting experimenters at Fermilab from Rockefeller University. They enjoyed many of the foods of Europe during their stay there, but Linda has cooked Texas style since she was 12. Her recipes for this Festival of Nations Luncheon will be available in the cafeteria.

Adding to the gaiety of this July festival at Fermilab will be bluegrass country western music by Fermilab's own Larry Robinson, Larry Farmer and Duane Pennington. Their guitars and fiddles will bring a new style to the Festival of Nations luncheons -- y'all come!

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### REMINDERS:

TEEN SPLASH PARTY, open to all teens and summer employees of Fermilab, Mercury Janitorial, and Advance Security, Saturday, July 26 - 7-10 p.m. No charge, but must have reservations. Call Jo Baaske, Ext. 3046, 3047.....TRAIL RIDE, Indian Creek Riding Club, 7 p.m. Ride will leave from the horse barn on Eola Rd., cookout after the ride (bring your own food), \$15.00 fee. For reservations call Sammy Rumpel, Ext. 3560 or Gerry Reid, Ext. 3121.....THE USERS CENTER now serves sandwiches. The Users Center is open Monday through Friday from 5 p.m. to midnight, Saturday and Sunday from 1:30 p.m. to 8:30 p.m.....Athletic equipment (softballs, bats, volleyball and net, basketball) may be checked out for on-site use from the lifeguards at the swimming pool...VOLLEYBALL GAMES are played Monday evenings at 5:30 next to the Village Barn. Everyone is welcome.

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### CLASSIFIED ADS

VOLUNTEERS - needed to assist with the NALREC Family Picnic to be held on August 17 from noon to 6:00 p.m. Contact Helen Ecker, Ext. 3393, Liz Foster, Ext. 4203 or Mary Greenwood, Ext. 3201.

FOR SALE - 7 yr. old raised ranch, 3 bedrooms, 2 baths, finished family room. For more details call Diane Kowalski, Ext. 4039 or 653-6845 evenings and weekends.

VACATIONING? - Experienced House Sitters for all or part of August. House care, yard care, rent. Don Stork and family, Ext. 3715.

FOR SALE - Ladies 3 spd. purple & silver bike. \$35. or offer. Call Gayle, Ext. 3293

WANTED - Dog Sitter for Aug. 2-17th Friendly 3 yr. old basset hound. Great with children. R. Martin, Ext. 3943.

ROOMMATE - to share apartment in Naperville. \$105 + ½ utilities. Available in August. Camera for sale, Hasselblad 500-C, 80 mm planan lens, sun hood, Linhof tripod, mint condition. \$575. Ron Sidwell, Ext. 4151/3256.

FOR SALE - 1 pr. 7.00-13 W.S.W. 4 ply poly snow tires, unmounted, used ½ season. \$30. 12 V AM Car Radio, \$15. Joe Davids, Ext. 3371, 729-3717.

FOR SALE - Swing set, heavy duty, has everything. Good cond. \$20. Kenmore port. dishwasher, exc. cond. \$25. George Benedetti, Ext. 3171 or 393-9195.

FOR SALE - Sears Best Kenmore auto. washer. 3 cycles, water temp. and level adjustments, balance alarm. 6 yrs. old, good working cond. \$75. Mike McKenna, Ext. 3370.

FOR SALE - 1 Swing Set, \$15. Roger, Ext. 3171.