

The Village Crier



fermi national accelerator laboratory

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

Vol. 8, No. 34

September 9, 1976

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.

The patient, a woman suffering from cancer of the tongue, spent about an hour at the CTF and remained at the Laboratory long enough to take a walking tour with her husband of the Central Laboratory Building.

The commissioning of the Fermilab CTF as a new medical research facility in the Chicago area was "satisfactorily smooth," reports Dr. Miguel Awschalom, Deputy Head of the CTF. The achievement climaxes several years of dedicated planning, research, and construction by Fermilab staff members and a number of members of the medical profession.



...CTF staff prepares for patient trials: Alan Jones (L), Ivan Rosenberg (rear); M. Awschalom (right), assisted by Jacques Ovadia and Brenda Wyman of Michael Reese Hospital...

Patient trials will continue as the facility installs more equipment necessary to irradiate the tumors of different patients. A three-day-per-week irradiation schedule is now in effect. Soon it will become four days per week. The average patient exposure will last about four minutes; about 20 additional minutes are needed for preparation. The irradiations are given on a platform, lowered to the neutron beam line which is one floor below the reception area. TV cameras, an inter-com with the patient, and x-ray devices are also used for monitoring irradiations.

The new Cancer Therapy Facility (CTF) at Fermilab raises many questions to the layman. First of all, what does it mean to him personally, and to his afflicted family and friends? What is its relationship to the doctors and the medical world he knows? Will it be useful in the long-range fight against cancer? The CTF is part of a high energy physics laboratory; how are the two related in administration and in dollars?

The Village Crier has presented several reports of the steps that occurred along the way to the successful completion of the CTF. Anyone wishing this detailed information may request a copy of "Background Information on the Fermilab CTF" from the Public Information Office, CL-1W, as well as a copy of the press release issued by the Laboratory this week on the facility.

The Cancer Therapy Facility has been made possible by grants of operating funds from the National Cancer Institute, research grants from the Illinois division of the American Cancer Society, and building contributions from private citizens and charitable Chicago foundations. The understanding support of the Energy Research and Development Administration has been a significant factor in establishing the facility.

The opening of the Fermilab Cancer Therapy Facility gives the Upper Midwest medical community its first fast neutron radiation research facility. In the past fifteen years, patients have been irradiated with neutron beams at the Hammersmith Hospital in London,

(Continued on Page 2)

CTF OPENS (Continued)

the M. D. Anderson Hospital and Tumor Institute in Houston, the Naval Research Laboratory, Washington, D.C., and The Washington University in Seattle. In 1969, the Hammersmith Hospital began to see favorable results from the use of neutron irradiation.

At the new Fermilab center the neutrons will be of higher velocity and they will be able to penetrate more deeply into the body. This will allow better irradiations of tumors wherever they may be located.

All patients exposed at Fermilab will have come by referral from the medical profession. Not all cancers are suitable for neutron therapy, and each decision to permit neutron radiation of a patient will be made in accordance with protocols established nationally by the medical profession. Certain tumors of the mouth and upper respiratory passages, advanced cancers of the cervix, prostate, and some brain cancers which resist the conventional treatments, are being treated experimentally at neutron research centers. At Fermilab, some cancers of the lung and pancreas as well as certain bone and soft tissue malignancies will also be irradiated in conjunction with chemotherapy.

In the Chicago area, some 11,000 people are victims of cancer each year. About 1,000 of these cancer cases might be helped by participation in the Fermilab research project. It is expected that about 500 patients may be treated at the laboratory in the first year. Patients from anywhere in the United States may be referred for participation in this research program at Fermilab. The referrals are made by radiotherapists associated with participating institutions. The medical professionals are certain that statistics from the treatments at Fermilab will significantly enlarge and confirm what is known about fast neutron therapy. This new knowledge might then become the basis for design of appropriate equipment for neutron beam production in hospitals.

X-ray treatments for the control of cancer have been available in hospitals for many years. They are commonly prescribed by physicians either as treatments in themselves, or in combination with surgery and drugs. In "neutron irradiation," a beam of neutrons is used in a manner similar to that used in x-ray irradiation (neutrons, the uncharged sister of the protons accelerated here at Fermilab, are particles found in the nucleus of the atom). The neutron beam is directed so as to cross the site of identified cancer in carefully-controlled bursts or "fractions."

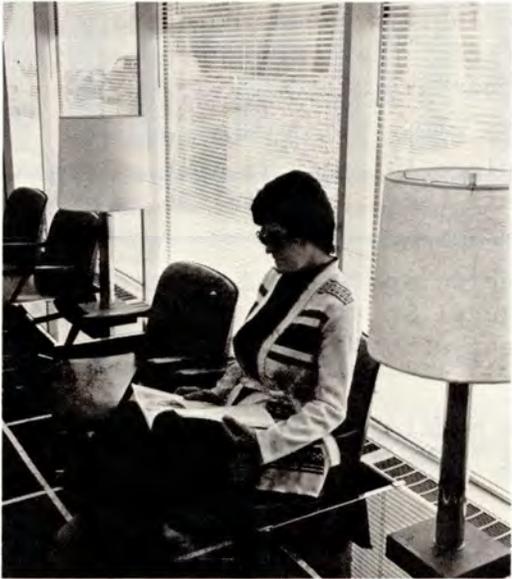
The production of such particles involves one or another method of "acceleration." In conventional x-ray radiation treatments of cancer, the equipment producing the rays acts as a small accelerator. Electrons moving from an ordinary heated filament travel through a vacuum tube and strike a small tungsten target. The target gives off "x-rays."

X-rays and neutrons interact with healthy cells and cancer cells somewhat differently. This is the source of the expectation that some types of cancer which cannot be controlled by irradiation with x-rays might be controlled by fast neutron irradiation.

Fermilab staff and the medical profession in the Chicago area have been actively informing physicians, radiotherapy technologists, and the public about the facility in recent months so that patients may be referred as soon as possible. Fermilab will only treat patients who come by appropriate referral through Departments of Radiation Therapy at cooperating hospitals. Anyone interested in a particular application of neutron radiation should consult his personal physician.

The Fermilab Cancer Therapy Facility will function as the Cancer Therapy Department of the Accelerator Division. Dr. Lionel Cohen, a physician, Head of the Department of Radiation Oncology at Michael Reese Hospital, Chicago, heads the Cancer Therapy Department staff. Other staff members at the present time are: Frank Hendrickson, MD, Head of the Department of Radiation Therapy at the Presbyterian-St. Luke's Hospital, and Dr. Miguel Awschalom, a physicist, who is the Deputy Head of this project. He joined Fermilab in 1967 to design all the radiation shieldings and environmental radiation protection measures. Later he headed the Research Services Department before assuming the responsibility for the development of the CTF in the Accelerator Division. Dr. Donald E. Young, another physicist, is the Associate Head of the CTF. He joined Fermilab also in 1967, to head the team that designed and built the 200 MeV linac. He has been associated with the Accelerator Division in many ways, now he is Head of Operations. Dr. Ivan Rosenberg is a medical physicist recently appointed to this project. Alan Jones is technician for the group.

During the weekend of September 4th, Kathy Gehl, Administrative Assistant in the Fermilab CTF volunteered to serve as a "patient" for the CTF staff making a dress rehearsal for the first human irradiation.



... "Patient" enters Fermilab CTF from area adjacent to auditorium seen in background; small reception area built in linac gallery...



... Patient's identifying information and treatment parameters compiled in reception area...



... "Patient" position is adjusted for simulated tongue exposure. Lightweight "mask" keeps patient's head in necessary position...



... Alan Jones, I. Rosenberg check specially-built rotatable platform...



... Jones positioned at beam exposure point...



... Rosenberg monitors patient on x-ray equipment near control room...

SIGMA XI CHARTER MEETING

Dr. Harold Cassidy, president-elect of Sigma Xi, the Scientific Research Society of North America, will be the speaker and the Installing Officer of the newly-chartered Sigma Xi Chapter in the Fermilab area at its first meeting on Wednesday, September 15.

The local chapter is known as the Amoco Research Center Sigma Xi Club because the installation fee for the chapter was paid by Amoco to stimulate interest in such an organization among the growing numbers of scientists at Amoco, Bell Labs, and Fermilab as well as among the faculties of the several colleges in the area.

All Sigma Xi members, their guests, and the general public are invited to attend the meeting, to be held at the Cress Creek Country Club, 1215 Royal St. George Drive, Naperville. The evening will open with a social hour at 5:30 p.m., dinner at 6:30 and the business meeting at 8 p.m.

As the local chapter's activities become organized the meetings will rotate among the members' institutions. Wheaton College will host a meeting in November. Fermilab will be the host in February, 1977.

Reservations are necessary for the dinner and can be made through the Fermilab Public Information Office, Ext. 3351, before September 13.

* * * * *

DON'T FORGET...NALREC'S Square Dance in the Village Barn on Saturday, September 11 from 8-11 p.m. "Wild Bill" Roberts will call and the Wheel 'N Dealers Club will demonstrate. Cash bar, sloppy joes available.

* * * * *

BICENTENNIAL CELEBRATION SEPTEMBER 19

Several Fermilab employees will participate in a Bicentennial Celebration in song and word on Sunday, September 19 in the Glenbard West High School Auditorium Glen Ellyn. Dr. Rosamond Brenner, well-known to Fermilab for her outstanding musical talent, has organized the program. Barb Schluchter, Diane Kowalski, Betty Kastner, Marvin Warner, Jim Buffenmyer and Lee Teng will be among the several hundred citizens participating in the choir and orchestra. Admission is \$1.00 per person, with senior citizens and children admitted free.

THE INTERNATIONAL FILM SOCIETY

presents

THE WILD ONE

Auditorium

8 p.m.

Friday, September 10

Marlon Brando stars in this 1954 classic as the leader of a motorcycle gang that "takes over" a small town. The film is memorable both for Brando's performance as the enigmatic tough-guy and for its portentous treatment of a topic which was to ignite the 60's alienated youth in violent confrontation with society.

Admission: \$1.50 Adults, 75¢ Children

CLASSIFIED ADS

GARAGE SALE - Maytag dishwasher, B&W TV, dinette set, metal book cases, many draperies, baby equipment, clothes & much misc. Sat., 9-11-76, 9 a.m.-4 p.m., 849 E. Hillside, Naperville.

FOR SALE - Tickets to exclusive showing of "Hearts and Minds," Academy Award winning document of Vietnam War. \$3.00 Peter Gollon, Ext. 3465

FOR SALE - 1973 Pinto station wagon, auto. trans., roof rack, 47K miles, new brakes, exc. condition. \$1800 or offer. J. M. Weiss, Ext. 3910, eves. 690-9879.

FOR RENT - Boulder Hill, 3 bedroom ranch, attached paneled 1 car garage, fully carpeted, fenced-in yard, lawn house, water softener, \$300/mo., secur. dep., G. Lawrence, X3677.

FOR SALE - 2'x2' pink concrete patio blocks. Cheap. P. Gollon, Ext. 3465 or 690-9052.

FOR SALE - Olds '68 Cutlass, 2 dr., auto., P/S/B, good cond., \$650. Call 232-2400, Ext. 345, ask for Bonnie.