

FERMILAB NEWS

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FERMILAB USERS 1980 PHYSICS NOBEL LAUREATES

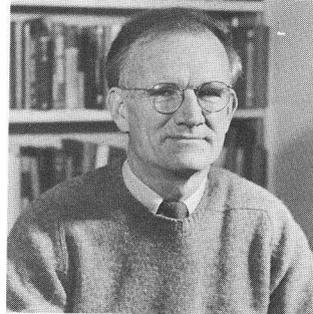
James W. Cronin and Val L. Fitch, who share the 1980 Nobel Prize in physics, are familiar faces around Fermilab.

A University Professor of physics at the University of Chicago, Cronin has collaborated on Fermilab experiments 100A, 258, 300, 326, 600, and 617. Of these, experiments 326 and 617 are presently active. E-326 is a measurement of muon pairs produced at high transverse momentum by pions. E-617, which will begin tests next month in the Meson Area, is designed to be the most precise determination yet of the parameters used to describe direct CP violation in the decay of neutral kaons.

Cronin has served on the Fermilab Physics Advisory Committee and he was chairman of the organizing committee for the "International Symposium in honor of Robert R. Wilson" held at Fermilab in April, 1979. He is presently a member of the board of trustees of Universities Research Association.

Fitch is Cyrus Fogg Brackett professor of physics and chairman of the Physics Department at Princeton University. He has collaborated at Fermilab on Experiments 302, 530, 567, and 650. E-650 will begin running next month in the Proton-West area. This experiment is an extension of E-567, a search for charm production in 200 GeV/c hadron interactions. Fitch has served on the Physics Advisory Committee and was the first chairman of the Fermilab Visiting Committee.

The Royal Swedish Academy of Sciences honored the two physicists "for the discovery of violations of fundamental symmetry principles in the decay of neutral K mesons." The Academy citation continued: "The new truth reached by the discovery of violations of the laws of symmetry in nature recently also has been incorporated as an important ingredient in cosmological speculations. The aim has been to try to understand how a universe, originally very hot and symmetric, could avoid that matter and antimatter almost immediately annihilated each other. In



...Fitch...



...Cronin...

other words, efforts have been made to describe how the matter we are made of was once created in a big bang and how it could have survived the birth pains."

The Cronin-Fitch experiment was performed with two colleagues, James H. Christensen and Rene Turlay, at Brookhaven National Laboratory in 1964. The experiment revealed that approximately two in every 1,200 decays of a certain particle (the neutral K-2 meson) yielded products (a pi-plus and a pi-minus meson) forbidden by rules which until then had been thought to be inviolable. This discovery of "CP violation", i.e. the experimental identification of a physical process which is not left unchanged by the combined symmetry operations of charge conjugation c (changing each particle to its anti-particle) and parity P (space reflection) was a real shock to the physics community: it implied that in K-meson decay, nature seems to assert a definite preference for time flowing in one direction rather than another. Prior to the discovery by Fitch and Cronin, and since, no other process has been found in the interactions of sub-atomic particles in which any event could not happen equally well with time flowing forward or backward.

Cronin told one news reporter that after the results of their six months of experiments became apparent, he and Fitch spent six more months double-checking to make sure they hadn't made any mistakes. After their findings were published, scientists around the world carefully scrutinized their work, but it held up.

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In time, the discovery became known as the Cronin-Fitch effect. Many theoretical explanations of this effect have been put forth. The main purpose of E-617 is to distinguish experimentally between explanations based on the quark theory and on the superweak theory.

The Nobel prize carried with it a cash award of \$212,000 and will be awarded Dec. 10 at ceremonies in Stockholm. The date is the anniversary of Alfred Nobel's death. His will established all the Nobel Prizes except for the one in economics.

Fitch, 57, a native of Nebraska, has been with Princeton since 1954, when he was appointed to the faculty soon after earning his doctorate at Columbia University. He became a full professor in 1960 and has served as department chairman since 1976.

Cronin, 49, was born in Hyde Park, Ill., near the University of Chicago campus where he now works. He earned his master's and Ph.D. degrees from that university.

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SAVE THOSE GLASS BOTTLES AND JARS

A group of young users coordinated by Dale Pitman now has a use for all those used jars and bottles that get pitched out and never recycled.

Give them to this group of users. They have provided three large barrels behind the Model Shop, 37 Shabbona in the Village. Please put them there, they urge. But first, rinse them out and remove any metal caps or rings. Labels do not need to be removed.

Once you get to the three storage containers at the Model Shop, please sort the bottles into those that are clear, green and brown glass, Pitman said. When the group accumulates enough bottles, they will haul them to a glass processing company in Plainfield.

Their motivation for organizing this project, Pitman explained, is to recycle things that normally get tossed out. She said her group doubts it will earn enough money from the sale of the glass to make a profitable venture. But if it ever does, then they have been thinking about applying it to a fund for graduate students and to other user-oriented activities.

So--that's the message--START COLLECTING.

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"A KURT WEILL CABARET" IS COMING TO FERMILAB

by Ruth Ganchiff, Cultural Editor

A hit on Broadway, Ravinia, night clubs and theaters across the nation is coming to Fermilab on Nov. 15--"A Kurt Weill Cabaret."

The performance will begin at 8 p.m. in Wilson Hall auditorium. Tickets are \$8 and may be obtained at the ticket sales desk in the atrium, Ext. 3353.

The Fermilab Arts Series will present Martha Schlamme and Alvin Epstein in a program that Clive Barnes of the New York Post says is "superb - not to be missed." The reviewer also wrote, "You can talk about Stravinsky..., murmur the name of Britten..., suggest Ravel and even Debussy..., but one composer more than any other has caught the urchin note of the 20th Century on its wayward wind. Kurt Weill."

But Weill was much more than a composer. Each of his songs is a ballad-like story, a one-act play complete in itself. Our cabaret will be all Weill with lyrics by a grand panoply of wordsmiths, among them Bertolt Brecht, Marc Blitzstein, Ira Gershwin, Ogden Nash and Maxwell Anderson.

Both the New York and Berlin styles will be represented, the European striking a note of irony or militancy, while the American songs reflect a more romantic vein. We will hear such favorites as "Ballad of Mack the Knife," "Bilbao Song," "September Song," "The Saga of Jenny" and "Alabama Song."



Martha Schlamme with Alvin Epstein

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Members of cast of Beijing Opera pose with visiting Chinese scientists as well as

Fermilab employees moments before opera performers left after their visit here.

BELJING OPERA CAST VISITS FERMILAB

For an exhilarating hour, members of the Beijing Opera cast visited with Chinese scientists here, saw the main control room in the cross gallery and gave a stunning sample of their performance style.

When they arrived at 9:58 a.m., they were greeted by Phil Livdahl, acting deputy director; Lee Teng, Accelerator Division; and Helen Peterson, Director's Office. Leon Lederman, Fermilab director, greeted them - a group of about 35 performers - at a reception held just before they went to Wilson Hall auditorium to captivate the audience with their unique abilities.

Lederman introduced the cast to the Fermilab audience. He said the Laboratory was honored and proud to have them visit, particularly in view of the close scientific ties between this country and the People's Republic of China. Lederman also said there is much in common between the operatic and scientific disciplines. Teng, as translator, helped the audience understand the performances they were about to see.

Before boarding the bus just outside the control room, the performers took photographs of one another, continued talking with their scientific counterparts here and accepted packets of Fermilab literature as well as Fermilab T-shirts.

As the bus drove away at 12:01 p.m., the performers on the bus applauded their smiling friends who were staying behind. And those friends, in turn, applauded them.



...In performance...



...And on tour...

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SIGMA XI LECTURE ON ATLANTIS

"The Geological Origin of the Atlantis Legend" will be the topic of the Sigma Xi lecture Oct. 29.

Free and open to the public, the lecture by Dr. George Rapp Jr., dean of the College of Letters and Science, University of Minnesota, Duluth, will begin at 8 p.m. It will be held at the Amoco Research Center, Warrenville Road and Mill St. The Fermilab and Amoco chapters are serving as hosts.

Rapp also is professor of geology and archeology and director of the Archaeometry Laboratory at the university. He has served as associate director of the Minnesota Messenia expedition and Nichoria excavation and now is archaeometric director of the Tel Mikhal excavation.

Rapp is president of the Association for Field Archaeology and past chairman of the Division of Archaeological Geology of the Geological Society of America. He was a co-founder of the university's Center for Ancient Studies at the Minneapolis campus.

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SPECIAL NOTICE ABOUT CHEZ LEON

Beginning Oct. 28, the price for lunches at the Chez Leon will increase from \$4.50 to \$6 and the price for evening meals will go up from \$8 to \$10.

An elegant restaurant with a subdued touch, the Chez Leon is under the personal direction of Tita Jensen, a gifted chef. Lunches are served on Wednesdays at 12:30 p.m. and dinners on Tuesdays and Thursdays at 7 p.m.

The restaurant is located in the Users Center, Village. Reservations may be made by calling Ext. 3646.

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FILM: "WHAT YOU ARE IS WHERE YOU WERE WHEN"

The thought-provoking film "What You Are is Where You Were When" will be shown at Fermilab three times later this month. All employees and their families are invited to see it.

Forty minutes in length, it will be run at noon and 7:30 p.m. on Oct. 28 and at noon on Oct. 29 in Wilson Hall auditorium. The film looks at how values, prejudices and ways of reacting to change are programmed into different age groups.

More than a million people already have seen the movie. It is an outgrowth of a theory of generational programming developed by Dr. Morris Massey, a professor in the College of Business at the University of Colorado. He presented his theory to his classes, and its apparent popularity led to the film.

It was shown last spring to the Fermilab supervisory development class. "Those who saw it were enthusiastic about its relevance, not only to supervisory and subordinate relationships, but also to all kinds of relationships, such as parent-child, peer, and so on," reported Ruth Christ, assistant personnel manager. "They recommended that employees and their families be given the opportunity to see this film about a unique program on values and why people behave as they do."

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NEXT COLLOQUIUM SPEAKER

Dr. James Peebles of Princeton University will speak Oct. 29 at the Physics Colloquium. His talk on "Cosmology, New Physics and Old" will begin at 4 p.m. in Wilson Hall auditorium. He appears here as a guest of the Fermilab Physics Colloquium Committee.

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"LE BOUCHER (THE BUTCHER)"

Presented by Fermilab International Film Society

Friday, Oct. 24

8 p.m.

Wilson Hall Auditorium

Directed by Claude Chabrol, this French thriller from 1972 follows a series of bizarre murders. They begin shortly after a butcher, by profession, returns home from a decade in the army. His romance with a schoolmistress complicates the plot. After its debut, critics highly praised the film. It is in French with English subtitles.

Color

93 minutes

Rated PG

Adults \$1.50

Children, 50¢