

# The Village Voice



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*...Fermilab conferees under shadow of memory of the late Dr. Ben Lee...*

## PHYSICISTS/COSMOLOGISTS COMPARE NOTES AT FERMILAB CONFERENCE

We gave a conference last week . . . and over 600 scientists from around the world came.

Ultimate questions about the nature of matter were debated. The "Ben Lee Memorial International Conference on Parity Nonconservation, Weak Neutral Currents and Gauge Theories" honored the late Fermilab Theory Department Head killed in a June auto accident. The three-day meeting brought together physicists and cosmologists--researchers attempting to unravel the infinitesimal of the atom and the infinite of the universe.

About 550 persons registered, with another 100 occasional observers estimated. Canadian representatives (23) led foreign visitors from 16 countries. They included: Australia, Canada, France, East Germany, Italy, Japan, Korea, Mexico, the Netherlands, Nigeria, Sweden, Switzerland, West Germany, United Kingdom, U.S.S.R., and Yugoslavia.

Closer to home, 29 states were represented. Illinois residents (150) out-numbered all others, with 60 New Yorkers heading out-of-state participants. Some 59 Fermilab staff/users attended.

Held Thursday through Saturday, the conference attracted three Nobel physics laureates. They were: Murray Gell-Mann, California Institute of Technology; Samuel C.C. Ting, Massachusetts Institute of Technology; and Chen Ning Yang, State University of New York-Stony Brook.

Conference chairman was David Cline, Laboratory colliding beam studies experimenter and a University of Wisconsin physics professor. "Outstanding physicists from several disciplines were assembled for a short, intense conference," he said.

"It was called to discuss the present status of experimental data in particle physics, nuclear physics, atomic physics and astrophysics. The conference also honored the discovery of parity nonconservation--left and right 'handedness' in all molecules--20 years ago.

(Continued on Page 2)

FERMILAB CONFERENCE (Continued)

"Weak neutral currents, discovered four years ago at CERN and Fermilab, appear to form a significant link in evidence for unified theories of the weak and electromagnetic interaction. For this reason, there was a strong focus on experiments that relate to the weak interaction," he said.

Dr. Cline summarized the conference by saying, "There were debates; advocates and opposition. Evidence presented seemed to indicate that the gauge principle is almost certainly a fundamental theory of nature."

The conference also revealed, Dr. Cline said, remarkable progress apparently being made in all areas of experimental physics, "The power of Fermilab's machine was shown," he said. "It is joining the world's great laboratories in being extraordinarily productive."

He said two important sessions focused on particle physics. In one, the theory that neutral currents could play a role in explosion of supernovae was advanced. A second session touched on a "flavor explosion," discoveries of new subatomic particles that have yielded results apparently consistent with gauge theories.

"A real commemoration" was how he termed the tributes paid the late Benjamin W. Lee, who helped organize the conference. Speakers offered anecdotes, statements or other creative words in memoriam. During the opening day, Dr. Frank Yang, a close associate of Dr. Lee, offered a eulogy (reprinted in this Village Crier). The audience stood for a moment of silence at the conclusion of the service.

A special section in the conference proceedings, to be published next year, will chronicle conference testimonials to Dr. Lee.

Professor Martin Perl of the Stanford Linear Accelerator reported on his discovery of a new lepton, a subatomic particle dubbed "Tau." At a news conference, he said that there may be many more leptons than the five identified, and that more will be discovered.

Summarizing the conference, Steven Weinberg of Harvard told reporters, "We're now trying to develop fundamental theories and, at the same time, sort out a lot of things that we're finding in experiments.

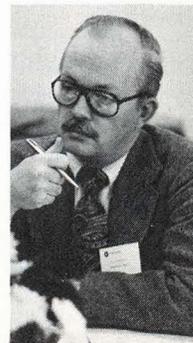
"The pattern will not be like the periodic table (of elements); it will emerge, but not in an orderly way. A certain point has been passed," he said, "because of the successes, and there are dozens of phenomena that have been seen."

Nobel Laureate Dr. Samuel Ting termed the conference "exceptional" in an interview with reporters. He said work being done at Fermilab in discovering new particles is impressive. His personal studies, underway at CERN, are concentrating on the search for new quarks. Dr. Ting shared the 1976 Nobel prize for discovery of the Psi/J particle, called the most exciting link in a chain of discoveries confirming the "new physics."

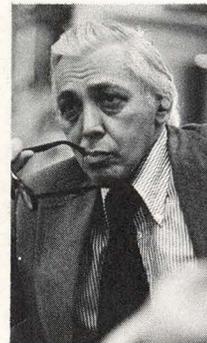
John Wheeler, formerly of Princeton University and now of the University of Texas, spoke on the "cosmic connection" between subatomic particles and the infinite universe. Recently he has been concentrating on reconciling two central ideas of 20th century physics: the quantum theory and general relativity.



...R. March (second from left), U. of Wis., and F. Reines, U. of Cal.-Irvine, meet the press...



C.G. McDaniel  
Assoc. Press



A. Snider  
Chicago  
Daily News

BENJAMIN W. LEE MEMORIAL  
Given at Fermilab  
Conference on Parity Nonconservation, Weak Neutral  
Currents and Gauge Theories  
October 20, 1977  
C. N. Yang

Benjamin W. Lee was born in 1935 and died earlier this year at the age of 42. He had published more than one hundred research papers in theoretical physics in his lifetime.

The discipline of theoretical physics has as its principal aim the formulation of theoretical descriptions of the physical world which are concise and comprehensive. Its history has taught us that it is a glorious enterprise. It has produced, for understanding the subtle, complex and often confusing manifestations of nature, theoretical descriptions of unimagined accuracy. It utilizes, and helps to originate and to develop, mathematical concepts of the greatest beauty and depth.

Because nature is subtle and complex, the pursuit of theoretical physics requires bold and enthusiastic ventures into the muddy waters at the frontiers of newly discovered phenomena. Because the concepts used are beautiful and deep, the pursuit of theoretical physics requires appreciation of and insight into the structural aspects of the theoretical apparatus.

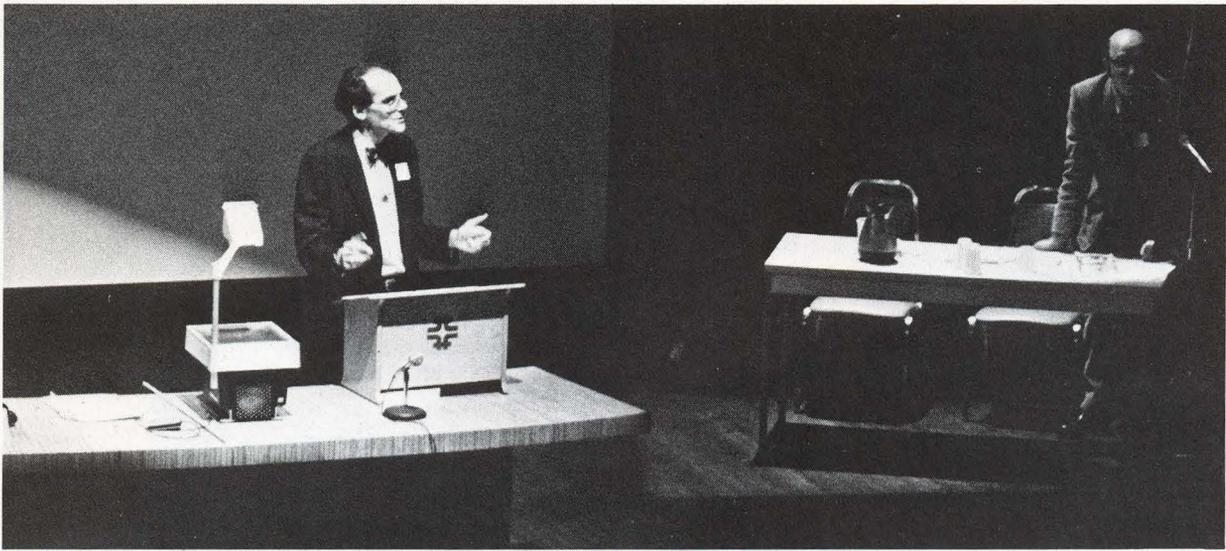
Ben Lee's work was characterized by his ability to excel in both of these requirements. His paper with Gaillard and Rosner in the Reviews of Modern Physics completed before the discovery of  $J/\psi$ , was remarkable to read at the time and even more remarkable to read now, after the experimental discovery of charm. His work on the renormalizability of gauge theories is among the very important works on the fundamental structure of theoretical physics in recent years. We know that few contributions in theoretical physics remain noticeable after ten years. Fewer after twenty. I venture to guess that the renormalizability of gauge fields will remain important fifty years from now.

We at Stony Brook were fortunate to have had Ben in our midst for many years. He was stimulating as a physicist, cooperative and generous as a colleague and friend. He had the admirable quality of always balancing enthusiasm with good judgement and restraint. Many of us, and I in particular, had profited from many, many enjoyable discussions with him.

Ben's death occurred at the peak of his career as a physicist. He was exuberant and full of ideas about what is in store for our field. Let me quote from a speech he made last January at the Chicago Meeting of the American Physical Society, when Steve Weinberg was awarded the Heineman prize:

"Do we understand, or hope to understand, weak interactions as well as, say electrodynamics, in the present framework? Perhaps. We have yet to come to grips with CP violation and ultrahigh energy behaviors of weak interactions, on which subjects I have a few remarks to make. But I am more optimistic than ever that we are on the right track, and I can say that Steve has earned the honor bestowed on him today."

Ben's untimely death was a great loss to his family and his friends. It was a great loss to the Fermilab. It was a great loss to the science of physics.



...G. Feinberg (L) speaks on atomic physics calculations; V. Telegdi moderates



...W. Wallenrod  
R. R. Wilson



...A. Salam...



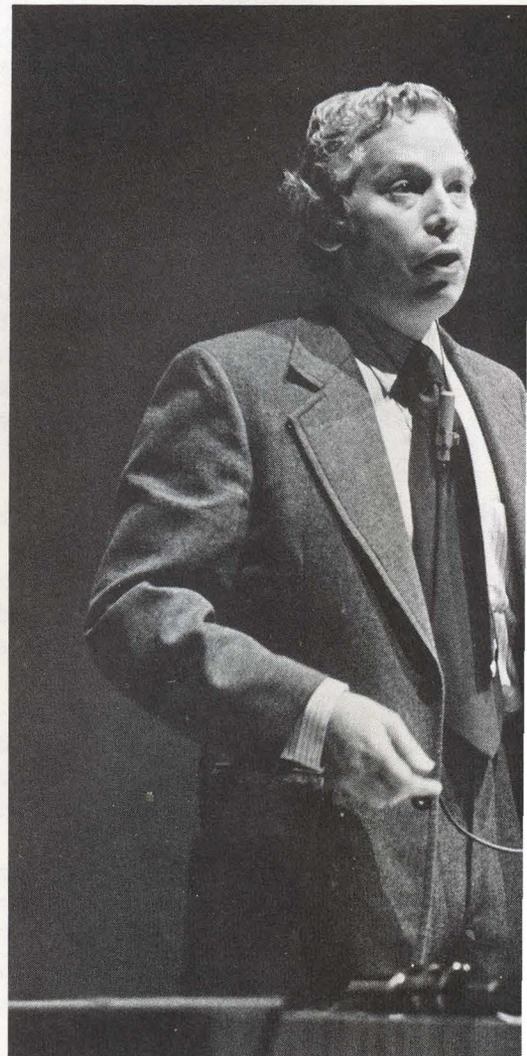
...L. Lederman...



...H. Faissner...



...W. A. Fowler...



...S. Weinberg, Harvard, summarizes  
at closing session...



..In a press conference: Fermilab's C. Brown(L) and  
D. Reeder...



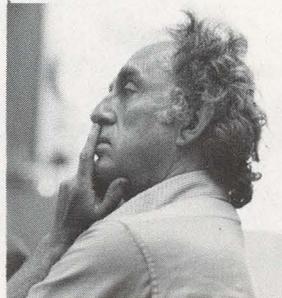
(R), DOE, meets Fermilab Director



...L-R Nobel Laureates/Conferees are S. Ting, C. N. Yang and M. Gell-Mann...



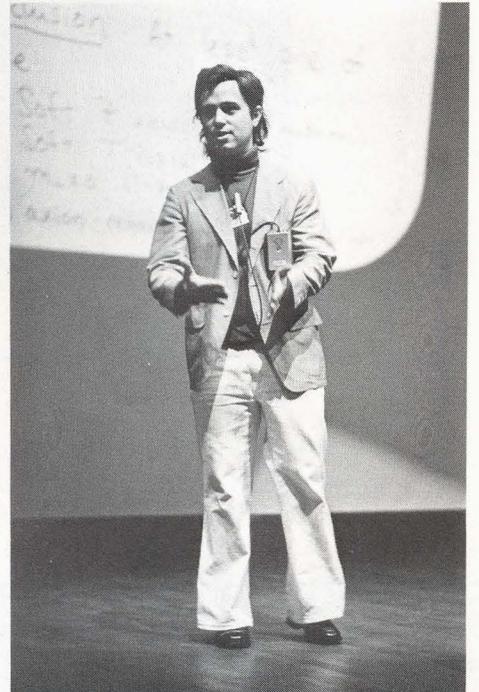
...C. Barnes...



...M. Perl...



...F. Reines...



...F. Wilczek on stage...



...Fermilab Auditorium: Ben Lee Conference Site...

conference



*...J. Wheeler (L), U. of Texas, and R. Wilson, Harvard, talk during break...*

*...W. Bardeen (R),  
Fermilab theorist,  
talks with M. Gell-  
Mann...*



*...Registration aide Jean Plese (L) enrolls  
a participant...*



## COMPRESSED GAS SERVICE CENTRALIZED NOV. 1

Effective Tuesday, Nov. 1, general use compressed gases will be ordered and distributed from a central on-site storage. Norm Hill, Material Supply, said the new system is designed to reduce costs of maintaining individual stocks and improve service to operating groups and experimental users. A special truck has been acquired for on-site deliveries. Also, flammable storage for stock cylinders has been created at the former horse barn behind the receiving warehouse. Users are reminded that starting Nov. 1 orders for general use gases must be directed to the Supply Office, Ext. 3808 or 3809. Orders received by 3 p.m. will be delivered the next day; orders received after 3 p.m. will be delivered two days later. Specialty gases will continue to be ordered through the Purchasing Department. For more information, contact Norm Hill (Ext. 3585) or Gene Guyer (Ext. 3808).

## USE OF LABORATORY FACILITIES

Have occasion to arrange a group tour or a professional or social event at Fermilab? If it requires use of Laboratory facilities or equipment, special meal service or other support, then a "Facilities Request Form" should be filled out at least two weeks before the scheduled event. This new procedure has been devised to assure that all arrangements are made and that there is no conflict or overlapping of dates for activities. When returned to the requestor, with appropriate approvals, the form will confirm that necessary arrangements will be provided on the scheduled date. The Facilities Request form may be obtained from any of the following: Shirley Burton, Public Information Office (for group tours of 10 or more people); Helen Ecker, Recreation Office; John Barry, Cafeteria; Dave Sauer, Site Services; J. Coleman, Director's Office; and J. Adams, Personnel Services.

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## RETIREE MEDICAL PROGRAM REVISED

Changes regarding eligibility for retiree medical benefits will become effective November 1, 1977. The Retiree Medical Plan is designed to supplement Medicare to the level of medical coverage provided active employees through the Group Medical Insurance Plan. If participants are not eligible for Medicare, regular group medical insurance benefits are provided at retirement.

The age at which employees may choose to take early retirement has been lowered from 60 to 55. To be eligible for retiree medical coverage, a combination of age and years of continuous service must total 65. Currently, retirees who have completed three years' continuous service and employees authorized to take early retirement after age 60 are eligible. For example, an employee with ten years of continuous service would be eligible for retiree medical coverage at age 55; with five years of service, at age 60.

A new provision affects early retirees returning to work. If an employee is authorized to take early retirement and becomes reemployed, the retiree will be excluded from the Fermilab retiree medical plan if the new employer makes available group insurance coverage. If at some later date prior to Medicare eligibility the retiree leaves the interim job, the Fermilab retiree medical insurance program will be made available again.

Unchanged are plan provisions concerning cost and dependent eligibility. The full cost for retirees and their dependents is paid by the Laboratory. If the employee has had dependent coverage for at least three continuous years, dependents of eligible retirees also are eligible for participation in the plan.

If you have any questions regarding the Fermilab insurance plans, call Ralph Wagner in Employee Benefits, Ext. 3395.

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## ADULT HALLOWEEN PARTY

Employees and users are invited to a Halloween party at the Users Center in the Village on Monday, Oct. 31. The fun gets underway at 7 p.m. Food, a costume contest and bobbing for apples are on the agenda. Admission is free.

## GARDEN CLUB FORMING: VOLUNTEERS WANTED

With harvest season nearly over, it's time to start planning for spring planting. Next year Fermilab will channel its support (roto-tillers, water, land assignment, etc.) of on-site gardens through a new garden club--which will be a part of NALREC. This club will represent the interests of all on-site gardeners--both those "serious" gardeners who have farmed the same plots year after year, and the more casual gardeners who sign up for one of the newer plots each year. If any group of gardeners or any area of plots is not represented in the club, that group or area may not receive any Laboratory support next year.

Volunteers from all areas of the garden plots are needed NOW to organize so we can be ready for next spring. A questionnaire is being sent to all those who signed up for a garden plot this year. However, if you have not received a questionnaire but wish to have your interests represented, call Gerry Belendir (Ext. 3930) or Peter Gollon (Ext. 3465) to request a questionnaire; or come to an organization meeting Wednesday, November 2, at 5:00 p.m. in the Curia II (CL-2SW).

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## CHOOSE YOUR CHARITY DRIVE CONTINUES

Last year over 100 employees took advantage of a Fermilab payroll deduction plan to give to about 45 charities. The payroll deduction for charity programs enables employees to give to their favorite charities a little bit at a time with each pay period. Employees name at least three charities to which they wish to contribute (at least \$12.00 total per year).

A pledge form was distributed October 7. Employees should now designate the charities to which they wish to give, and the amount per pay period to be deducted. The completed forms should be returned to the Payroll Department by December 2, 1977. Deductions will begin the first pay period in January, 1978. All contributions made in this manner are tax deductible.

More information is available from the Personnel Department, Ext. 3324.

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## SPECIAL EVENTS

. . . Lola Montes Spanish Dancers will perform at 8:30 p.m. Saturday (Oct. 29), also in the auditorium. The performance will launch a three-part 1977-78 dance series arranged by the Auditorium Committee. Miss Montes appears as guest artist with leading symphony orchestras. She has also appeared several times in the Hollywood Bowl, once under the baton of the late Leopold Stokowski. Reserved seat tickets, \$3 each, are on sale at the Guest Office, CL-1W. Only advance paid tickets will be held at the door.

. . . NALREC Halloween party for employee/user children ages 4-12, will be Sunday (Oct. 30) from 2 to 4 p.m. in the Village Barn. Games, costume contest, refreshments. Contact Nancy Shanahan, Ext. 3467, for more information.

. . . A panel discussion, "How America and Americans are Perceived--How the Image is Made," will be held in the Fermilab auditorium today (Oct. 28) at 8 p.m. The program will bring together two foreign journalists, their American counterparts and former reporters now on the University of Chicago faculty. Panelists will be: Jurek Martin, U.S. Editor, The Financial Times (London); Hans Tutsch, chief U.S. Correspondent, Neue Zurcher Zeitung (Switzerland); Milt Freudenheim, former Paris bureau chief, The Chicago Daily News; Edward W. Rosenheim, Jr., Professor of English/Director, National Humanities Institute, University of Chicago; and Robert E. Streeter, Edward L. Ryerson Distinguished Service Professor of English, University of Chicago. Professor Robert Z. Aliber, professor of International Economics and Finance in the Graduate School of Business, University of Chicago, will moderate. The program is sponsored by the university's Center for Policy Study.

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