The Village Crier

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APS/AAPT MEETS IN CHICAGO AREA

...At APS press conference, (L-R) R. Felst, J. Rosner, S. Glashow, J. Peoples, G. Goldhaber discuss new particles...

...Larry Coulson (R), Radiation Physics, escorts APS members on visit to Fermilab Cross Gallery...

The heavy migration of Fermilab professional staff to Chicago February 7-10 was due to the annual meeting of the American Physical Society being held there at the Palmer House, jointly with the American Association of Physics Teachers. Fermilab, in turn, opened its facilities for a tour by APS members on Tuesday, February 8, furthering the exchange between scientists that is the purpose of the meeting. Nearly 100 people joined that tour. Many informal tours were also arranged between professional colleagues during the week.

Nearly 600 scientific papers were presented on virtually all the major areas of physics research, application, and education in the four-day program. The results of experimental research done at Fermilab were presented by scores of scientists who have participated in the research program. Dr. John Peoples, head of the Fermilab Research Division, appeared in a symposium panel at the first session of the meeting together with Nicholas P. Samios of Brookhaven, R. Felst of DESY, Gerson Goldhaber of the Lawrence Berkeley Laboratory, and Jonathan L. Rosner, now at Princeton. Their session was titled, "The New Particles," and they described the exciting developments since 1973 in research on charmed particles. Peoples recounted the discovery of the charmed baryon at Fermilab announced last August. He also mentioned that the Saver/Doubler and colliding beam research projects at Fermilab will be important to the next generation of research.

Gerson Goldhaber of the Lawrence Berkeley Laboratory, mentor of many charm researchers, also looked to the future direction of charm. He mentioned that the PEP (Positron-Electron Project) at Stanford, with its new energy levels, may reveal other new quantum numbers like "charm."

Rosner (a frequent visitor in the Fermilab Theoretical Physics Department) said, "Still more charmed particles remain to be discovered. One of them -- a composite of the charmed quark c and the strange antiquark s -- may be just around the corner... I raise the possibility

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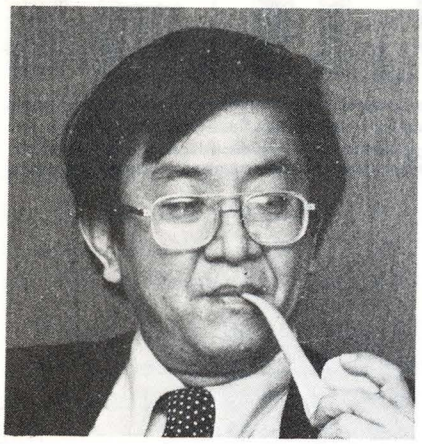
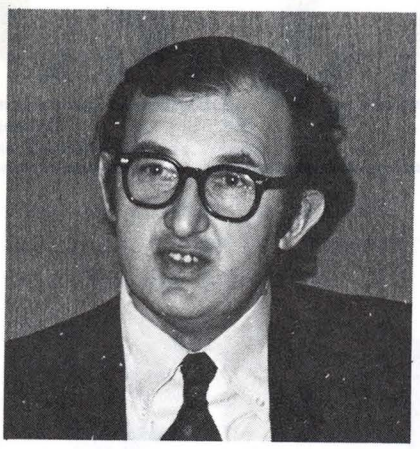
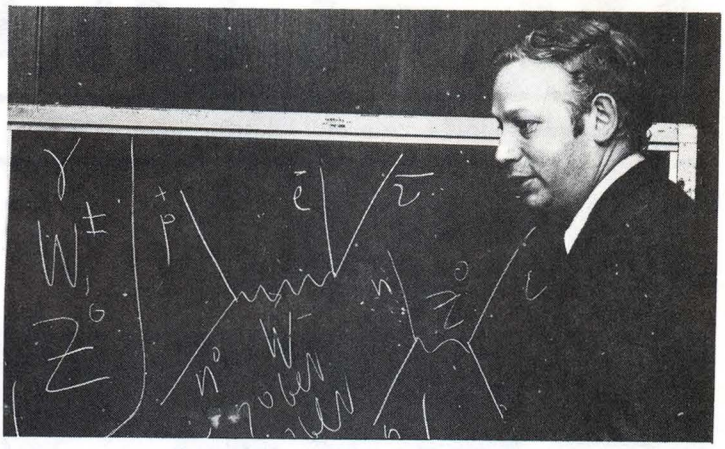


...Ben Lee...



...Charles Baltay...



...Steven Weinberg...

...Explaining unified field theories to APS meeting...

that a new neutral lepton could be among the decay products of this particle, and calculate the probability of its being observed as a function of the mass of the neutral lepton. This neutral lepton, as well as a charged heavy lepton for which there now seems to be strong evidence, can be very helpful in constructing the correct 'periodic table' of the quarks and leptons."

Theorist Steven Weinberg was awarded the 1977 Dannie Heineman Prize for Mathematics at the APS meeting. Weinberg read the citation to a press conference because, he said, "I am so proud of it: 'for his formulation of unified gauge theories of weak and electromagnetic interactions, and his analyses of the role of spontaneous symmetry breaking in such theories, all represented by outstanding publications in the field of Mathematical Physics.'"

Weinberg, Benjamin Lee, head of Fermilab's Theoretical Physics Department, and Charles Baltay of Columbia University, presented a symposium on the Tuesday program entitled, "Unified Gauge Theories and their Implications." Weinberg repeated his theory of the necessity for the existence of the so-called "Higgs Boson" particle in order to unify the weak and electromagnetic interactions, a theory he discussed at Fermilab a few months ago on a visit here as a guest speaker.

His theory is enhanced, he feels, by recent news from the Swiss Institute for Nuclear Research (SIN) of an experimental finding in which mu mesons decay into electrons and photons. "This has thrown the world community of theoretical physicists into a frenzy of speculation, calculation, and publication. One of the simplest and most natural possibilities is that this is another effect of the scalar particles...It remains to be seen whether these experimental results will hold up, and whether our explanation is the correct one," he said.

Dr. Lee discussed the mathematical confirmations of the Weinberg-Abdus Salam theories. Dr. Baltay disclosed his review of experimental results on weak neutral currents from several institutions in the world, as these results relate to the confirmation of the weak neutral current theories.

...Photos taken at APS meeting, courtesy Dr. Gerald Present, American Institute of Physics...

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VOLUNTEERS WANTED...To help clean, bag, and stratify prairie seeds, Saturday, February 26, from 9 a.m. until 3 p.m. in the Village Barn. Bring work gloves and your lunch. Wear warm clothing. Beverages will be provided. For more information, contact Tony Donaldson, Ext. 4433

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...The Council of Presidents of Universities Research Association, Inc., held its annual meeting at Fermilab on February 4, the first here since 1970. Here, at business session, (L-R) Milton White, Princeton University (Chairman of the URA Board of Trustees); Norman Ramsey, Harvard University, president of the corporation; John S. Toll, State University of New York at Stony Brook (Chairman of the Council of Presidents); Robert Buchanan, secretary of the corporation; Robert Williams, Treasurer/Controller. The day also included a luncheon, and a tour of the Laboratory. The group elected Dale R. Corson, president of Cornell University, as president of the Council for the coming year and Roland C. Rautenstraus, president of the University of Colorado, as vice-chairman...

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CENTRAL LABORATORY HEAT REDUCED FOR ENERGY CONSERVATION

Mandatory thermostat setbacks, as established by President Carter's directive to ERDA to conserve energy at Fermilab, are being put into effect on a lab-wide basis. Thermostat settings will be adjusted to 65° during the day and 55° during the night. Special considerations will be given to areas where personnel's working schedules are other than 8:30 a.m. to 5:00 p.m. In some lab areas, regulated day/night thermostats will be installed as appropriate. Exceptions to the temperature settings will be reviewed on an individual basis by the Energy Conservation Coordinator, Hank Hinterberger.

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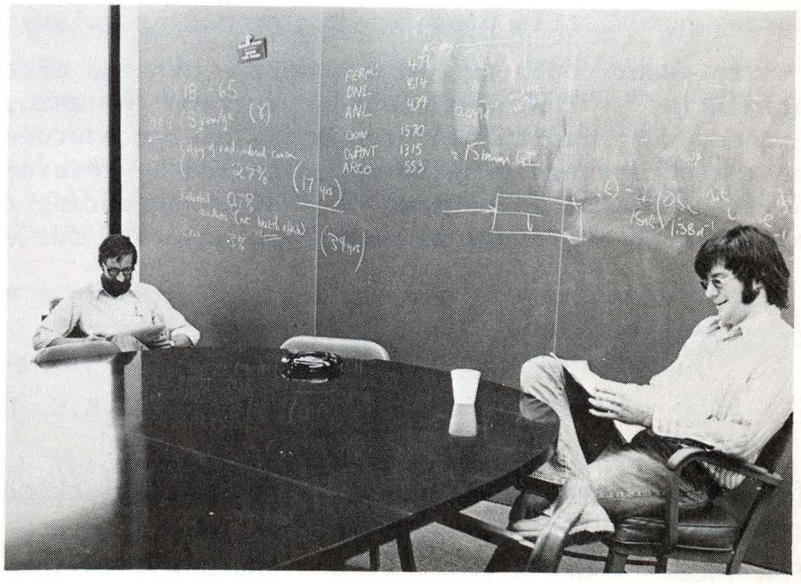

...R. Morrison and D. Curtis try out an all-night lounge area for graduate students at Fermilab. The lounge was opened in the CTF/Radiation physics section conference room on the east side of the seventh floor. Lounge hours are from 5 p.m. to 8 a.m. daily. Equipment there includes a TV monitor with accelerator operation displays and computer status information; coffee supplies. A bulletin board on the west side of the seventh floor crossover posts notices for graduate students' attention.

Cynthia Sazama of the Users Office, says the Users Lounge has been set up on a three-month trial basis...

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BOULDING DISCUSSES ENERGY

...Prof. Boulding visits with Fermilab audience...

You, I and all other humans form energy policy. And the most human value for the least human cost is our common concern, especially where energy is the subject. Wherever we have discovered a treasure chest of energy we have "blown it."

That is the opinion of Kenneth E. Boulding, professor of economics at the University of Colorado. Prof. Boulding, who is on the National Academy of Sciences nuclear and alternate energy committee, spoke at Fermilab February 4 in the fifth Bicentennial Lecture Series program.

"Pandora's Box: The Dilemmas of Energy Policy" was his theme here. Prof. Boulding explained that energy's role in civilization is that of a mediator. Proper temperatures must be maintained for people to work, he pointed out, noting that three key elements for social progress are energy, know-how and materials. Energy and resources are the most limiting factors in evolutionary process, he said. He recounted man's discovery of energy sources: sunlight, fire from fossil fuels in wood and coal forms, gas and oil and nuclear energy most recently.

Energy treasure chests, accumulated energy stocks, have been discovered as others have been used up, he said. By 1650, Britain had consumed most wood supplies. Then coal was discovered. Coal stocks are expected to run out in about 200 years, Prof. Boulding said most experts believe. U-235 uranium for atomic power will be depleted in about 50 years, about the same time oil and gas supplies will disappear.

A major problem is that we know little of the Earth as a total system, "a sociosphere of four billion human beings interacting," Prof. Boulding said. Our evaluation of the state of the world determines energy policy, he said. Energy resources take on market values with international political ramifications. He predicted energy is going to become more expensive.

Conservation will be a popular reaction, Prof. Boulding said. Noting that energy accounts for about 10 per cent of the nation's economy, he said conservation efforts can cut consumption about 25 per cent with no radical life-style changes. He suggested: compact autos; expanding home insulation programs; abandoning the central cities; and even having the President promote long, wooly underwear.

Solar energy scientists are on the edge of a breakthrough for converting the sun's rays to heat water and provide space heating, he said. This form of energy is diffuse and requires substantial energy and materials to collect, store and concentrate at present, he said. Photosynthesis, breeding plants for energy production, is another prospect. One theory he cited proposes growing trees in a continuous rotation around a wood-burning power plant for harvest and reforestation. Wind, water, the oceans and geo-thermal energy sources hold little prospect for providing volumes of energy, the professor said.

Professor Boulding, in a question session after his address, admitted to being "fairly optimistic." "The human nervous system," he said, " is a long way from being exhausted." He added that capital to create new energy sources may be provided through thrift, taxes and forced savings program administered by government. Social inventions are as important as technological inventions, he said, suggesting that philanthropies, government programs and research institutions should be assessed for effectiveness.

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CLASSIFIED ADS

FOR SALE - Doberman Pups, Black & Rust. A.K.C. Registered, show quality. Health Guarantee. Call 668-7282.

FOR SALE - Humanic ski boots, size 9; Volkl skiis, size 170. Miller poles, $40. Call 355-0149.

FOR SALE - Scott's Fertilizer - Boy Scout Tr 106. High nutrient 36-4-4. $10.50/5000 sq. ft., or with weed killer 32-4-4, $12.50/5000 sq. ft. Deliver March 14. J. Grimson, Ext. 3698