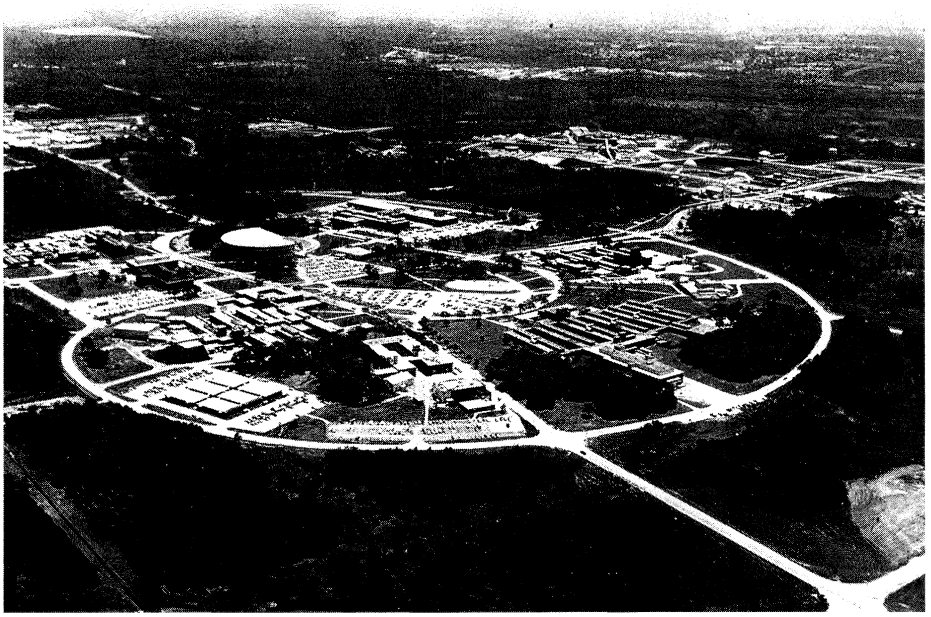
Bookshelf

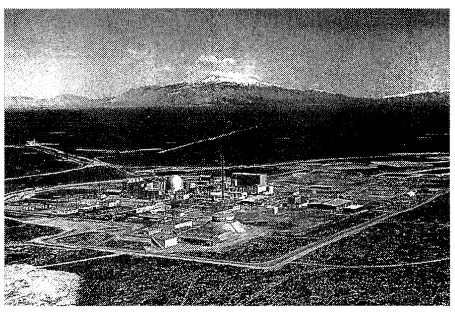


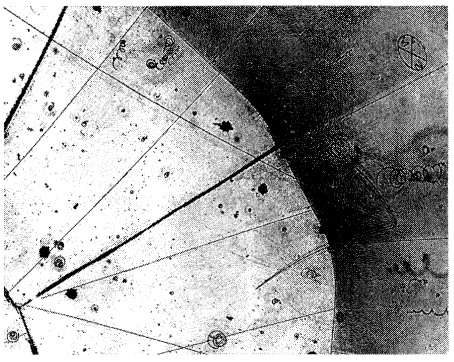
Photon Source reached design current for the first time, and produced 500,000 watts of X-ray power.

Argonne-East - Argonne's Illinois site is surrounded by forest preserve about 25 miles southwest of Chicago's "Loop" downtown area. About 3,700 employees work on the wooded, 688-hectare site, which also houses the Department of Energy's Chicago Operations Office.

Argonne-West - The laboratory's Idaho site occupies 364 hectares about 50 miles west of Idaho Falls, Idaho. The home of most of Argonne's nuclear reactor research facilities, about 800 Argonne employees work there.

Neutrino Event - The first observation of a neutrino interaction in a hydrogen bubble chamber is recorded on this 1970 photograph from the 12-foot bubble chamber at Argonne's Zero-Gradient Synchrotron. The invisible neutrino strikes a proton where three particle tracks originate (lower right). The neutrino turns into a muon, the long centre track (extending up and left). The short track is the proton. The third track (extending down and left) is a pion created by the collision.





From Quarks to the Cosmos by Leon M. Lederman and David N. Schramm
ISBN 0-7167-6012-6 (pbk)
1989,1995.

Leon Lederman, who shared the 1988 Nobel Price in physics for the discovery of the muon neutrino, has also played important roles in the discoveries of the long-lived neutral kaon and the bottom quark. David Schramm is best known for his work in bringing together elementary physics and big bang cosmology. The authors set up an astrophysics group at Fermilab, and, stimulated by the unique collaboration between this group and particle physicists at Fermilab, wrote this popular book on the connections between the inner space of subatomic physics and the outer space of the vast universe.

The book was first published in 1989, but a second edition includes updates and new results, particularly the top quark discovery and the ripples in the cosmic background radiation.

The interrelations between particle physics and astrophysics through the Big Bang cosmology are explained in a simple way requiring no expert knowledge and may easily trigger a young reader's interest in natural science.

The best part of the book is the story of the evolution in our understanding of the microworld linked to the spectacular and often interrelated evolution of experimental tools from Galileo's telescope to the Hubble Space Telescope, and from Coulomb's torsion balance to the enormous detector complexes at high energy particle colliders. The astrophysics part, more superficial and strongly tied to big bang cosmology, could have been ex-

panded, with, in a similar way to the microworld explanations, more on how our understanding of the macrocosmos has evolved. Problems like solar evolution and the solar neutrino puzzle are omitted.

The book could also have benefited from more material on experimental particle physics outside the United States and on the future possibilities of the LHC and linear colliders, rather than "The sad story of the SSC..."

Egil Lillestol

The Particle Hunters (2nd edition) by Yuval Ne'eman and Yoram Kirsch, Cambridge University Press, 300 pages, ISBN 0 521 47686 0 paperback, £14.95; 0 521 47107 9, hardback £40

The first English edition of this pleasant and readable book (originally published in Hebrew in 1983) appeared in 1986. It has since also appeared in Italian and German versions. The second edition includes brief details of recent developments such as the demise of the US Superconducting Supercollider (SSC) and the discovery of the top quark, together with a sketch of the emerging particle physics scenario worldwide. The authoritative chapter on quarks and the eightfold way, in which Yuval Ne'eman played an important role, is particularly lively.

Julian Schwinger, The Physicist, the Teacher, and the Man, edited by Y. Jack Ng, World Scientific, 194 pages, ISBN 981-02-25318 (hbk) £27, 981-0-25326 (pbk) £11

Julian Schwinger, who died in 1994, was one of the major architects of quantum electrodynamics, itself one of the major scientific achievements of the century. He was an impressive intellect, setting new standards in erudition and sophistication, and attaining a new stratosphere of reasoning. Legend has it that as a child he was reading Encyclopaedia Britannica from cover to cover, but was sidetracked at 'Physics'. In addition to his own physics contributions, the list of his graduate students reads like a 'Who's Who', including two who went on to win the Nobel prize themselves - Sheldon Glashow and Ben Mottelson (Schwinger shared the prize with Feynman and Tomonaga in 1965). This book puts together a number of Schwinger tributes, together with two papers by Schwinger at the University of Nottingham in 1993 to mark the 200th anniversary of George Green (of Green's functions). Many of the contributions make fascinating reading. Sheldon Glashow's account of how he was set on the path to electroweak unification is one of them.

Books received

Fortran 90/95 Explained, by Michael Metcalf and John Reid, Oxford University Press, ISBN 0-19-851888-9, 368 pages, £16.95 (hbk).

Michael Metcalf of CERN and John Reid of the Rutherford Appleton Laboratory provide complete revision of their original 1990 standard text Fortran 90.

Herbert Lengeler - high technology enthusiasm and versatility

People and things

On people

Among those elected members of the prestigious American Academy of Arts and Sciences this year are Sau Lan Wu of CERN and Wisconsin, and Helen T. Edwards and Michael Turner of Chicago and Fermilab.

Sam Ting of MIT and a long-term visitor to CERN was awarded the 1996 Engelberg Forum Prize for his contributions to physics.

Herbert Lengeler retires

Enthusiasm, versatility and selflessness have marked the multi-faceted career of Herbert Lengeler at CERN. Arriving from Aachen's Technische Hochschule in 1964, he helped develop radiofrequency separator systems for early secondary beams. Under a new CERN-Soviet agreement he formed part of CERN's effort to build special equipment for the new Serpukhov machine. Returning to CERN, his