



Jay Orear

November 6, 1925 – October 6, 2014

Jay Orear had a distinguished career as an educator and researcher in physics. He grew up and received all of his education in Chicago, a Ph.B. from the University of Chicago in 1944, an M.A. in 1950, and a Ph.D. in Physics, also from the University of Chicago, in 1953. His career path was: Research Associate, University of Chicago, 1953-54; Instructor and Assistant Professor at Columbia University, 1954-58; Associate Professor Cornell University 1958-64, and Professor of Physics, Lab of Nuclear Studies from 1964 until he retired in 1993. Jay continued to live in Ithaca until the last few years of his life.

Jay was the Chairman of the American Federation of Scientists 1967-68.

Jay was a co-author, while still a graduate student, of one of the first nuclear physics texts, based on a course at Chicago by Enrico Fermi. He also authored a successful introductory physics text *Fundamental Physics*, published in 1961, with a second edition in 1967. This was a rather innovative text at the time, introducing modern physics concepts such as relativity and quantum theory at the start of the course, which Jay taught for many years. It preceded similar efforts at Berkeley and Cal Tech. This book was also translated into Russian and published in the Soviet Union, which took the unusual step of paying royalties to Jay. Since there was no currency exchange at the time from rubles to dollars, Jay was given a numbered bank account in the USSR, which he used to help out friends and colleagues there.

Jay was very much influenced by his close association over a seven year period with Enrico Fermi (1901-1954), who was his thesis advisor. He was Fermi's last student. Over the years since Fermi died, there have been a number of Symposia dedicated to Fermi's life and accomplishments, including one at Cornell in 1991 which was organized by Jay. Jay was an invited speaker in six of the one-hundredth birthday celebrations devoted to Fermi in 2001, five of which were in Italy. After his retirement, in 2003, Jay wrote a manuscript: "Enrico Fermi, The Master Scientist," based on the video taping of the 1991 Cornell conference. This is available online. It contains many interesting talks on Fermi, from all aspects. Among others, there were talks by Hans Bethe, Dale Corson, and Bob Wilson.

Jay's other published educational work was a paper on statistical methods for physics *Statistics for Physics*. This was originally based on lectures by Fermi. It was first published as a UCRL report in 1958. It was reprinted many times under Jay's name since then for the Advanced Lab in Physics at Cornell. This is a very useful compilation of statistical methods for the analysis of experiments. It is still used in this lab, since it is a well-written and succinct description of essential techniques needed by every experimental physicist.

Jay's research career was spent as a high energy experimentalist. When he came to Cornell in 1958 he joined Professor Giuseppe Cocconi's group, which was then doing experiments at Brookhaven and at Cornell. After Cocconi left Cornell in 1963 for CERN, Jay took over the leadership of the Cocconi group. Although Cocconi had done experiments at both Brookhaven and Cornell, Jay never did experiments with the accelerator at Cornell. Jay became the leader and administrator of a successful group, originally consisting of physicists and graduate students from Cornell and physicists from Brookhaven. Later, this group included people from many other universities and laboratories. Jay's group performed experiments at Brookhaven, and later, at Fermilab. Their specialties were high energy elastic scattering and the total cross sections for different particles on proton targets. Perhaps the most famous experiments by this group were the observation of a backward peak in positive pi meson scattering from protons in 1965, which was a follow-up of an experiment started at CERN in 1964 by Cocconi, and, later, anti-proton and proton elastic scattering at very high energies. These last experiments were done at Fermilab. Jay was a co-author of 33 peer-reviewed publications, mostly in *Physical Review* and *Physical Review Letters*. There were also many conference reports and proposals. His publications totaled over 70 papers in all.

Louis Hand and Donald Holcomb