Italian Scientists

GRAND LODGE OF NEW YORK ◆ *Commission For Social Justice* ◆ *Order Sons of Italy in America*
2101 Bellmore Avenue ◆ Bellmore, New York 11710 ◆ (516) 785-4623 ◆ (800) 322-OSIA ◆ Fax (516) 221-OSIA ◆ www.nyscsj-osia.org

ENRICO FERMI
(1901 - 1954)

Italian American physicist, one of the architects of the nuclear age. Fermi won the Nobel Prize in physics in 1938 for his production, by neutron bombardment, of a large number of radioactive isotopes and for his discovery of the effectiveness of slow neutrons in producing radioactivity. His work on nuclear fission, begun in 1939, culminated in the building of the first nuclear reactor and the achievement in it (December 1, 1942) of the first sustained nuclear chain reaction. This marked the beginning of the atomic age.

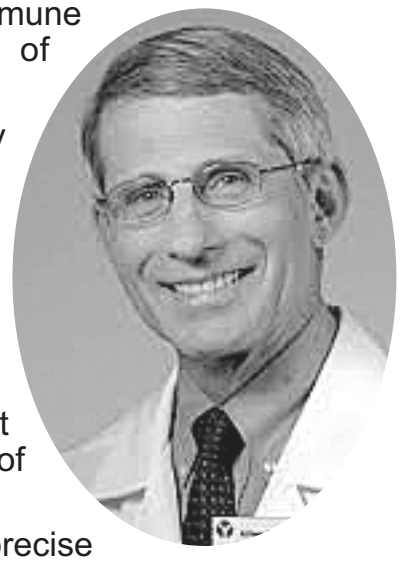
The announcement in 1939 of the discovery of uranium fission (in Germany) almost coincided with Fermi's immigration to the United States. He realized at once the potential of nuclear fission. With his associates at Columbia University he began painstaking work toward the realization of a chain reaction. In 1942 this project was moved to the University of Chicago, where Fermi directed the construction - in a squash court under the stands of the university stadium - of the first atomic reactor: a pile of natural uranium embedded in layers of graphite and controlled by cadmium and boron rods.

Fermi later used this reactor to study the optical properties of neutrons. This research was interrupted by a period (1944-1945) during which he worked at Los Alamos on the development of the atomic bomb. He then continued his study of neutrons until 1951, when he began research on interactions between pions and nucleons. In 1949, Fermi wrote with I. I. Rabi, a report to the Atomic Energy Commission opposing construction of the hydrogen bomb on ethical grounds, although he had previously worked on problems related to this weapon. He also worked on a theory of the origin of cosmic rays.

Fermi's work, both theoretical and experimental, is distinguished for its originality, its wide range, and the fundamental simplicity of its approach. For this and his remarkable success as a teacher, he ranks among the great physicists of the 20th century.

ANTHONY STEPHEN FAUCI, M.D.
(1940 -)

Anthony Fauci, health facility administrator, physician, born in Brooklyn. Directs the National Institute of Allergies and Infectious Diseases (NIAID) in Maryland where he has helped develop therapies for people with AIDS. Dr. Fauci's research also has increased understanding of the human immune system and the management of rheumatoid arthritis.



Fauci has made many contributions to basic and clinical research on the origin and treatment of immune-mediated diseases. He has pioneered the field of human immunoregulation by making a number of basic scientific observations that serve as the basis for current understanding of the regulation of the human immune response.

Most recently, he clarified the precise mechanisms whereby the AIDS virus destroys the body's defenses, leading to its susceptibility to deadly infections. He also has been instrumental in developing strategies for the therapy and immune reconstruction of patients with this serious disease.

Fauci has served as a visiting professor at major medical centers throughout the country. He has delivered numerous major lectures all over the world, and he has received numerous prestigious awards for his scientific accomplishments.

SALVADOR EDWARD LURIA
(1912 - 1991)

Italian American biologist who shared the 1969 Nobel Prize in physiology or medicine with two other American biologists, Max Delbrück and Alfred Hershey. Luria's work on bacterial resistance to bacteriophages contributed to molecular biology.

After studying the effect of radiation on bacteria, Luria joined Delbrück in 1941 to work on the effects of infecting bacteria with bacteriophages. He isolated phage resistant variants of coliform bacteria for these studies and recognized that these variants were suitable for analyzing bacterial variation and its causes. He then developed a fluctuation test that shed light on bacterial mutations. Using the results of this study, Delbrück established a mathematical model for the analysis of mutation rates. Luria extended the method to apply to mutations in viruses. He also studied the action of colicins, protein antibiotics produced by certain strains of coliform bacteria that are lethal to other strains, and their role in bacterial genetics.

Luria was born in Turin, Italy, on August 13, 1912. He studied medicine in Turin and then physics and radiology in Rome. He was associated with the Radium Institute in Paris before emigrating to the United States in 1940. After holding professorships in microbiology at the universities of Indiana and Illinois, he joined the Massachusetts Institute of Technology in 1959. Luria died on February 6, 1991 in Lexington, Massachusetts.

EMILIO GINO SEGRÈ
(1905 - 1989)

Italian American high-energy nuclear physicist who shared the 1959 Nobel Prize in physics with Owen Chamberlain for their discovery of the antiproton in 1955.

In their work, Segrè, Chamberlain, and two other scientists used the bevatron particle accelerator at the Lawrence Radiation Laboratory of the University of California. By means of the bevatron the scientists accelerated a stream of protons to an energy of 6.2 billion electron volts (GeV) and directed them at a copper block. When the high-energy protons struck the copper target, they created many subatomic particles, a few of which were antiprotons. In other work Segrè was a co-discoverer of slow neutrons and the elements technetium, astatine, and plutonium.

Segrè was born in Tivoli, Italy, on February 1, 1905. He received his Ph.D. from the University of Rome in 1928 and taught physics there (1930-1936) and at the University of Palermo (1936-1938). In 1938 he became a research assistant at the University of California. From 1945 to 1946 he was a group leader at the Los Alamos Scientific Laboratory in New Mexico. After World War II he returned to the University of California as a professor of physics. Segre died in Lafayette, California on April 22, 1989.

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