

Twenty-Seventh Annual Alumni Seminar

Saturday, May 2nd, 1964

Dinner and Evening Programs

Huntington-Sheraton Hotel, Pasadena

THE LITTLE RED SCHOOLHOUSE STILL HAUNTS US — *Mrs. Georgiana Hardy*

Mrs. Hardy has been a member of the Los Angeles City Board of Education since 1955 and is currently serving a second term as president of the Board. Long active in health and welfare work, Mrs. Hardy was a member of the White House Committee on Youth (1935-39), vice president, National Girl Scouts (1938-42), on the personnel staff of the National Red Cross (1943-45), a member of the United States Attorney General's Conference on Juvenile Delinquency (1948), and chairman of the Los Angeles County Conference on Community Relations (1953-55). She is widely known as a book reviewer on the program "Cavalcade of Books," which won the Peabody Award for best educational television show in the United States in 1953. Her present activities include membership on numerous welfare and health agency boards, including the Los Angeles Welfare Planning Council, the Los Angeles United Nations Association, the Los Angeles County Heart Association, the California Association for Health & Welfare, United Way, Inc., and the research council of the Great Cities Program for School Improvement.

Special Exhibits

Tranquil and Torrential Flows in the New 130-ft. Tilting Flume—Dynamic Tests of Structures—Linear Accelerator.

Special Lecture

Beckman Auditorium, 11:45 A.M.

SCIENCE IN SPACE — *Lee A. DuBridge, President, California Institute of Technology*

Space science is as old as Aristotle and as new as the latest launching at Cape Kennedy. Though it was long the exclusive property of astronomers and physicists, it now is of interest to chemists, geologists, biologists, and engineers. Some of the past achievements and current problems relating to the science of space will be discussed, particularly those of interest on the Caltech campus and at JPL.

Seminar Lectures

THE STRAIN OF IT ALL

9:30 A. M. and 2:15 P. M.

Hugo Benioff, Professor of Seismology

Dr. Benioff is retiring as professor of seismology at the Institute this year, and will touch on the highlights of his career and feature recent research which has indicated that, although the elastic rebound mechanism correctly describes the generation of shallow earthquakes, a different type of source mechanism is involved in deep earthquakes. Our knowledge of the prime mover resulting in shallow earthquakes is still largely speculation.

ZANZIBAR, ZAMBIA, AND ZUIDWES AFRIKA

9:30 A. M. and 2:15 P. M.

Edwin S. Munger, Professor of Geography

Zanzibar's revolt signals more than the overthrow of centuries of Arab domination with the help of Castro

and Co. Subsequent military unrest in Tanganyika, Kenya, Uganda and even in Gaboon suggests a new type of European involvement on the continent. Zambia is the independent name of Northern Rhodesia which has, thanks to partly American-owned copper mines, potentially the highest per capita income of any African state. Zuidwes Afrika, to give South West its old Dutch spelling, is the subject of critical decision by the World Court, possible token invasion from West Africa, and great pressure on the U. S. in the U. N.

THE MONKEY-KIDNEY TRIALS

9:30 A. M. and 3:15 P. M.

*Ray D. Owen, Professor of Biology;
Chairman, Division of Biology*

Although great medical benefits could be obtained from successful organ transplantation, there are formidable biological barriers to success. Recently,

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much popular attention has been given the relatively prolonged function of chimpanzee and other primate kidneys transplanted into humans. Dr. Owen will discuss the present status of this field. He has been engaged for a number of years in studies of the immunology and genetics of transplantation.

QUASI-STELLAR RADIO SOURCES

9:30 A. M. and 3:15 P. M.

Maarten Schmidt, Associate Professor of Astronomy

Recently, a few radio sources have been found to be associated with objects that look like stars. These quasi-stellar objects have been found to be extremely distant galaxies. They are very compact and many times brighter than ordinary galaxies, but their source of energy is an enigma. The existence of these radio sources makes it possible to investigate the far reaches of the Universe.

AUTOMATION — AUTOMATIC UNEMPLOYMENT?

10:45 A. M. and 3:15 P. M.

Alan R. Sweezy, Professor of Economics

Widespread concern about the rapid rate at which workers are being displaced by automation is contrasted with the contention by others that there really is no problem: automation automatically stimulates the economy to whatever extent is necessary to reemploy the displaced workers. There is little basis for the latter easy optimism. Dr. Sweezy will discuss how the problems of automation can be answered and how we can have both adequate expansion and sound finance (in the sophisticated meaning of that term).

RECENT WORK ON THE MÖSSBAUER EFFECT

10:45 A. M. and 3:15 P. M.

Rudolf L. Mössbauer, Professor of Physics

The Mössbauer effect is a powerful new research tool in physics. The discovery of the phenomenon of recoilless nuclear resonance absorption of gamma radiation has provided the experimental physicist with the most sensitive method available so far for measuring extremely small differences in energy between different atoms or nuclei. The new method permits studies of numerous phenomena in the fields of solid state physics, chemistry, nuclear physics, and relativity. For this work Dr. Mössbauer was awarded the Nobel Prize in Physics.

MOLECULAR PARTNER CHANGING

10:45 A. M. and 4:15 P. M.

Aaron Kupperman, Professor of Chemical Physics

Chemical reactions occur in general as a result of

collisions between molecules and other molecules or electrons or light quanta. The mechanics of such collisions and how they lead to chemical reactions will be described and illustrated with an animated cartoon. The use of crossed molecular beams and digital computers in these investigations will be described.

CALTECH'S PEDAGOGIC COMPUTER

10:45 A. M. and 4:15 P. M.

Gilbert D. McCann, Professor of Electrical Engineering; Director of Computing Center

The Institute has recently placed in service a new computer system concept that provides better communication and interplay between experimental research and both students and faculty. This facility, with its remote stations and interplexed mode of operation, will be described, together with some of its more important applications. These include plans for its future use in undergraduate and graduate courses, its applications to nuclear physics, physical chemistry, seismology, and research on living nervous systems.

NEW SCHEMES TO TEACH ARITHMETIC

2:15 P. M. and 4:15 P. M.

Richard P. Feynman, Professor of Theoretical Physics

The teaching of arithmetic in elementary schools is being transformed by mathematicians and educators. Subjects from sets to plane geometry and probability are considered appropriate for all elementary school children. Professor Richard Feynman, a member of the State Curriculum Commission, which advises the State Board of Education on the selection of textbooks for California public schools, will discuss and criticize these new ideas.

SEA URCHINS, SEAWEED, AND SEWAGE

2:15 P. M. and 4:15 P. M.

Wheeler J. North, Associate Professor of Environment Health Engineering

The vast kelp beds of southern California are one of the richest areas of the sea. Fishes, shellfish, and the kelp itself are harvested from these submarine forests. In recent years our kelp beds have suffered serious deterioration and it is believed that marine waste disposal upsets a delicate balance, favoring sea urchins which graze the kelp to extinction. A program of sea urchin control is succeeding in restoring kelp to the sea floor off San Diego and represents man's first large-scale attempt to "farm" the open sea.