

Twenty-Eighth Annual Alumni Seminar

Saturday, May 8, 1965

Dinner and Evening Programs

Huntington-Sheraton Hotel, Pasadena

THE MOON AND THE ACROPOLIS

Eberhardt Rechtin

In philosophizing on the position in history of our nation's space effort, Dr. Rechtin will establish a parallel with the major national program of Greece at the time of its greatness. The economies of project support, inevitable social changes, and political implications will be discussed, and a few predictions will be added.

Dr. Rechtin received both his BS (1946) and his PhD (1950) degrees in electrical engineering from Caltech. He started working with Caltech's Jet Propulsion Laboratory in 1949 as a research engineer and is now Assistant Laboratory Director, Tracking and Data Acquisition.

Special Exhibits

Space Instruments from JPL – Throop Hall, west steps

Model of projected campus – Throop Hall, lobby, west entrance

Special Lecture

Beckman Auditorium, 11:45 A.M.

BREAKING THE POVERTY BARRIER – *John H. Rubel, Vice President and Director of Technical Planning, Litton Industries, Inc.*

America has taken a sharp interest in poverty. President Johnson has announced an all-out war against poverty. This suggests a number of important questions. How is poverty defined? Is it even theoretically possible to eliminate it? What are the mechanisms that might work? What steps is the government taking now and how do these relate to the normal economic activities of the private sector?

Seminar Lectures

THE NEW, NEW BIOLOGY

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

James Bonner, Professor of Biology

The old, new biology has revealed to us the basic logic and strategy of cell life. It has shown us that all cells of all creatures use the same replication process. Biology may now turn to the determination of what enables different cells to exist in the same creature and how such differences arise. Dr. Bonner will describe the new, new biology which is concerned with the molecular basis of development and differentiation.

THE WHITE DWARFS

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

Jesse L. Greenstein, Professor of Astrophysics

When stars no longer have nuclear energy sources, gravity compresses them to densities reaching a thousand tons per cubic inch. Dr. Greenstein will discuss observations of 200 such stars, the "White Dwarfs". He will describe studies of their chemical composition, temperature, brightness and age. These studies have led to an understanding of how the "White Dwarfs" represent the final stage of stellar evolution.

continued on page 30

Twenty-Eighth Annual Alumni Seminar Program . . . *continued*

BETTER SAFE THAN SOLID

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

H. E. Eilersieck, Associate Professor of History

The abandonment of Stalinist and Marxist-Leninist rigidities in the Soviet Union and the simultaneous splintering of the so-called "Socialist Camp" internationally are matters of the greatest import, and may be advantageous to us. Soviet interests, however, are also served and the emerging fluid "mess" may well be their dish more than ours. Soviet security and possible future supremacy lie in their leading lightly now.

SENSORS IN SPACE

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

*Robert V. Meghreblian, Manager, Space Sciences
Division, Jet Propulsion Laboratory*

The exploration and definition of space depends upon man's ability to create, fabricate, and calibrate specialized instrumentation that can operate for an extended duration under extreme environmental conditions quite different from any experienced by man to date. Dr. Meghreblian will describe a few of the JPL Space Science Division's experiences in developing the sophisticated instrumentation used in deep space flight programs.

MAN AND HIS MACHINES

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

Dino A. Morelli, Professor of Engineering Design

The average man still wages a continuous war against the laws of nature. Dr. Morelli will review some of the more common encounters. Since the machine most familiar to people is the automobile, most of the examples will be from that field. Other fields which produce a large number of basically similar and sometimes humorous accidents will be covered briefly.

SOME MATTERS OF CONSIDERABLE GRAVITY

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

Thane H. McCulloh, Research Associate in Geology

Removal of the effects of altitude and latitude from precise measurements of gravity permits observation of small differences related to topographic irregularities, rock inhomogeneities, and solar and lunar tidal forces. Measuring and interpreting these small differences in the force due to gravity in all the earth's media provides unique insights in petroleum and mineral exploration, in broad areas of geology, geodesy, and inertial navigation.

LIGHT ON THE DARK CONTINENT

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

Thayer Scudder, Assistant Professor of Anthropology

Presented with a bewildering series of African news releases concerning agricultural, educational, and industrial progress on the one hand and economic, social, and political upheaval on the other, the average American may throw up his hands in helpless confusion. Dr. Scudder will share some recent African experiences with us and demonstrate why it is so vital for us to try to understand these most important developments.

SOLAR FLARES and INTERPLANETARY STORMS

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

Harold Zirin, Professor of Astrophysics

Solar flares, a part of sunspot activity, cause most important effects on the earth and interplanetary space. Direct observation of these eruptions and satellite studies of the storms they produce in interplanetary space have given a new picture of the "pond" through which our planet swims. Dr. Zirin will present motion pictures of solar flares and related phenomena and will discuss his recent observations and research.

NATURE'S VERSATILE MOLECULAR ARCHITECTURE

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

*John H. Richards, Associate Professor of Organic
Chemistry*

In the creation of antibiotics, or deadly poison, or substances that make carrots orange, orange trees smell, or steroids such as cholesterol which in excess apparently can accelerate man's mortality, or hormones which cause sexual differentiation, nature continually performs synthetic activities of incredible versatility. We are learning that behind this architectural diversity there exists a unifying biosynthetic theme of great simplicity.

FRESH FIELDS IN AVIATION

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

Peter B. S. Lissaman, Assistant Professor of Aeronautics

New concepts based on advanced modes of lift generation and augmentation aimed at freeing the aerial vehicle from its dependence on speed for support, signal a virtual rebirth of aviation technology. Professor Lissaman will present slides and a short movie to illustrate his discussion of some of the more promising developments, such as boundary layer control, jet flap, ducted fan, and the ground effect machine.