

# The month at Caltech

## "The State, Industry, and University"

President DuBridge this month journeyed to Cambridge to attend the Mid-Century Convocation at the Massachusetts Institute of Technology and the inauguration of President James R. Killian, Jr. In a three-day program which included Winston Churchill's speech, Dr. DuBridge participated in one of six panel discussions among a distinguished group of educators, scientists and statesmen.

Speaking on "The State, Industry, and University," Dr. DuBridge emphasized the role of the government in supporting institutions of learning, and warned of the dangers of direct subsidy by Federal grants.

"Anything which a government agency supports financially, it must of necessity also control," he said. "The right of the government to control that which it pays for has, of course, long been established, but I think it can also be held that the government has a *duty* to control that for which taxpayers' money is being spent. . . .

"Federal support without Federal control' is not only a meaningless and unrealistic, but is essentially an immoral motto whose only result is to mislead and confuse.



*Theodore von Karman turns over job to Clark Millikan.*

"Now it is hardly necessary on this occasion to present the arguments why Federal control of our private universities is undesirable. Intellectual inquiry must be free to go in all directions. It may, and frequently does, run counter to existing theories, vested interests, long-established prejudice. Truth, in the long run, is always revolutionary for it broadens men's horizons and this usually suggests new and better ways of doing things. . . .

"Academic freedom is not something which is destroyed only by concentration camps and firing lines. It can be withered to a shadow merely by a threat of economic insecurity, of unearned disgrace, of unsupported public attacks.

"Scholarship is a delicate flower. Though its hardy roots have survived a thousand years of persecution, its blossoms have come to full glory only in a few places and at few times in human history. Here in America today it is thriving as in no other place at no other time. And even here it thrives best only in those places where its freedom is most nearly unrestricted. We shall not want to run even the remotest danger of destroying this flower. Rather we need to redouble our efforts to insure the flourishing of scholarship of the highest order.

"I think no one can argue that the positive way to insure this development is to throw our private universities into the lap of the Federal government. Much as we may welcome the government as a purchaser of some of the services rendered by our universities we do not welcome it as an owner of the business. Freedom and progress for education and research do not lie in that direction."

Four days earlier, on March 29, Dr. DuBridge delivered the principal address at the dedication of the University of Rochester's new 250,000,000-volt cyclotron. As chairman of the university's physics department before coming to Caltech in 1946, Dr. DuBridge was largely responsible for inducing the U. S. Office of Naval Research to sponsor the 130-inch atom smasher at Rochester. At present the instrument is second in size only to the one at the University of California's Berkeley Radiation Laboratory.

## von Karman's Travels

Theodore von Karman, Ph.D., Dr. Ing., Sc.D., LL.D., and Eng.D., carries more degrees after his name than any other man in the Caltech catalogue. He also bears a formidable list of titles: Professor of Aeronautics, Director of the Daniel Guggenheim Laboratory, and Chairman of the Jet Propulsion Laboratory Executive Board.

Last month he officially relinquished his posts at the Guggenheim Lab and JPL to Dr. Clark B. Millikan (see page 15), who has held them in an acting capacity since 1944, when Dr. von Karman was called by General H. H. Arnold to help plan the long-range research program of the Air Force. Dr. von Karman intends now to devote most of his time to his work for the Air Force, to his own theoretical research, and as chief technical consultant to the Aerojet Engineering Corp., which he helped found.

For the immediate future, he has a heavy schedule mapped out: leaving Pasadena April 5, he goes to Washington, D. C. for a meeting of the Scientific Advisory Board of the Air Force, of which he is Chairman. Next he goes to Princeton University for a meeting on rocket research and planning of scientific publications in the field of high-speed aerodynamics and jet propulsion. From there, he heads for Madrid, where he will represent the National Academy of Sciences at the



*Louis Dunn, Clark Millikan, and Robert Millikan receive Medals for Merit from Air Secretary Stuart Symington.*

centenary meeting of the Spanish Academy of Sciences. Paris is his next stop. There he will deliver an address at the International Aeronautics Exposition in May, and will attend a meeting of the International Scientific Union, in connection with projects of the International Scientific Research Institutes of the United Nations. From Paris he goes to Oslo, Norway, to attend a conference on Aerodynamics Problems in Astronomy. To date, Oslo is the last city on the itinerary.

By now Dr. von Karman should be well acquainted with European timetables. In 1945 he made a survey of technical developments in Germany and several other European countries, including Russia. Last year he spent most of his time abroad, representing the Air Force and scientific organizations, and lecturing at the Sorbonne in Paris and the Aeronautical Institute of Madrid. For all these activities, as well as for his scientific contributions, Dr. von Karman has been awarded honors by most of the scientific and aeronautical societies in Europe. In the U. S. he has received the 1947 John Fritz medal, highest engineering honor awarded in this country; the 1948 Franklin Gold Medal, highest honor of the Franklin Institute of Pennsylvania, and the Presidential Medal for Merit, highest civilian award for outstanding contributions to the war effort.

Dr. von Karman will maintain his connection with Caltech as Professor of Aeronautics and advisor to the staffs of the Guggenheim and Jet Propulsion Laboratories.

## Medals for Merit

The Presidential Medal for Merit, highest decoration given by the government for civilian wartime service, was awarded last month to three Caltech men: Drs. Robert A. Millikan, Clark B. Millikan, and Louis G. Dunn. Secretary of the Air Force W. Stuart Symington flew from Washington to make the presentations.

The citations were authorized by President Truman in recognition of "exceptionally outstanding conduct" in the development of rockets and jet propulsion during World War II. Specifically, Dr. Dunn, as Director of the Jet Propulsion Laboratory, was credited with important advances in underwater missiles, and was directly responsible for the training of some 800 naval officers. Dr. Clark Millikan was cited for supervision of

the design and construction of the Cooperative Wind Tunnel. Dr. Robert Millikan, in addition to his supervisory role as Chairman of the Institute's Executive Council, served throughout the war as a member of the important Missiles Committee of the Bureau of Ordnance.

Some 200 faculty members and guests attended the ceremony, which took place on March 21 — ten days after Clark Millikan's appointment as Director of the Daniel Guggenheim Laboratory of Aeronautics, and Chairman of the Jet Propulsion Laboratory; one day before Robert A. Millikan's eighty-first birthday.

## Count Rumford Medal

Dr. Ira S. Bowen, director of the Palomar and Mt. Wilson Observatories, has been named 1949 winner of the Count Rumford Medal of the American Academy of Arts and Sciences for his "important discoveries in the fields of heat and light."

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*Ira S. Bowen, 1949 winner of the Count Rumford Medal.*

Specifically, the award went to Dr. Bowen for his explanation of "nebulium," which has puzzled astronomers for years. Because a number of lines in the spectra of bodies in the Milky Way did not match those of any known elements, scientists have theorized that the bodies were of a new element which they referred to as "nebulium." It was Dr. Bowen who suggested that the spectral lines were merely those of oxygen and nitrogen, which differed from "normal" spectral lines because of the near-voids in which the nebulae exist.

## Digital Computer

Dr. Stanley P. Frankel has joined the department of Applied Mechanics, as Assistant Professor, to head up a new group to conduct basic research on the application of digital computing methods, and function as a service group for Institute research problems.

As a complement to the electric analog computer (see page 17) a digital computer will be established in the Analysis Laboratory to extend machine computation into such fields as statistical analysis and very high accuracy computation. It will be Dr. Frankel's job to translate physical problems into machine terms and explore new computing techniques.

Dr. Frankel, who attended Caltech from 1935 to 1937, received his B.S. in physics in 1938 and his Ph.D. in 1942 from the University of California at Berkeley. In 1942 he went to work for the Manhattan District, and set up the Los Alamos computing group, as well as the I.B.M. group—which he helped direct. In 1946 he became an assistant professor at the University of Chicago's Institute of Nuclear Studies. Since 1947 he has been a partner in the Frankel-Nelson Consulting Service in Los Angeles.

## Degree for Hubble

Dr. Edwin Powell Hubble, research associate in astronomy and staff member of the Mt. Wilson and Palomar Observatories, has received an honorary doctor of laws degree from the University of California at Berkeley.

## Service League

On Thursday evening, April 22, the Caltech Service League will hold its third meeting of the year. Speakers will be President DuBridges, who will discuss the Institute's educational philosophy; Dr. F. E. Lindvall, Chairman of the Division of Engineering, who will speak on educational trends; and Dr. Donald S. Clark, Associate Professor of Engineering and Director of the Alumni and Placement offices. In his talk on "Educational Dividends," Dr. Clark will describe the fields open to Caltech graduates.

The meeting will mark the completion of the League's second year of operation. Organized in 1947 by a group composed of parents of students, members of faculty families and other friends of the Institute, the League now has over 500 members, living in many parts of this country and abroad.

The League's purpose is twofold: to keep friends of the Institute in touch with Caltech activities, and to serve the needs of the students in any way possible. It keeps friends of Caltech up to date on student activities by sending out regular newsletters to parents, and by planning meetings around various aspects of Institute activities.

At the first Service League meeting this year, the subject of the program was "How to Keep House on \$7,416,832 a year." Charles Newton, Assistant to the President, George Green, Business Manager, and George Hall, Director of Public Relations, described the organization of the Institute, and the operation of the student houses, the cafeteria, bookstore, etc. At the next meeting, in January, Dr. W. S. Gervutz, Director of Student Health, outlined plans for the operation of the Caltech Health Center, its need for more and better equipment, and for the addition of dental and psychiatric services.

In 1947, when the Service League was organized, the Institute was badly in need of a Health Center. With the League's help, the Center was established, and housed in a temporary wooden building on the campus. Under the direction of Dr. W. S. Gervutz, the Center operates a small infirmary, and there—and in the outpatient department—cares for over a thousand patients each month. Most patients are students, but the Center also cares for faculty members, members of the families of married students, and Caltech employees.

The League has met the needs of students in a number of other ways. It maintains a Well Baby Conference which meets several times each month with Dr. Lucy Gale McMurray, a Pasadena pediatrician. Its Furniture Pool now has several hundred pieces of furniture—cribs, playpens, etc.—out on loan to families of married students and graduate students. In addition to making the Health Center attractive and keeping it stocked with books and magazines, the League has helped to furnish a clubroom for the Internations Association, and the Snow Valley Ski Hut for the Caltech Ski Club. It plans to help with student dances, and has helped with the operation of the housing project for married students and graduate students in Arcadia. And whenever the need has arisen, it has helped students, through its Welfare Chairmen, to become familiar with community agencies like the Council of Social Agencies, the Pasadena hospitals, and the Caltech "Y." The effectiveness of the League's work has been especially implemented by the fine cooperation of the Red Cross, and the National Foundation for Infantile Paralysis.

## Tiselius Visit

Dr. Arne Tiselius, winner of the 1948 Nobel Prize in chemistry, made a two-day visit to Caltech this month. Professor of Biochemistry at the University of Upsala in Sweden, Dr. Tiselius had come to this country to address the annual convention of the American Chemical Society. At the invitation of Dr. Linus Pauling, he made a quick trip to Caltech, addressed a biology seminar on "Some Physical and Chemical Properties of Bacterial Flagella," a chemistry seminar on "Some Attempts to Apply Chromatography for the Fractionation and Identification of Large Molecular Weight Substances"—and was profoundly impressed with the cooperation existing between the biology and chemistry divisions.

Dr. Tiselius won the Nobel Prize for the development of electrophoresis—a technique for analyzing complex mixtures of proteins and other giant molecules, based on the varying responses of minute particles to electric current. His work has already made possible the development of techniques to separate the protein components in blood, and it resulted in improved processing of blood plasma during the war. Eventually, electrophoresis may prove to be of value in isolating the virus, and the basis of heredity, the gene.