

# THE SUMMER AT CALTECH



## Franklin Thomas 1885-1952

**F**RANKLIN THOMAS, Dean of Students and Professor of Civil Engineering, died in Pasadena on August 27, after a short illness. He was 67 years old. He leaves his widow, Marie Planck Thomas; two daughters, Mrs. Eleanor Champion of San Diego and Mrs. Katherine Langille of San Gabriel; two sons, Richard, who lives in Pasadena, and William, of Venice, Calif.; and fifteen grandchildren. Two other sons, Edward and Robert, were killed in World War II.

Franklin Thomas joined the Caltech faculty 39 years ago. Born near Red Oak, Iowa, on May 19, 1885, he was graduated from the University of Iowa in 1908, and received his C.E. degree there in 1913. He came to the Institute in that same year as Associate Professor of Civil Engineering, to develop that department. He was made a full professor in 1915. In 1917, and again in 1920, he acted as chairman of the administrative committee of the faculty which ran the Institute during the absence of the President. From 1924 to 1944 he served as Chairman of the Division of Civil and Mechanical Engineering, Aeronautics and Meteorology. In 1944 he became Dean of Students at the Institute.

Franklin Thomas' interests outside academic circles were many and varied. He was the outstanding authority on water supply in the West—and he probably did more than any other single individual to get Colorado River water for southern California. In 1947 he was appointed to the Colorado River Board of California by Governor Earl Warren, and a year later he was made Chairman of the Board. He was a member of the Board of Directors of the Metropolitan Water District of Southern California from the time it was organized

in 1928, and he was vice-chairman of the Board from 1929 to 1947. He also served as consultant on flood control and sanitation projects for the city of Los Angeles and for Los Angeles and Orange Counties.

He was a great civic leader, and served at various times as a member of Pasadena's Board of Directors, as head of its Chamber of Commerce, Community Chest and Civic Orchestra Association.

Professor Thomas was a lifelong member of the American Society of Civil Engineers, and served as its president in 1949. He was a former vice-president of the American Society for Engineering Education, and held membership in the American Water Works Association, the California Sewage Works Association, Sigma Xi, Sigma Tau and Tau Beta Pi. He also belonged to the Kiwanis Club, the Cauldron, Twilight, New Century, and University Clubs. He was a member of the Board of Trustees of the First Congregational Church of Pasadena.

In 1939 Franklin Thomas received the Arthur Noble Medal for distinguished service to the city of Pasadena. In 1949 he was awarded an honorary Doctor of Engineering degree by the University of Southern California for his "tireless contributions to the welfare of his community and state." In March of this year the Los Angeles Chamber of Commerce presented him with its fourth annual Construction Industries Achievement Award and named him "Man of the Year" for having done the most to "further the interests of industry and the entire community."

"Franklin Thomas," said Caltech's President Lee A. DuBridge, "was a great teacher, a great engineer, an invaluable citizen and a beloved friend. Caltech will forever be proud of his record of service to the Institute.

to the community, and to the nation."

In his eulogy, at funeral services in Pasadena's First Congregational Church, Reverend Raymond Waser said:

"Franklin Thomas was a good man. That simple adjective, touched with the sturdiness of the good earth, applies to few men, for it is an adjective that must be earned in the heat of the day and the dark watches of the night. And in this hour there is no benediction greater than that a man's fellow men can bestow . . .

"Honors were to come to him at home and abroad, and he accepted them in the spirit of a debtor to others. Success was to crown the aims and training of his early years. His dreams became visions, and he saw them become foundations in the community, the college, and the profession he loved. But nothing was ever bought or won at the price of Franklin Thomas' character . . .

"And now the journey is over. What shall be the last word? I do not think it should be praise as praise; neither do I think it should be that we should imitate him. His own modesty forbids both. I think the last word should be gratitude . . . Be we of the family, of his friends, or of his colleagues, that is the last word for each—gratitude—a gratitude that can never be fully expressed, yet which should move us and compel us to be more true to ourselves and to this beloved community."

## Synchrotron

**C**ALTECH'S \$1,250,000 synchrotron, which has been under construction for two years, went into preliminary operation this summer and produced X-rays of 460 million electron volts, traveling at a speed of almost 186,000 miles a second. This not only broke all records for electron and X-ray energies; it was the highest speed ever reached by man-accelerated matter.

The synchrotron, built under a contract with the Atomic Energy Commission, is the most powerful atom-smasher of its type in existence. The next stages of work on the machine will involve raising its output to over 500 million electron volts. In another year or two, output is to be increased to around one billion electron volts.

Two other high energy electron machines are now under construction—a linear accelerator at Stanford and a non-ferromagnetic synchrotron at the General Electric Company in Schenectady. Previous highs in electron energies (325-340 MEV) have been produced by synchrotrons at the University of California, Cornell, the Massachusetts Institute of Technology, and by the betatron at the University of Illinois.

According to Einstein's theory of relativity the mass of a body increases as its speed increases. Therefore, when electrons in the Caltech synchrotron travel at a speed just one-tenth of a mile per second slower than the speed of light, they are 900 times heavier than when they are at rest. In the preliminary runs of the synchrotron, these electrons, bombarding a 1/8-inch lead plate,

produced X-rays with energies of 460 MEV. In future research the electron beam will be used to bombard plates of platinum, tungsten and other heavy metals. The X-rays which are produced will, in turn, be used to bombard various materials for experiments on atomic nuclei. The research will be aimed at a better understanding of the structure of atomic nuclei and the nature of the forces that keep their constituent protons and neutrons locked together.

In particular, researchers will try to find out what particles are created when nuclei are bombarded with very high energy X-rays.

Members of the synchrotron team include Robert F. Bacher, Chairman of the Division of Physics, Mathematics and Astronomy; Robert V. Langmuir, Associate Professor of Electrical Engineering; Matthew Sands and Robert L. Walker, Assistant Professors of Physics; Vincent D. Peterson, John G. Teasdale, and Alvin V. Tollestrup, Research Fellows in Physics; and Bruce H. Rule, Chief Engineer for both Palomar Observatory and the synchrotron project.

## Geology Chairman

**R**OBERT P. SHARP, Professor of Geomorphology, has been appointed Chairman of the Division of Geological Sciences to succeed the late Chester Stock, who died in December, 1950.

Sharp was graduated from Caltech in 1934 and received his M.S. here a year later. After he got his Ph.D. from Harvard in 1938 he joined the faculty of the University of Illinois. In 1943 he was commissioned into the Arctic, Desert and Tropic Information Center of the Army Air Forces, and after the war he taught at the University of Minnesota. He joined the Caltech faculty in 1947.

Said Dr. DuBridge: "The Division, with the addition of two outstanding men in Professors Harrison Brown (*E&S*—Nov. 1951) and Heinz Lowenstam (see below), has now embarked on an enlarged program of research and teaching in the newest and most rapidly developing phases of earth science arising from application of nuclear chemistry to problems of geology. Dr. Sharp's outstanding abilities as a scholar, teacher and administrator make him the ideal man to lead the Division as it enters this new stage of its development."

## Paleoecologist

**D**R. HEINZ A. LOWENSTAM, an outstanding invertebrate paleontologist and paleoecologist, has been appointed Professor of Paleocology at the Institute. Now an Associate Professor of Geology at the University of Chicago, he will take up his duties at Caltech this fall. He succeeds Dr. Charles W. Merriam, who has returned to the United States Geological Survey.

Professor Lowenstam, 39, studied at Frankfurt and Munich in his native Germany, came to this country for graduate work at the University of Chicago and was

naturalized in 1943. After receiving the Ph.D. degree in 1939, he served as curator of paleontology at the *Illinois State Museum* and in 1943 became an associate geologist of the Illinois State Geological Survey. He was a research associate in geology at the University of Chicago, 1948-49, and was appointed Associate Professor in 1950. He is married and has three children.

As a paleoecologist, Professor Lowenstam has studied ancient fossils to determine the relationship and interdependence of species which lived in the same environment in prehistoric times. He has also studied the variations of biologic environment with time through investigations of sedimentary rock strata. He has investigated the origin of chert, a type of fine-grained silica occurring in some limestone deposits, and believes it may have been precipitated originally by marine organisms, particularly sponges.

He is known widely for his research on tropical reefs found below the earth's surface in some areas of North America by oil drillers and in quarrying operations. He and other workers have shown them to be true reefs made by organisms—corals and certain types of algae—similar to those that built the Pacific atolls.

The reefs interest oil geologists, for in certain fields a direct relationship seems to exist between them and the occurrence of oil. The porous reefs themselves would have provided good oil reservoirs, and scientists are speculating whether decay of the reef-building organisms provided some of the raw materials for oil.

Professor Lowenstam's intensive studies are expected to provide helpful information on the problem, even though his direct concern is not the origin of oil. He is primarily interested in the information the structures provide on climates of the past.

He has been able, for example, to trace the pattern by which the extensive Marine Reef in Madison County, Illinois, grew perhaps 370 million years ago. At one time, he believes, some of it extended above the surface of the ocean which long ago covered central North America. He has found indications that when the reef was formed the prevailing winds blew from the south, unlike those of today. He suggests that these winds may have brought water from the tropics and warmed this area of the ocean enough to permit the chemical changes involved in reef building.

Professor Lowenstam has also collaborated with Professor Harold Urey and Dr. Samuel Epstein of Chicago in pioneering research on the temperatures of prehistoric oceans. He will continue this work at Caltech with Dr. Epstein, who joined the Geology Division this summer as a research fellow. The research involves measuring the relative abundance of isotopes found in marine fossils to determine the probable temperatures at which the organisms grew.

Lowenstam has been a frequent visitor to California, primarily as a geological consultant to the California Research Corporation of the Standard Oil Company of California at its La Habra laboratory. He conducted

an informal geology seminar at Caltech last January.

He is a member of the Paleontological Society of America, Society for the Study of Evolution, Ecological Society, American Association of Petroleum Geologists and the Illinois Academy of Science, and is an associate of the Society of Economic Paleontologists and Mineralogists.

### Sorensen Retires

**R**OYAL W. SORENSEN, Professor Emeritus of Electrical Engineering, enters full retirement this fall, after a 42-year career at Caltech (*E&S*—January 1952).

Professor Sorensen, who has the longest service record of any Caltech faculty member, has been on half-time retirement from his professorial duties for the past two years. He plans to continue his high voltage equipment research on campus, and will also supervise the construction of 200,000-ampere current-testing equipment, being built on the campus to his design, under the auspices of industrial companies.

Professor Sorensen came to Caltech, then known as Throop Polytechnic Institute, just after the move to the present campus site in 1910, with the purpose of starting a department of electrical engineering. He has served on many important committees on campus, was faculty chairman for one year, and chairman of the department of physical education for many years. After his appointment as Professor Emeritus in 1950, a group of his former students honored him by inaugurating the Royal W. Sorensen Graduate Fellowship in Electrical Engineering (*E&S*—June 1950).

### Faculty Additions

**F**OUR NEW FACULTY members join the Institute this term: William H. Corcoran as Associate Professor of *Chemical Engineering*; Francis B. Fuller, *Instructor in Mathematics*; Henry D. Piper, Assistant Professor of *English*, and James N. Thurston, Associate Professor of *Electrical Engineering*.

Dr. Corcoran received his M.S. from Caltech in 1942, and joined the research staff of the Cutter Laboratories. In 1943 he returned to Caltech to serve as development engineer on its rocket development program. After the war he resumed his graduate studies here, was awarded a National Research Council fellowship, and in 1948 was one of the first men to receive the Ph.D. degree with a major in chemical engineering. He then returned to the Cutter Laboratories, where he has served as head of the Technical Development Division.

Dr. Fuller received his Ph.D. this spring from Princeton University, where he was a graduate assistant in the mathematics department. At Caltech he will continue his research in topology and teach a course in the subject.

Dr. Piper received a B.A. in chemistry from Princeton in 1939. After graduation he was employed by E. I. du Pont de Nemours Co. as a research chemist. In 1943

he was loaned by Du Pont for special research on the atomic bomb at the University of Chicago, and to help supervise various operations in establishing the Richland, Washington, plutonium plant. He also was a special assistant to the Manhattan Project research director, supervising preparation and editing of a report on non-military applications of atomic energy. After the war he returned to Princeton for graduate study in English, then transferred to the University of Pennsylvania, where he was appointed Harrison Scholar in American Studies. He received his Ph.D. in English in 1950 and was appointed an instructor at Columbia University. He has published a number of articles in literary magazines and is presently writing a book, *A Critical Study of the Work of F. Scott Fitzgerald*.

Dr. Thurston received his M.S. and Ph.D. degrees from M.I.T., where he was Assistant Professor of Electrical Engineering from 1947 to 1949. In 1949 he joined the faculty of the University of Florida. He was assistant director of a guided missile project at M.I.T., and has been project leader on an Air Force research program at the University of Florida. His industrial experience has included work as test engineer for the General Electric Co., geophysical work in Venezuela for the Mott-Smith Corporation, and consulting work in electronics for various organizations. He is a member of Sigma Xi and Tau Beta Pi, and a senior member of the Institute of Radio Engineers.

### Merrill Retirement

**P**AUL W. MERRILL retired from the staff of the Mount Wilson and Palomar Observatories on September 1, after a 33-year astronomical career. A foremost authority on spectrum analysis, Dr. Merrill's work on long-period variable stars, class B stars, peculiar stars, and interstellar gas has received wide recognition.

Paul Merrill never planned on an astronomical career. After he received his B.A. in mathematics at Stanford University in 1908, he was offered a job with the Lick Observatory at Mount Hamilton, California. Convinced, after a year and a half, that astronomy was a worthwhile occupation, Merrill accepted a fellowship from the Observatory to the University of California, and received his Ph.D. there in 1913.

For three years he taught astronomy at the University of Michigan, then worked at the Bureau of Standards in Washington for a short time as a physicist. During World War I he made an important scientific contribution with his work on aerial photography, using red-sensitive plates.

Dr. Merrill joined the Mount Wilson Observatory staff in 1919. He became editor of the Observatory publications in 1939, and in 1949 he was appointed a member of the Observatory Committee, which determines scientific policies for both Mount Wilson and Palomar.

Dr. Merrill has received a number of honors during his scientific career. He is a member of the National Academy of Sciences, the American Philosophical

Society and a foreign associate of the Royal Astronomical Society. In 1946 he was awarded the Draper Medal by the National Academy of Sciences for his contributions to astronomical physics. In the same year, the Astronomical Society of the Pacific presented him with the Bruce Medal for his distinguished services.

### Stebby to Caltech

**W**ORLD WAR II Ace Major Robert F. Steffy joins the Caltech Air Force R.O.T.C. Staff this term as Assistant Professor of Air Science and Tactics.

Steffy, an Air Force Reserve officer, holds the Distinguished Service Cross, Distinguished Flying Cross, and the Air Medal with six clusters for his Pacific Theatre operations during World War II. He has four confirmed victories to his credit and three probables.

A 1950 graduate of the University of Detroit, he was studying for his master's degree in social science when he was recalled to active duty. He comes to Caltech from Luke Air Force Base in Arizona, where he was director of academic training for the Jet Pilot Training School.

Major Steffy replaces Lt. Colonel Marvin D. Fleming, who has been transferred to the Air Command Staff School at Maxwell Air Force Base in Alabama.

### Fowler's Award

**W**ILLIAM A. FOWLER, Professor of Physics, was recently awarded the Lamme Medal of Ohio State University, his alma mater. The citation is made annually to an outstanding graduate in engineering and the technical arts.

Dr. Fowler was Scientific Director of the Department of Defense's secret Project Vista in 1951-52. He received his Ph.D. from Caltech in 1936, was active in research on the proximity fuse, rockets and atomic weapons during World War II, and received the Medal for Merit in 1948.

### Peache

**T**HE INSTITUTE lost one of its favorite employees this summer when Peache Nickerson, head telephone operator for 17 years, left to join her husband, who is now personnel director at the Naval Proving Ground in Dahlgren, Va.

When she came to Caltech in 1935, Peache was not only the whole telephone staff; she was the mail room too. When she left this summer, she headed a department of seven operators.

At a farewell tea for Peache, Dr. William A. Fowler, on behalf of the faculty and staff, presented her with a wrist watch and a testimonial letter assuring her that everyone at the Institute would remember her as a girl who always lived up to her name.