



THE MONTH AT CALTECH

Commencement

A TOTAL OF 306 students received degrees from the Institute at the 59th annual Commencement on June 12. Bachelor of Science degrees went to 135 men. Seventy-four men received the B.S. in Science—13 of them with honors; and 61 received the B.S. in Engineering—13 with honors.

Of the 26 men graduating with honor, one—James LaTourette—coupled this distinction with “exceptionally effective participation in extracurricular activities,” for which he was awarded a Student Body Honor Key. Honor Keys were awarded to 13 men in all.

Master of Science degrees went to 90 men. Thirty men were given the M.S. in Science—7 in chemical engineering, 6 in the geological sciences, 3 in geophysics and 14 in physics.

The M.S. in Engineering went to 60 men—10 in aeronautics, 14 in civil engineering, 15 in electrical engineering, and 21 in mechanical engineering.

Nineteen men were awarded Engineer’s degrees—12 of these graduates being officers in the armed forces who were assigned to Caltech for advanced work in aeronautics.

Sixty-two men received the Ph.D. degree.

James R. Page, Chairman of the Board of Trustees, presided at the Commencement ceremonies. Commencement chaplain was His Eminence, James Francis Cardinal McIntyre, Archbishop of Los Angeles. Degrees were conferred by President DuBridge, who also delivered the charge to the graduating class.

The Commencement speaker was Arthur S. Flemming, director of the Office of Defense Mobilization in Washington, D. C. Mr. Flemming is on leave of absence as

President of Ohio Wesleyan University in Delaware, Ohio. He has been with the Office of Defense Mobilization since 1951, when he was appointed Assistant to the Director, in charge of manpower problems. Shortly after President Eisenhower took office this year, he named Mr. Flemming to membership on the President's Advisory Committee on Government Organization and on the Defense Department Organization Committee, and recently nominated him as Director of the Office of Defense Mobilization.

Appointed by the late President Franklin D. Roosevelt as the Republican member of the U. S. Civil Service Commission in 1939, Mr. Flemming was placed in charge of the Commission's activities in connection with World War II. He also served as a member of the War Manpower Commission and was chairman of its Labor-Management Policy Committee. After the war he served on the Hoover Commission to study the organization of the executive branch of the federal government.

In the field of journalism, Mr. Flemming has been a newspaper writer, editor of *Uncle Sam's Diary*, a current events publication, and an editorial staff member of the *United States Daily* (now *U. S. News and World Report*).

He was an instructor in government at American University in Washington, was named director of the School of Public Affairs there, and later became executive officer of the University.

Mr. Flemming has been prominent in Methodist Church affairs, serving as a lay leader of the Ohio Conference of the Church and formerly as lay leader and superintendent of the Church School in Foundry Metho-

dist Church, Washington. He is past treasurer of the Committee on Religious Life in the Nation's Capital, an inter-faith group, and served two terms as president of the Washington Federation of Churches.

A native of Kingston, New York, Mr. Flemming was graduated from Ohio Wesleyan in 1927, received an M.A. from American University in 1928, and an LL.B. from George Washington University in 1933. Ohio Wesleyan, American University, Temple, Wesleyan, and Oberlin have conferred LL.D. degrees on him.

Hinrichs and Morgan Awards

JOHAN D. GEE of Albuquerque, New Mexico was named winner of the Frederic W. Hinrichs, Jr. Memorial Award at the Commencement ceremonies.

The award is made annually to the senior who, in the judgment of the undergraduate Deans, has made the greatest contribution to student body welfare and who has shown outstanding qualities of character, leadership and responsibility. It was established by the Caltech Board of Trustees in memory of Professor Hinrichs, faculty member and Dean of Upperclassmen from 1921 until his death in 1944.

Gee, who received \$100, a certificate and a desk pen, majored in mechanical engineering at Caltech. He was president of the student body last year and treasurer the previous year. Active in athletics, he received three varsity letters each in football and basketball and won the 1953 Senior Service Award in baseball. As a freshman and sophomore, he was athletic manager of his class.



Arthur S. Flemming, Commencement speaker; His Eminence, James Francis Cardinal McIntyre; President L. A. DuBridge.

Sherman H. Ripley of Natal, Union of South Africa, was announced as the winner of the \$100 Thomas Hunt Morgan Award. This award, established in 1951 by friends of the late Dr. Morgan, who founded the Caltech Division of Biology, is made annually to an outstanding student in biology receiving the Ph.D.

Ripley, who received the B.S. degree at the University of South Africa in 1947 and the M.S. at the University of Natal in 1949, came to Caltech in 1950 and majored in animal physiology. He has been appointed senior lecturer in physiology at the new medical school of the University of Natal in Durban, and plans to return home next month.

Aristotle Michal

DR. ARISTOTLE D. MICHAL, 54, Professor of Mathematics, died of a heart ailment June 14, in the Huntington Memorial Hospital. He had been a member of the Institute staff since 1929.

"His long illness and death has robbed the Institute and the world of a brilliant mathematical mind at a time when it was at the height of its productiveness," said President DuBridge. "His passing is a loss to science and a sorrow to his colleagues and friends."

Michal was born in Smyrna, Asia Minor, May 1, 1899, and became a U. S. citizen in 1924. He received the A.B. and A.M. degrees at Clark University in 1920 and 1921, respectively, and the Ph.D. from the Rice Institute in 1924.

He was a teaching fellow at Rice from 1921 to 1924, and an instructor in mathematics there the following year. He spent two years at Harvard, Chicago, Rice, and Princeton as a National Research Fellow, and was Assistant Professor of Mathematics at Ohio State University from 1927 to 1929. He came to Caltech in 1929 as Associate Professor of Mathematics and became a full professor in 1938.

He was noted for his contributions to functional analysis, modern differential geometry and other fields of advanced mathematics. During the war he was in charge of advanced training in mathematics and mechanics in the Engineering, Science and Management War Training Program at Caltech. He also served as advisor and consultant to the Navy in connection with the mathematics section of the Naval Ordnance Test Station at Inyokern.

DuBridge Honored

CALTECH PRESIDENT L. A. DuBridge received the honorary degree of Doctor of Laws at the University of Rochester's 103rd annual commencement on June 7. Dr. DuBridge, who also delivered the commencement address, served as Chairman of the University of Rochester's Physics Department from 1934-1946, and was Dean of the Faculty from 1938 to 1942. In 1938, he supervised the construction of a 7,000,000-volt cyclotron at the University, and played a major role in obtaining

the 250,000,000-volt cyclotron, financed by federal funds, which was built by the University of Rochester after World War II.

Hansen Medal

DR. GEORGE W. BEADLE, Professor of Biology and Chairman of the Division of Biology, has been awarded the Gold Medal of the Emil Christian Hansen Foundation of Copenhagen, Denmark.

The medal has been awarded only 11 times since its inception in 1914, to European and American scientists who have made significant contributions to the field of microbiology. A memorial to Dr. Emil Christian Hansen, director of the physiological department of the Carlsberg Laboratory, Copenhagen, until his death in 1909, the medal is accompanied by a prize of 5,000 Danish crowns (\$722).

Professor Beadle received the award for his research in biochemical genetics using the red bread mold *Neurospora*. The research has led to important generalizations about the role inherited factors play in controlling the chemical reactions that make up metabolism. This work was started by Drs. Beadle and Edward L. Tatum at Stanford University in 1941. They were aided by Drs. David Bonner, now of Yale University, and Norman H. Horowitz and H. K. Mitchell, now of Caltech.

Professor Beadle also has received the Lasker Award of the American Public Health Association and the Dyer Lectureship Award of the National Institutes of Health. He has been a member of the National Academy of Sciences since 1944. A past president of the Genetics Society of America, he is currently a member of the Divisional Committee for Biological Sciences of the National Science Foundation.

A graduate of the University of Nebraska, he received the Ph.D. degree from Cornell University in 1931. Nebraska, Yale and Northwestern have awarded him honorary D.Sc. degrees. He was a research fellow and instructor at Caltech from 1931 to 1936. After a year at Harvard as Assistant Professor of Genetics, he went to Stanford as Professor of Biology in 1938. He returned to Caltech in 1946 as Chairman of the Division of Biology.

Page Portrait

A DINNER WAS HELD at the Athenaeum on May 25 to celebrate Mr. James R. Page's tenth anniversary as Chairman of the Board of Trustees of the Institute. As a highlight of the occasion, a portrait of Mr. Page by the prominent artist, Arthur Cahill, was presented to the Institute by Mr. Cahill. The portrait, which will be hung in the lobby of the Athenaeum, was accepted on behalf of the Institute by President DuBridge.

"An institution is but the lengthened shadow of a man," said Dr. DuBridge. "For many human institutions, this old saying is literally true. However, at the

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California Institute of Technology, as at many other institutions, the shadow is in reality the shadow of many men. No man single-handedly could have converted the Throop College of 1910 into the California Institute of 1953. Nevertheless, a very large share of the credit can be divided among a relatively small number of men. It is our pleasure on this occasion to honor one of this small company.

"The men who are responsible for managing the Institute financial affairs are the members of the Board of Trustees. The small group of devoted men who have over the years been members of this Board have contributed more than most of us can ever know to making the Institute what it is today. A particularly heavy responsibility falls upon the Chairman of the Board. Only three men have held this position in the past 25 years; Arthur H. Fleming, Allan C. Balch, and James R. Page. We celebrate tonight Mr. Page's tenth year of service in this capacity.

"Another institution which Mr. Page has faithfully served is the Henry E. Huntington Library and Art Gallery. He has been both a trustee and Treasurer of the Library since 1945. However, to none of his other



Arthur Cahill's portrait of James R. Page

interests and activities has Mr. Page devoted more sustained and devoted efforts than to the California Institute of Technology. In 1926 at the invitation of Mr. Henry M. Robinson (whose invitations were said to be most persuasive) Mr. Page became one of the original group of 100 men and women to organize the California Institute Associates. As everyone here knows, this organization has been one of the principal factors in the financial success of the California Institute. It was not long before Mr. Page was the president of the Associates and a key figure in its program and activities. By 1931 he had so exhibited his interest in the Institute that he was elected to its Board of Trustees. In 1943, following the death of Allan C. Balch, he became the Chairman of the Board.

"If an institution survives at all the Chairman of its Board can take considerable credit. If it not only survives but prospers the credit should be publicly recognized."

Mr. Page is director of the I. N. Van Nuys Building Company, the Gladding-McBean Company, the Consolidated Steel Corporation, Southern California Edison, Ltd., and the Union Oil Company of California. He has wide interests in educational, cultural, religious and civic affairs, and besides being a trustee and Treasurer of the Henry E. Huntington Library and Art Gallery, he is also a trustee of the Cate School in Carpinteria, the Good Samaritan Hospital, the Episcopal Church Foundation, and the Barlow Sanitarium.

Guggenheim Fellow

DR. J. HAROLD WAYLAND, Associate Professor of Applied Mechanics, received a \$4000 John Simon Guggenheim Fellowship last month to conduct special research in complex fluid flows.

Dr. Wayland will investigate engineering aspects of the technique of fluid flow visualization by streaming double refraction. This technique is being widely used in physical chemistry to help determine molecular sizes and shapes.

Dr. Wayland will spend most of the 1953-54 academic year at the University of Strasbourg, France, but he will also visit other institutions, including the University of Cambridge, England, and the University of Upsala, Sweden.

A physicist, a mathematician, and an engineer, Dr. Wayland is noted for his work on underwater ballistics. He holds the ordnance development award of the Navy's Bureau of Ordnance, and at present is a consulting physicist to the Navy and other governmental and commercial agencies.

He did pioneering work in the use of ship models in the field of demagnetizing ships as protection against

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magnetic mines, and installed the ship demagnetization station at Los Angeles Harbor. Before coming to Caltech in 1949 he was head of the underwater ordnance division of the Naval Ordnance Test Station in Pasadena.

A 1931 graduate of the University of Idaho, he received his M.S. from Caltech in 1935 and his Ph.D. in 1937. A teaching assistant in physics at the Institute, he returned to Idaho in 1934 as Instructor in Mathematics. In 1936 he went to Denmark as an American Scandinavian Foundation Fellow to study neutron absorption problems at Professor Niels Bohr's Institute for Theoretical Physics.

From 1938 to 1941 he divided his time between research at Caltech and teaching at the University of Redlands, where he was Assistant Professor of Physics. In 1941 he joined the Naval Ordnance Laboratory in Washington, D. C.

Rockefeller Grant

DR. FRITS WENT, Professor of Plant Physiology, has received a grant of \$42,600 from the Rockefeller foundation for a three-year study of water relations in plants. Dr. Went, who is in charge of the Earhart Plant Research Laboratory, will study conditions under which plants lose and take in water. One of his purposes is to determine how much water a plant needs besides that necessary in photosynthesis. Some plants use approximately 1000 times as much water in evaporation as is needed for photosynthesis. If it can be determined how much of this is necessary, the possibility of plant growth with less water in arid and semi-arid climates can be examined.

New Geologists

TWO NEW FACULTY MEMBERS will join the Division of the Geological Sciences this fall—Dr. Thane McCulloh as Assistant Professor of Geology, and Francis G. Stehli, as Assistant Professor of Invertebrate Paleontology.

Professor McCulloh will teach courses in petrology and field geology. A 1949 graduate of Pomona College, he received the Ph.D. in geology at UCLA last year. During one of his graduate years he held a Fulbright Fellowship for study at the renowned Mineralogical Institute at Oslo, Norway. Currently he holds a National Science Foundation postdoctoral fellowship in geology and is also the recipient of a special research grant from the Institute of Geophysics at UCLA.

Professor Stehli will teach courses in invertebrate paleontology and historical and field geology. A National Science Foundation Fellow at Columbia University, he

receives his Ph.D. degree this month. He received the B.S. degree with honors in biology from St. Lawrence University in 1949 and the M.S. in geology there in 1950.

Prof. Lees

PROFESSOR LESTER LEES, 32, of Princeton University, has been appointed Associate Professor of Aeronautics and Applied Mechanics at the Institute. He will join the Caltech faculty about July 1. Associate Professor of Aeronautical Engineering at Princeton since 1948, he has been in charge of its hypersonic and supersonic research projects for more than six years. He has been at Caltech as a visiting lecturer since February 1, delivering a series of special lectures in fluid mechanics.

He was graduated from M.I.T. in 1940 and received his M.S. there the following year. In 1941-42 he served as an aeronautical engineer for the U.S. Air Force at Wright Field in Dayton, Ohio, where he built and tested a scale model of its high-speed wind tunnel and conducted high-speed flow research. He was at Caltech from 1942 to 1944 as a Research Fellow in Aeronautics and Instructor in Mathematics. From 1944 to 1946 he worked on boundary layer and subsonic flow problems for the National Advisory Committee for Aeronautics at Langley Field, Virginia. He has been a member of the Princeton faculty since 1946.

Geophysical Officers

DR. HUGO BENIOFF, Professor of Seismology, and Dr. Vito A. Vanoni, Associate Professor of Hydraulics, have been elected officers of the American Geophysical Union. They will serve for a three-year period ending in 1956—Dr. Benioff as vice-president of the Section of Seismology, and Dr. Vanoni as a member of the Pacific Southwest Regional Committee.

Dr. Benioff was also recently appointed to serve for a one-year term as a member of the Advisory Panel for Earth Sciences of the National Science Foundation in Washington, D. C.

Turin Academy

DR. A. ERDELYI, Professor of Mathematics, has been elected a Foreign Member of the Academy of Sciences of Turin, one of the leading academies in Italy.

Only two other Americans hold foreign membership in the Academy's division of the mathematical and physical sciences, which is restricted by statute to 10 foreign members. They are Drs. Theodore von Kármán, Caltech Professor of Aeronautics, Emeritus, and Adolf Busemann of the National Advisory Committee for Aeronautics.