

The Summer at Caltech

Three New Caltech Trustees

Three new members were elected to the Institute Board of Trustees this month: Lloyd L. Austin, chairman of the board and chief executive officer of the Security First National Bank in Los Angeles; Augustus B. Kinzel, vice president of research for the Union Carbide Corporation; and William E. Zisch, president of Aerojet-General Corporation.

Lloyd L. Austin was born in Leadville, Colorado, in 1904. He attended the University of Southern California, 1921-22, and the University of Arizona, 1924-26. From 1926 to 1933 he was an accountant with Lybrand, Ross Brothers and Montgomery in Los Angeles.

He began his career at the Security Bank in March 1933 and has been chairman of the board since 1961. He is a director of a number of corporations, immediate past president of the Childrens Hospital of Los Angeles, and a director and president of the Automobile Club of Southern California.

Augustus B. Kinzel was born in New York City in 1900. He received a BA cum laude in mathematics from Columbia University in 1919, a BS in engineering from MIT in 1921, and doctorates in metallurgical engineering and science from the University of Nancy in France.

He joined Union Carbide in 1926 as a research metallurgist, and became chief metallurgist in 1931. In 1955 he became vice president of research.

Dr. Kinzel is regarded as one of the country's leading research metallurgists and has pioneered in the theory of stainless steel and the theory and application of the structural low-alloy steels and new ferroalloys. More than 40 patents have been issued in his name. His extensive background in mathematics and physics, as well as in metallurgy, has been useful in the field of nucleonics, and he has served as consultant to Atomic Energy Commission installations such as Los Alamos, Oak

Ridge, Argonne, Knolls and Brookhaven Laboratories. As a member of the initial Manhattan District Committee for the World Control of Atomic Energy, he helped draft the classified report that led to the Lilienthal and Baruch plans.

Dr. Kinzel is a member of the National Academy of Sciences and has held a number of government advisory posts.

William E. Zisch was born in 1917 in Denver, Colorado. He attended Sawyer's School of Business and Caltech. From 1935 to 1938 he worked as a chemist for the Great Western Sugar Company in Johnstown, Colorado, and then became supervisor of laboratory operations for the American Sugar Company in Oxnard, California. In 1939 he came to Caltech as an assistant in aeronautics and assistant to the comptroller, which brought him in close contact with Dr. Theodore von Kármán and other founders of Aerojet. In 1942 he joined Aerojet as contract administrator and rose through various administrative positions until he became executive vice president in 1961. Last spring he was appointed president of the corporation.

Sponsored Research Administrator

George Canetta, business manager of the Denver Research Institute of the University of Denver for the past 12 years, is now sponsored research administrator of the Institute. He is responsible for research grants and contracts exclusive of the Jet Propulsion Laboratory.

Mr. Canetta was born on the Isle of Jersey and attended school in England and Italy. He studied business administration at New York University and obtained his degree in it at the University of Denver.

Prior to his work in Denver, Mr. Canetta administered contract negotiations at New Mexico State University's Physical Science Laboratory. During World War II he was an administrative assistant at

the University of New Mexico in research on the proximity fuse for aerial bombs and artillery shells.

Industrial Associates Director

Emory L. Ellis, new executive director of the Institute's Industrial Associates, replaces Dr. Arthur H. Warner, who retired in June. Dr. Ellis had represented the Operations Research Groups of the U.S. Department of Defense in England and Europe since 1961, serving as liaison between these groups and the United Kingdom and NATO.

Dr. Ellis received all of his degrees from Caltech—BS in 1930 and MS in 1932 in chemistry; PhD in 1934 in biology. He worked with Dr. Max Delbrück, professor of biology, in developing the technique of isolating pure strains of virus.

During World War II he was associated with the development of artillery rockets at Caltech and later continued this work at the Naval Ordnance Test Station at China Lake. He served as supervisor of the station's Rockets and Explosives Department until 1955, when he was made head of ordnance planning for the Rheem Manufacturing Company of Los Angeles.

In 1957 Dr. Ellis became project leader of the Institute for Defense Analyses in Washington, D.C., in the Weapons Systems Evaluation Group, which serves the Joint Chiefs of Staff and the Department of Defense.

Director of Libraries

Harald Ostvold, chief of the reference department of the New York Library, was appointed director of libraries at Caltech this summer. He succeeds Dr. Roger F. Stanton, director of the Institute libraries since 1949, and professor of English. Dr. Stanton, who has been on the Caltech faculty since 1925, will devote full time to professional duties.

Mr. Ostvold is a native of St. Paul, Minnesota, and received his BA from Hamline University there in 1936. He received his BS in Library Science and his MA from the University of Minnesota.

In Memoriam

Over the summer, the Institute suffered the loss of four distinguished staff members:

ROBERT L. MINCKLER

Robert L. Minckler, chairman of Caltech's Board of Trustees, died of a heart attack on August 6 while on vacation in Banff, Alberta, Canada. He was 65.

A native of Minneapolis, Mr. Minckler was an



Robert L. Minckler

alumnus of the University of Washington. In 1924 he joined the General Petroleum Corporation and in 1948 became president of the company. He served as president for 12 years before his retirement in 1960. During World War II he was director of petroleum supply of the Petroleum Administration for War in Washington, D.C. He was a senior member of the National Industrial Conference Board, a vice president and director of the California State Chamber of Commerce, and president of the World Affairs Council of Los Angeles.

Mr. Minckler became a member of the California Institute Associates in 1948 and a member of the Board of Trustees in 1954. He had been chairman of the Board since 1961.

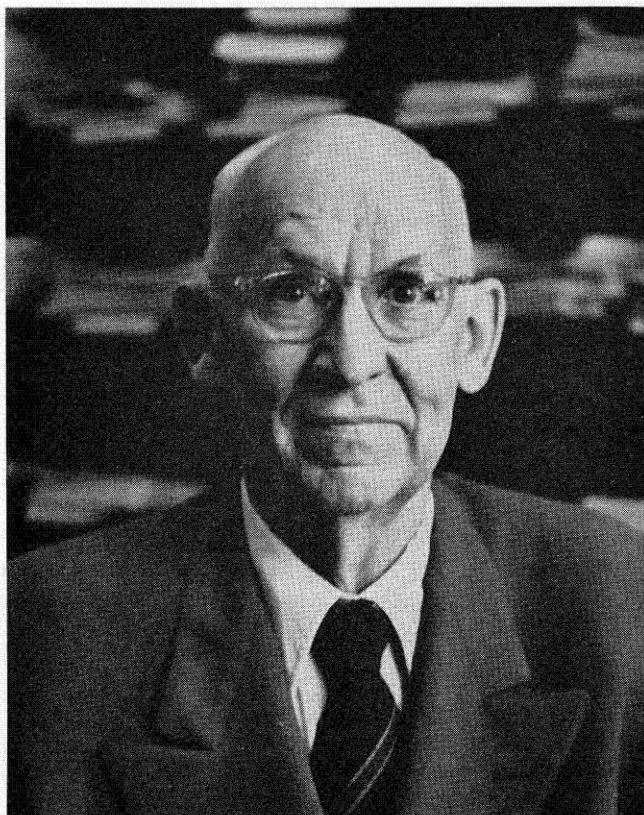
He is survived by his wife; a son, Robert; a daughter, Mrs. Barbara Waterman of Pasadena; and four grandchildren.

Friends of the Institute have established a memorial fund in his honor.

HOWARD J. LUCAS

Howard J. Lucas, professor emeritus of organic chemistry at Caltech, died on June 22 at Huntington Memorial Hospital of a heart ailment. He was 78.

Born in Marietta, Ohio, Dr. Lucas graduated from Ohio State University and received his MS in chemistry there. He taught at the University



Howard J. Lucas

of Chicago, then became a chemist for the U.S. Department of Agriculture. In 1913 he came to Caltech as an instructor and served on the faculty for 42 years until he retired in 1955.

Dr. Lucas, a member of the National Academy of Sciences, was one of the first scientists to use knowledge about the electron in organic chemistry. He published more than 60 scientific papers on his work.

In 1953 he won a \$1,000 prize as the nation's outstanding chemistry teacher for that year. His book *Organic Chemistry*, published in 1935, is credited with establishing the pattern for modern elementary organic chemistry textbooks.

Dr. Lucas was a member of the American Chemical Society, American Association for the Advancement of Science, American Association of University Professors, Sigma Xi, and Phi Beta Kappa.

A memorial fund has been set up in Dr. Lucas's name in honor of his long years of service to the Institute.

SETH B. NICHOLSON

Seth B. Nicholson, member of the Mount Wilson and Palomar Observatories staff for 42 years, died of cancer on July 2 at Queen of Angels Hospital. He was 71.

Dr. Nicholson was born in Springfield, Illinois.

He received his BS from Drake University in 1912 and his PhD from the University of California in 1915.

In 1914, at the Lick Observatory, Dr. Nicholson discovered the ninth of Jupiter's satellites and in the late 1930's and early 1950's at Mount Wilson he discovered the tenth, eleventh and twelfth of the planet's moons.

At the Observatories, he studied solar phenomena. He supervised the collection of data on sunspots, including the strength and polarity of their magnetic fields. He collaborated with the late Dr. Edison Pettit in developing a very sensitive vacuum thermocouple with which to measure the heat radiated by celestial objects such as stars, the planets, and the moon.

Dr. Nicholson was a member of the National Academy of Sciences, American Association for the Advancement of Science, American Astronomical Society, Astronomical Society of the Pacific, Phi Beta Kappa and Sigma Xi.

He is survived by his widow and three children: Don; Margaret; and Mrs. Jean Spicer; and two grandchildren.

MORGAN WARD

Morgan Ward, professor of mathematics, died on June 26 of a heart attack at the City of Hope Medical Center. He was 61.

Dr. Ward was born in New York City but spent most of his life in southern California. He re-



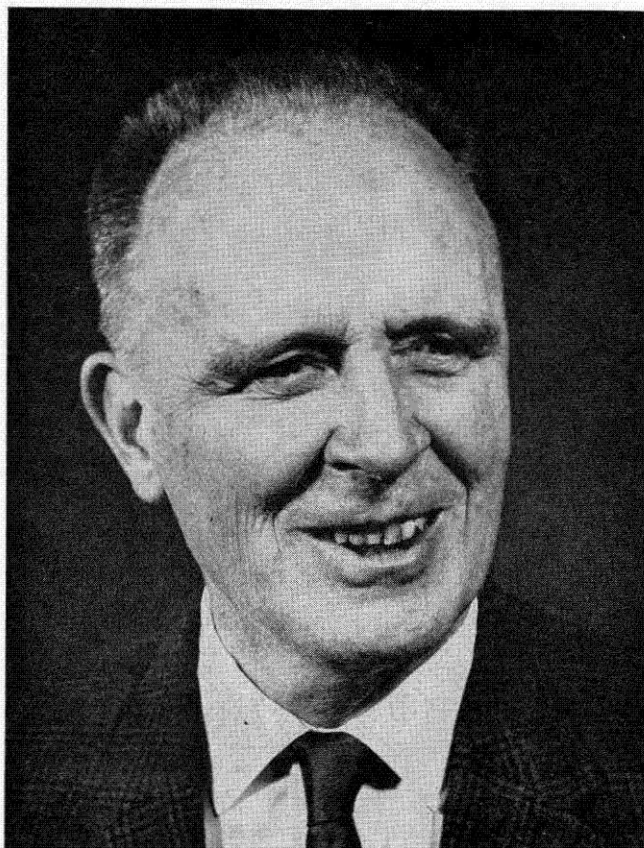
Seth B. Nicholson

ceived his BA from the University of California in Berkeley in 1924, and his PhD in mathematics from Caltech in 1928. He then joined the Caltech faculty as assistant professor of mathematics.

As a research mathematician, Dr. Ward was known for his work in algebra and number theory, with particular emphasis on arithmetical sequences. During the past few years he had worked with the school mathematics study group set up by the National Science Foundation to reform elementary school mathematics curricula.

In 1934-35 Dr. Ward did research work at the Institute for Advanced Study in Princeton, N.J., and from 1941 to 1944 he served as consultant to the Office of Scientific Research and Development on problems of underwater ballistics and anti-submarine warfare. He was a member of the American Mathematical Society and the American Mathematical Association. He was also an accomplished pianist, a student of poetry, and an expert chess and Go player. He is survived by his wife; a daughter, Audrey Ward Gray; three sons, Eric, Richard and Samuel; and five grandchildren.

Memorial services will be held in connection with a symposium on number theory to be held at Caltech in November. Friends of the Institute have set up a memorial fund to perpetuate his name.



Morgan Ward

Faculty Changes 1963-64

Promotions

TO ASSOCIATE PROFESSOR:

GIUSEPPE ATTARDI, MD — *Biology*
CHARLES J. BROKAW — *Biology*
ROBERT S. EDGAR — *Biology*
ROBERT A. HUTTENBACK — *History*
TOSHI KUBOTA — *Aeronautics*
MILTON LEES — *Mathematics*
BRUCE C. MURRAY — *Planetary Science*
WHEELER J. NORTH — *Environmental Health Engineering*

TO SENIOR RESEARCH FELLOW:

JOHN N. BAHCALL — *Physics*
WALLACE G. FRASHER, JR. — *Engineering*
HANS G. E. KOBRACK — *Physics*
J. OWEN MALOY — *Physics*
DAVID MORRIS — *Radio Astronomy*

TO ASSISTANT PROFESSOR:

DON L. ANDERSON — *Geophysics*
CHARLES D. BABCOCK, JR. — *Aeronautics*
FRED E. C. CULICK — *Jet Propulsion*
DIN-YU HSIEH — *Engineering Science*
RICHARD C. SEAGRAVE — *Chemical Engineering*
JEROME LEE SHAPIRO — *Applied Science*
RONALD H. WILLENS — *Materials Science*

NEW FACULTY MEMBERS

WALLACE S. BROEKER, visiting associate professor in geochemistry, from Columbia University, where he is associate professor of isotopic geochemistry.
MORRIS BROWN, Arthur A. Noyes Research Instructor in chemistry, from Harvard University, where he was an NSF Postdoctoral Fellow.
RONALD F. BROWN, visiting associate in chemistry, from the University of Southern California, where he is professor and head of the chemistry department.
SUNNEY I. CHAN, assistant professor of chemical physics, from the University of California, Riverside, where he was assistant professor of chemistry.
HUGH NAN CHU, visiting associate in aeronautics, from the Rocketdyne Division of North American Aviation, where he is a senior technical specialist.
PETER L. CRAWLEY, assistant professor of mathematics, from the University of Minnesota, where he was assistant professor of mathematics.
E. W. DENNISON, staff member, Mt. Wilson and Palomar Observatories, from Sacramento Peak Observatory, New Mexico, where he was solar physicist.
RICHARD E. DICKERSON, associate professor of physical chemistry, from the University of Illinois, where he was assistant professor of chemistry.
WILLIAM J. DREYER, professor of biology, from the National Heart Institute, National Institutes of Health, where he was a research biochemist.
LINCOLN K. DURST, visiting associate in mathematics, from Rice Institute, where he is associate professor of mathematics.
SHELDON K. FRIEDLANDER, professor of chemical engineering and environmental health engineering, from Johns Hopkins University, where he was associate professor of chemical engineering.

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BYRD LUTHER JONES, instructor in history, from Yale University, where he was an assistant in instruction.

TARAS KICENIUK, lecturer in engineering design. He has been a research engineer and group leader at Caltech since 1950, when he received his MS here.

MAJOR W. B. KNIGHT, assistant professor of air science, from Headquarters, 5th Air Force, Fuchu Airstation, Japan, where he was Chief, Records and Analysis Branch.

DONALD E. KNUTH, assistant professor of mathematics, who received his PhD from Caltech in June 1963.

HEINZ-OTTO KREISS, visiting associate in mathematics, from the Royal Institute of Technology, Stockholm, Sweden, where he is a lecturer.

ARON KUPPERMAN, professor of chemical physics, from the University of Illinois, where he was associate professor of chemistry.

ALVIN L. KWIRAM, Arthur A. Noyes Teaching Fellow in chemistry, who received his PhD from Caltech in June.

E. RALPH LAPWOOD, research associate in geophysics, from Emmanuel College, Cambridge, England, where he was a fellow and director of NSF studies in mathematics.

FRANK B. MALLORY, visiting associate in chemistry, from Bryn Mawr College, where he is associate professor of chemistry.

MAURICE E. MATHISEN, visiting associate in chemistry, from Loma Linda University, where he is professor and chairman of the department of chemistry.

W. L. MIRANKER, senior research fellow in engineering, from IBM Research Center, Yorktown, New York, where he was a research staff member.

D. B. NARASIMHAIAH, visiting associate in civil engineering, from the University of Mysore, where he is professor and head of the department of civil engineering.

JEROME PINE, associate professor of physics, from Stanford University, where he was an instructor and assistant professor.

RUSSELL M. PITZER, Arthur A. Noyes Research Instructor in chemistry, from Harvard University, where he received his PhD this year.

RAFAEL SIVAN-SUSSMAN, assistant professor of electrical engineering, from the University of California, where he received his PhD this year.

LOLITA SAPIRIEL, lecturer in French, from UCLA, where she was a teaching assistant.

HEINZ SCHUSTER, senior research fellow, from the Max Planck Institute for Virus Research in Tübingen, Germany, where he was a member of the scientific staff.

CAPTAIN D. L. STEARNS, assistant professor of air science, from Fort MacArthur, California, where he was Weapons Controller, 670 Radar Squadron.

MINORU TAKAHASHI, senior research fellow in electrical engineering, from Tohoku University in Sendai, where he was assistant professor in the magnetic materials laboratory.

ROBERT D. VOLD, visiting associate in chemistry, from the University of Southern California, where he is professor of chemistry.

DAVID M. VOWLES, senior research fellow in biology and electrical engineering, from Oxford, England, where he was a lecturer at the Institute of Experimental Psychology.

EDWARD J. WELLMAN, visiting associate in engineering, from Purdue University, where he is associate professor of mechanical engineering.

JOHN F. WHITE, visiting associate in geology, from Antioch College, where he is chairman of the department of earth sciences.

ARNE A. WYLLER, senior research fellow in astronomy, from the Institute of Theoretical Astrophysics, Blindern, Norway, where he was a research associate.

ON LEAVE OF ABSENCE, 1963-64

FRED C. ANSON, professor of analytical chemistry, to the University of Brussels in January, where he will conduct research on electrokinetics on a Guggenheim Foundation Fellowship.

JAMES F. BONNER, professor of biology, to Oxford University in England, where he will be Eastman Visiting Professor for 1963-64.

ROY W. GOULD, professor of electrical engineering and physics, to the Max Planck Institute in Munich for research in plasma physics.

C. HEWITT DIX, professor of geophysics, to the University of Tokyo in Japan, as a research scholar on the faculty of science.

THOMAS LAURITSEN, professor of physics, to the Institute for Theoretical Physics in Copenhagen for one year of research.

JURG WASER, professor of chemistry, to Europe on a Guggenheim Fellowship to study undergraduate chemistry education in Switzerland and other European countries.

RESIGNATIONS:

JAMES C. DAVIES, professor of political science, to the University of Oregon as professor of political science.

ANTHONY DEMETRIADES, senior research fellow in aeronautics, to join the staff of Aeronautics in Newport Beach.

RENATO DULBECCO, professor of biology, to join the staff of the Salk Institute of Biological Studies at La Jolla.

KARL R. JOHANSSON, associate professor of environmental health engineering, to the National Institute of Neurological Diseases and Blindness as Chief of the Research Grants Branch.

LEON KNOPOFF, professor of geophysics, to UCLA as professor of physics and geophysics.

ROBERT A. FITZNEY, assistant professor of geology, to Princeton University as associate professor of geophysics.

MATTHEW SANDS, professor of physics, to Stanford University as professor of physics and deputy director of the Stanford Linear Accelerator Center.

PAUL TS'O, senior research fellow in biology, to Johns Hopkins University as an associate professor in the department of radiological sciences.

SITARANI R. VALLURI, senior research fellow in aeronautics, to the Indian Institute of Technology in Madras, India, as senior professor and head of the department of applied mechanics.

MARGUERITE M. P. VOGT, senior research fellow in biology, to join the staff of the Salk Institute of Biological Studies at La Jolla.