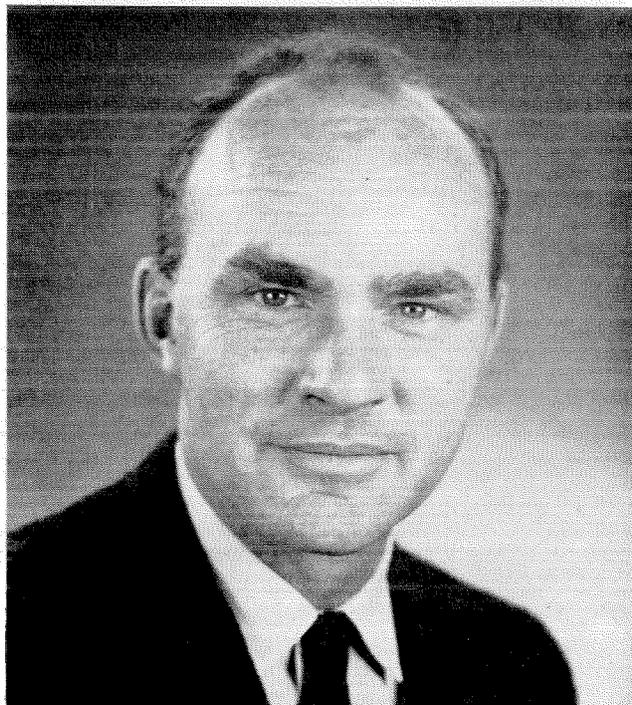


The Month at Caltech



George S. Hammond

National Academy of Sciences

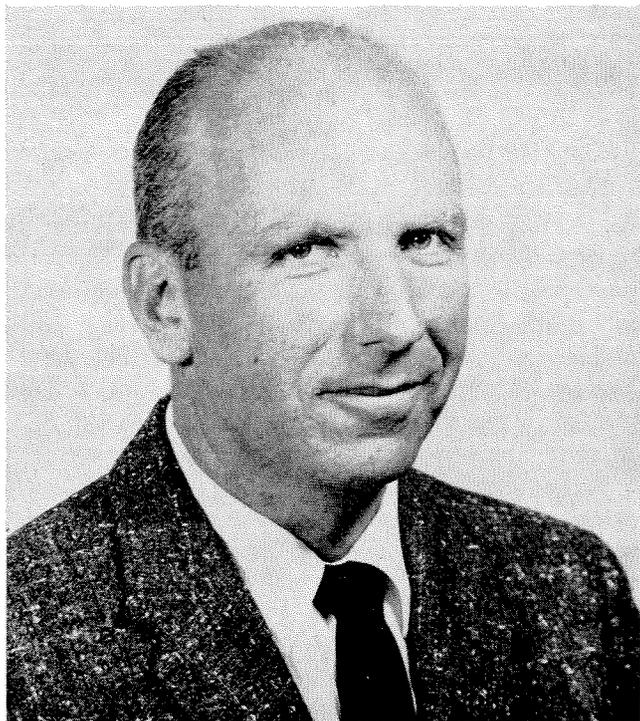
Three Caltech scientists were elected members of the National Academy of Sciences at its 100th annual meeting held this month in Washington.

They are Dr. George S. Hammond, professor of organic chemistry; Dr. Leon Knopoff, professor of geophysics; and Dr. Allan R. Sandage, staff member of the Mount Wilson and Palomar Observatories.

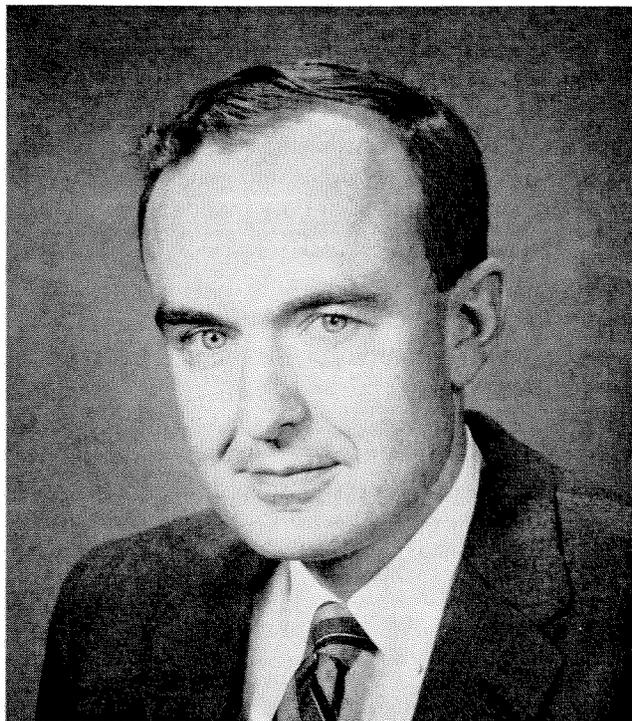
Election to the Academy is in recognition of

outstanding achievement in scientific research. Caltech, now with 34 Academy members, has the highest percentage of members of any university faculty.

George Hammond, who received the American Chemical Society Award in Petroleum Chemistry in 1961, is considered to be one of the world's leading investigators in physical organic chemistry. He is especially interested in the chem-



Leon Knopoff



Allan R. Sandage

ical changes that occur in some molecules as the result of energy being transferred to them by other molecules that have absorbed energy from light. He also does research on reactions that occur when one molecule is added to another. His earlier work produced new insight into the action of oxidation inhibitors. Dr. Hammond is the author of a new textbook, *Organic Chemistry*, with D. J. Cram, and is also co-author of *Analytical Organic Chemistry*.

Dr. Hammond was graduated from Bates College in 1943 and received his MS and PhD degrees from Harvard University. His academic experience includes teaching and research at Iowa State College and the University of Illinois. He came to Caltech in 1956.

Leon Knopoff has contributed much to the understanding of waves in the earth and has done significant research on the mechanism of earthquakes, and on the composition of the earth's crust, mantle, and core. His mathematical models of earthquakes have represented major advances in seismology.

A native of Los Angeles and a Caltech alumnus, Dr. Knopoff got his BS degree at Caltech in electrical engineering in 1944, then received his MS and PhD degrees in physics. He is a professor of geophysics on the faculties of both Caltech and UCLA.

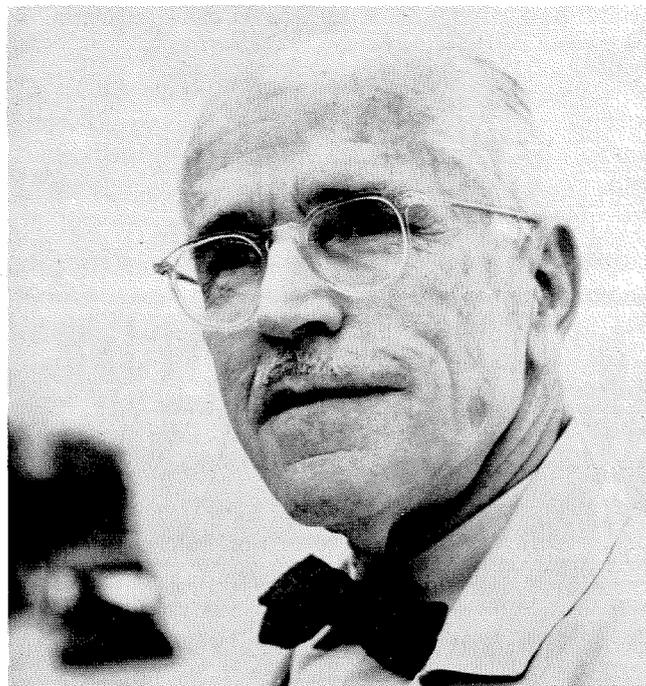
Allan Sandage has made important contributions on the evolution of stars, star clusters, galaxies, and the universe. He has done important work on developing cosmic yardsticks for measuring the immense distances beyond the Milky Way Galaxy. He is also interested in the rates of recession of galaxies and has found evidence that the universe is slowing down. He put together the *Hubble Atlas of Galaxies*, which represents a rich source for future studies of galaxies.

Dr. Sandage was graduated from the University of Illinois in 1948 and received his PhD at Caltech in 1953. He joined the Mount Wilson and Palomar Observatories staff in that year, and has received several awards for his work.

Richard Chace Tolman Medal

Ernest H. Swift, professor of analytical chemistry and former chairman of the division of chemistry and chemical engineering, has been awarded the 1962 Richard Chace Tolman medal by the southern California section of the American Chemical Society.

Dr. Swift, who has been a member of the Caltech faculty for 44 years, received the medal



Ernest H. Swift

“in recognition of his research contributions to analytical chemistry, leadership and interest in the development of analytical procedures, and his long and continued interest in teaching as well as for his service to the local and national chemical community, the American Chemical Society and the nation.”

This is the third year the section has awarded the medal, named for the late Dr. Tolman, professor of physical chemistry and mathematical physics at Caltech.

NASA Grant

The Institute has received a grant of \$268,900 from the National Aeronautics and Space Administration to support the training of 15 full-time graduate students in space-related sciences and technology. The purpose of the grant is to “help achieve the long-range objectives of the national space program and meet the nation’s future needs for highly trained scientists and engineers.”

The grant takes effect in September. Each graduate student chosen for the training program will receive \$2,400 for 12 months of training plus an allowance for dependents up to \$1,000 per year. The recipient is assured three years of graduate study provided he maintains a satisfactory record.

Eighty-eight colleges and universities have been selected to receive these training grants from NASA for the academic year 1963-64, with a total of approximately 800 graduate students participating in the program.

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Engineering and Science



William C. McDuffie

William C. McDuffie, a Caltech trustee for 30 years, died on April 10 of a stroke. He was 76.

Mr. McDuffie, a prominent oil and aviation executive, started in the oil business as a roustabout in 1907 and by 1921 was in charge of production for the Shell Oil Company when they brought in the first well on Signal Hill. More recently Mr. McDuffie was an independent oil producer and chairman of the boards of Mohawk Petroleum Corporation, Northrop Aircraft, and the Wilmington Gas Company.

He served as a trustee at Caltech from 1933

to 1961 and since then he has been an honorary trustee of the Institute.

“His passing is a tragic loss to the entire Southern California community,” said President DuBridge, “and a great personal loss to the trustees, administration, and faculty of the California Institute of Technology.

“No one better understood and supported the aims and ideals of Caltech or was a warmer friend to all. His loss is an irreparable one.”

Spring Concert

Caltech's Glee Club of 55 men (below), directed by Olaf M. Frodsham, will give their annual spring concert on May 11 at 8:15 p.m., at the Marshall Junior High School, 990 North Allen Ave., in Pasadena. They will have as guests the Pomona College Women's Glee Club, who will sing several numbers with the Caltech Club.

Now in their 47th concert season, Caltech's Glee Clubs have gained a reputation as leaders in the field of male choral singing. Mr. Frodsham, who is in his tenth year as director of the Glee Clubs, is associate professor of music at Occidental College, and organist and choirmaster at St. Mathias Church in Los Angeles.

Tickets to the Glee Club spring concert are available at the Caltech Bookstore, and in the News Bureau. They will also be on sale on Alumni Seminar Day, May 4, on the campus. Student tickets are \$1, adults \$1.50. Proceeds will be used to support choral musical activities at Pomona and Caltech.

