

CALTECH NEWS

Hufstedler, T. J. Watson, Jr., rejoin Caltech Board of Trustees

Mrs. Shirley M. Hufstedler and Thomas J. Watson, Jr., have accepted re-appointments to the Caltech Board of Trustees after service to the U.S. government.

Hufstedler served as the U.S. secretary of education on appointment by President Carter in 1979; she was the first person to hold that position. Watson, director and chairman emeritus of the IBM Corporation, was appointed U.S. ambassador to the Soviet Union in 1979.

Hufstedler first served as Caltech trustee from September 1975 until she took over her cabinet post in January 1980. At the time of her cabinet appointment, she was the nation's highest ranking woman jurist—judge of the U.S. 9th Circuit Court of Appeals. She is currently a member of the law firm of Beardsley, Hufstedler, and Kemble in Los Angeles.

She has served as a trustee of Occidental College, a member of the USC Law Center board of councilors, a member of the visiting committees of Harvard, Stanford, and Pennsylvania law schools, and of West Point. She holds honorary degrees from many universities and colleges, among them USC, Columbia, Georgetown, Rutgers, Occidental and Tufts. In 1976 she received the Sir Thomas More Medallion from the Loyola University School of Law.

Hufstedler received her LLB from Stanford in 1949. After practicing law in Los Angeles, she spent 18 years on the bench.

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Sir Fred Hoyle shares his views about the universe with alumni at the Seminar Day general session.

Caltech as *comedy*? That's not gneiss!

Caltech is a marvelous subject for musical comedy, according to J. Kent Clark, professor of literature. With a wild cast of characters, a language of its own, a lovable penchant for believing its own propaganda, and its own brand of humor, it cries out for dramatization, Clark told alumni on Seminar Day. And dramatize it, Clark has. In his illustrated lecture he played recordings from some of the musicals about Caltech that he helped to create for the Caltech Stock

Company, and he explained why he feels the *people* at Caltech may be even more fascinating than the things they do professionally. Among the songs Clark played was the popular favorite about geologists, "That's Not Gneiss!"

But their professional accomplishments are equally fascinating, and alumni had the chance to learn about some of these in 13 seminars on topics ranging from the Voyager mission and its results, to the emerging discipline of power electronics, to what we can learn from destructive earthquakes, to what really happened in the blast at Mt. St. Helens, to evolution, smog, and

biotechnology.

At the general session they heard Sir Fred Hoyle, noted astronomer, physicist, and author, on "The Universe: Past and Present Reflections." Hoyle, a visiting associate in physics at Caltech, probed such ideas as whether influenza epidemics are related to the movement of atmospheric masses, whether the interstellar grains are actually biological cells, whether the Big Bang Theory is an appropriate response to the facts, whether life is of terrestrial origin—or whether life evolved on a galaxy-wide basis, whether present life patterns may be influenced by "a cosmological response from the future," and whether scientific inspiration—and scientific ecstasy—is triggered by the deciphering of a cosmic signal.

He also raised the issue of whether life originated via a "deliberate intellectual act," and whether an enormous intellect is abroad in the universe. His own view: "A common-sense interpretation of the facts suggests that a super intellect has monkeyed with physics, as well as with chemistry, and that there are no blind forces worth speaking about in nature."

In all, some 1,500 alumni and their guests converged on the campus to hear the research lectures, view construction progress on the Braun and Watson labs, mingle with former classmates, and meet new friends. They also sampled exhibits and special programs—among them, the 10-meter radio astronomy dish, photographs from the scanning electron microscope, a scale model of the Voyager spacecraft, an exhibit in Baxter Art Gallery, and the light-gas gun used by geophysicist Thomas J. Ahrens to determine mineral behavior under tremendous pressures and temperatures.

The Friends of Caltech Libraries offered works by Caltech authors, along with a new publication, *Caltech's Throop Hall*, by Judith

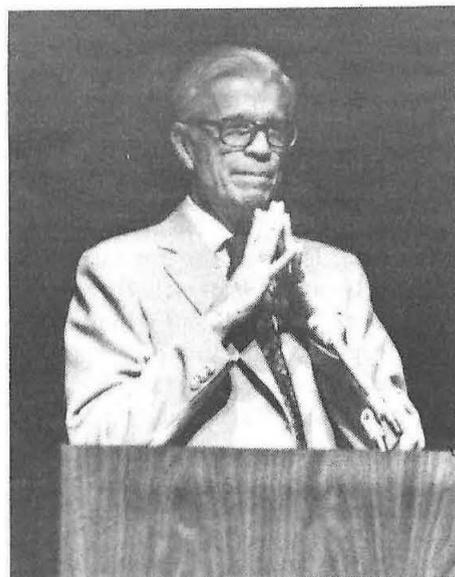
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Caltech as comedy

Continued from page 1

Goodstein and Alice Stone. Caltech President and Mrs. Marvin L. Goldberger and Alumni Association President James Workman greeted the alumni in the Alumni House at a wine and cheese reception, and after dinner, the Glee Club presented its annual home concert.

The day at Caltech was a full one, from just about every standpoint, and every bit as fascinating as those Caltech people in Kent Clark's lecture.



Kent Clark explores Caltech as a subject for musical dramatization.

Hufstedler, Watson rejoin trustees

Continued from page 1

Watson first served as a Caltech trustee from 1960 to October 1979, when he was appointed to the Soviet ambassadorship by President Carter. He served in that post until January 1981. Watson joined IBM in 1937 after receiving his BA degree from Brown University and has been with the corporation since that time, except for five years of service as a pilot in World War II.

He has received many honors for his public service, including work on presidential commissions and on the governing boards of such institutions as the Boy Scouts of America, the Smithsonian Institution, the John F. Kennedy Library, the Mayo Foundation, the Rockefeller Foundation, Brown University, and MIT.



New distinguished alumni: Row 1—Mark Serrurier, Kenneth G. Wilson, and Earnest H. Clark, Jr. Row 2—Hollis B. Chenery and Dale Kaiser.

Caltech honors five distinguished graduates

Caltech conferred its highest honor—the Distinguished Alumni Award—on four of its graduates at the general session of Alumni Seminar Day on the campus.

Those honored were Hollis B. Chenery (MS '43), vice president for development policy for the World Bank; Earnest H. Clark, Jr. (BS '46, MS '47), president and chairman of the board of Baker International Corporation; Dale Kaiser (PhD '61), professor of biochemistry at Stanford University; Mark Serrurier (BS '26), the former president of Moviola Manufacturing Company; and Kenneth G. Wilson (PhD '61), professor of physics at Cornell University.

For the past 25 years Chenery has specialized in economic development, dividing his time between teaching, research, and government assignments. He joined the World Bank in 1970 as economic adviser to the president. Before that he had been professor of economics and director of the Project for Quantitative Research in Economic Development in the Center for International Affairs.

From 1952 to 1961 he was professor of economics at Stanford University where he founded and was co-director of the Research Center for Economic Growth. He has also been an adviser on economic development

to the United Nations, the Organization of American States, and the governments of Pakistan, Japan, Chile, Israel, and Korea.

Clark joined Baker Oil Tools in 1947 as a trainee engineer and by 1965 had become the company's chief executive officer. During his presidency the firm moved from \$30 million in sales and 1,643 employees to \$1.5 billion in sales and 22,000 employees by 1980. *Fortune* magazine chose Baker as one of the top 10 business triumphs of the 1970s and listed the company as one of the 500 largest industrial firms.

Active for many years with the YMCA, he assisted in building a full service facility in Downey, California, where he lives, and he was instrumental in creating a long-range planning process, directly developed for YMCAs. He is a member of the boards of the American Petroleum Institute, CBS Industries, Inc., Beckman Instruments, Inc., and the National Energy Foundation, and he is a trustee and chairman of the Academic Affairs Committee at Harvey Mudd College.

Kaiser was a postdoctoral fellow at the Pasteur Institute and a faculty member at Washington University in St. Louis. He has been a member of the faculty at Stanford since 1959. His current research concerns the morphogenesis and development of myxobacteria. From 1952 to 1972 his research included the genetics, regulation, development, and morphogenesis of bacteriophage lambda.

For his contributions, Kaiser has been awarded the U.S. Steel Foundation Award in Molecular Biology and the Lasker Award in Basic Medical Science. He is a member of the National Academy of Sciences and the American Academy of Arts and Sciences.

Retired since 1966, Serrurier was the president for 20 years of Moviola Manufacturing Company. Founded by his father, the business is engaged in the design and manufacture of editing equipment for the motion picture industry. His redesign of Moviola in 1948 earned him an Oscar in 1980.

For 12 years before joining Moviola, Serrurier was at Caltech as an engineer and part-time instructor in applied mechanics. He designed the tube of the 200-inch Hale telescope, and builders of 17 subsequent telescopes have adapted his concepts. He designed a high-speed wind tunnel for Theodore von Kármán, director of Caltech's Graduate Aeronautical Laboratories, and he worked on the design and construction of the Cooperative Wind Tunnel at Caltech.

In the 20 years since he left the Institute, Kenneth Wilson has become recognized as one of the world's



Peter Haff describes the singing sand dunes of the Mojave Desert.

leading physical theorists—particularly in particle and condensed matter physics. He is best known for introducing into statistical mechanics a technique called the Renormalization Group, which has had a revolutionary effect on that discipline.

For his contributions he has been elected to the National Academy of Sciences, and he is a member of the American Physical Society.

Harry Gray named the Beckman Professor of Chemistry

Harry B. Gray has been named the Arnold O. Beckman Professor of Chemistry at Caltech, President Marvin L. Goldberger has announced.

"When the Beckman Professorship was endowed last year by Arnold's many friends, we wanted to find a chemist of international distinction to be its first occupant," Goldberger said. "Harry Gray is a natural choice. He is known, not only for his brilliant research, but also for his superb teaching and his inspirational leadership in his division."

Gray, 45, previously was the William R. Kenan, Jr. Professor and professor of chemistry; he continues as chairman of the Division of Chemistry and Chemical Engineering at Caltech. He is widely known for his research on electron transfer processes involving copper and iron atoms bound to protein molecules. This work has laid a foundation for understanding how energy is stored in chemical form by living systems.

He has also done pioneering research relating to the conversion of solar energy to useful chemicals—work involving a study of the chemical behavior of electronically excited inorganic molecules. Gray has shown that molecules containing clusters of metal atoms can transfer electrons after being excited by visible light. This represents an important step in the development of efficient systems for converting solar energy to useful fuels such as hydrogen.

Gray received his PhD from Northwestern University and came to Caltech from Columbia University as professor of chemistry in 1966, shortly after becoming the youngest full professor of chemistry in Columbia's history. In recognition of his research, he was elected to the National Academy of Sciences when he was 35.

Beckman was the first alumnus to be elected to Caltech's Board of

Trustees and has served on the Board for 27 years. After serving as its chairman from 1964 to 1974, he was named chairman emeritus. He continues to work actively in this role.

He entered Caltech as a graduate student in 1923 and received his PhD for research on photochemistry in 1928. Beckman stayed on at the Institute as an instructor, leaving in 1940 to devote full time to the development of scientific devices through Beckman Instruments, the company he founded. Among his many contributions to the Institute are Beckman Auditorium, and the Mabel and Arnold Beckman Laboratories of Behavioral Biology.

Among his awards are the Presidential Medal of Freedom in 1964, the Electronic Industries Association Gold Medal in 1971, the National Business Hall of Fame Award for Business Leadership in 1976, and the Phoenix House Award for Outstanding Public Service in 1981. He has also been honored by numerous foreign governments—among them, Italy, France, Belgium, Peru, the Vatican, Sweden, and Brazil.

Jorgensen, Volk receive Caltech's first Millikan Medals

Two prominent California businessmen, Earle M. Jorgensen and Harry J. Volk, are recipients of the first Robert A. Millikan Medals for distinguished service to Caltech.

Jorgensen is chairman and chief executive officer of the Earle M. Jorgensen Company of Los Angeles, and has served as a member of Caltech's Board of Trustees since 1957. Volk is chairman of the board of the Weingart Foundation and is retired chairman of Union Bank. He served on the Caltech Board of Trustees beginning in 1950, until his resignation last year.

The Millikan medals commemorate the Nobel prize-winning physicist and co-founder of the modern Caltech, who served for many years as the chairman of its Executive Committee. In presenting the medals, Caltech President Marvin L. Goldberger termed Millikan the person who "more than any other is

directly responsible for Caltech as we know it today. We are still guided in innumerable ways by his vision of Caltech as an institution devoted to the highest imaginable standards of excellence in research and teaching."

Arnold O. Beckman (PhD '28), chairman emeritus of Caltech's Board of Trustees, described Volk and Jorgensen as leaders in the business communities of the state and the nation. "They have taken important roles in making California a national industrial center and giving southern California a central place in the national economy," he said.

Beckman cited Volk's service as chairman of Caltech's Investment Committee, as a member of the Executive Committee, and vice chairman of the Board of Trustees. Said Beckman, "He deserves much of the credit for the success of Caltech's investment policy. This policy preserved its endowment during some difficult years when other institutions saw the value of their endowments drop precipitously."

He also cited Volk's service as chairman of the \$132-million fundraising campaign, "At the Leading Edge . . .," which was successfully completed before Volk's retirement from the Board.

Jorgensen's efforts on the Board of Trustees have included membership in the Investment Committee and the Executive Committee and the chairmanship of the Advisory Committee to Caltech's Industrial Relations Center. He also will begin serving on a new trustee committee on plans and resources.

Said Beckman, "A magazine article once described Earle Jorgensen as 'the epitome of the self-made man,' but I'm not sure that's a good description. Few men, self-made or otherwise, bring to everything they do the zest and openness to new ideas and new experiences of an Earle Jorgensen—a man who took up downhill skiing after he was 60."

The Associates feted in Orange County



The Santa Ana Country Club was the setting this spring for an Orange County dinner party for more than 100 members of The Associates, their guests, and other friends of Caltech. The group heard a talk about tsunamis by Fredric Raichlen, professor of civil engineering; Raichlen was introduced by The Associates' president, Hannah G. Bradley. Above: Robert I. Coulter (BS '28) and Mrs. Coulter, and Howard Cary (BS '30) with Caltech Provost John D. Roberts, who welcomed the guests.



Clyde Chivens (BS '35) and Mrs. Chivens with Howard Cary (BS '30).

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Pele wins converts as alumni explore her terrain

By Winifred Veronda

Pele, that volatile and dynamic Polynesian goddess of vulcanism, is as well known throughout Hawaii for her charms as for her fiery temperament. So it wasn't difficult for her to add 40 new converts to her fold when Caltech alumni and their companions visited Hawaii's volcano country in May.

Of course, having a delightful and knowledgeable guide like Robert Sharp (BS '34, MS '35) along to describe the geology made Pele's conquest even easier. And the fellowship of congenial companions makes the blandishments of any goddess harder to resist.

It was Sharp himself who conceived the idea for this excursion to the United State's greatest volcanic wonderland. Sharp (the Robert P. Sharp Professor of Geology, emeritus), while working on the Island of Hawaii last November, planned a three-day itinerary that would allow alumni to explore Mauna Ulu and Kilauea—two of the world's most active volcanoes over the past century. So popular was the concept that the trip was fully subscribed shortly after it was announced, and the evolution of a substantial waiting list persuaded the Alumni Association to plan a second excursion next November.

Among those on the trip were two members of the class of 1934 in addition to Sharp: Elvin Lien and Charles White, and a member of Sharp's second class year, Nelson Nies (BS '35, MS '36). The class of 1958 was also well represented, with David Groce (BS '56, PhD '63), who doubled as the *Caltech News* photographer for the excursion, Phil Reynolds (BS '58, MS '59), Dick Van Kirk (BS '58) and Frank Berto (MS '58).

Floral leis, chauffeured service from the airport by Harrison Sigworth (BS '44), and a welcoming reception in the Hilo Hawaiian Hotel acclimated alumni to Hawaii and its charms on their first evening. Mrs. Alice Hood, a Hilo resident and widow of Caltech alumnus John "Hi" Hood (BS '21), distributed orchids from her yard to all the women present, and macadamia nuts to everybody. The Alumni Association



Following their leader, Bob Sharp, the explorers search for footprints of Hawaiians of the 1700s, now preserved in volcanic ash. Beside Sharp is Laura Payton, daughter of John Payton (BS '54); behind him is Dan Dzurisin, who helped as guide.

distributed field lenses and literature.

Southbound from Hilo Monday morning, the group traveled by bus toward their two-night destination at Volcano House on the rim of the Kilauea caldera. Along the way they picked up a second geologist guide—Dan Dzurisin (MS '75, PhD '77), a resident associate with the Hawaiian Volcano Observatory. Dzurisin missed one morning session because his office belongings were being moved; he was in transition to Washington state to become the staff geophysicist with the USGS in Vancouver, the principal office for volcanic observation of the Cascades. Here he will be involved in studies of Mt. St. Helens and other sites.

All those enroute rapidly began to distinguish between aa (*ah-ah*) lava flows (rough and spiny—perhaps named by someone who stepped on a deposit barefoot, Sharp suggested) and pahoehoe lava flows (characterized by smooth, ropy, or billowy surfaces—sometimes crunchy, and fun to walk on and even to pat).

Other terminology quickly crept into the vocabulary: golden pumice, Pele's tears, splatter lava, peridot crystals, lava fountains, and Ohelo berries (OK to eat if you first give one to Pele by tossing it over your shoulder).

Compared with the ancient geology of last year's Grand Canyon trip, the geology being viewed throughout the volcanic region was anywhere from only a few years to a

few hundred years old, Sharp reminded the alumni. "Look at it carefully," he said. "It may not be here a hundred years from now." Mrs. Sharp added, "and maybe not even next November!" (Jean Sharp worked with Alumni Association Director Phyllis Jelinek in coordinating the myriad of details necessary to make the trip a success.)

A visit to Lava Tree State Park and later a hike up a trail toward the summit of Mauna Ulu, a brand new lava shield, highlighted Monday's experiences. Along the way, deep blue water, white surf breaking on black beaches, and dense jungle growth greeted eyes wanting a momentary diversion from lava. Another diversion came via a Japanese box luncheon on the black sands of Kaimu County Beach Park.

Tuesday's itinerary tested hiking mettle and rain gear. During the morning the alumni hiked down through a rain forest, into and across the floor of the Kilauea Iki Crater, visiting an experimental station of the Sandia National Laboratories on their way. Through a bore hole they could peer down into fiery red molten lava, 240 feet below the surface. At the site, Connie Berto summarized an article on the lava lake from *Scientific American*.

During the afternoon the group explored the Kilauea Crater in the rain as a gray-black lava floor, fog on the horizon, steam swirling up from fissures, and a dark gray sky created a surrealistic setting worthy of any science fiction scenario. Frank Berto made his contribution to the mood by singing, "Across the Wide Missouri."

"You're gorgeous, Pele, and we love you," exclaimed Sharp as the group looked down into the Kilauea fire pit,

Halemaumau. "Now let's see some action!" An eruption on the spot might prove deadly, one of the alumni noted, but Sharp retorted, "Yes, but what a way to go!"

That evening after dinner, the adventurers gathered around a hearty fire. Stanley R. Rawn, Jr. (BS '52, MS '53), a Caltech trustee, talked about the Institute and some of its recent achievements, and about being a trustee. "Those of us who are part of the Caltech community and of this Association feel privileged," he said. "Nothing exemplifies this privilege better than this afternoon's five-mile hike in the rain!"

"Yes," Sharp retorted, "but the Alumni Association had nothing to do with the rain!"

Wednesday morning found the group in a gully, lenses poised, studying golden pumice and learning how geologists go about recovering the story of an eruption from the nature of its deposits. Noon took them to the Kaipuka Bird Park for a box lunch and a nature hike, and then across another lava flow to view footprints of ancient Hawaiians, preserved in 1790 pisolitic ash.

Back at the Hilo Hawaiian for cocktails and buffet dinner, the group prepared to say good-bye. But first the Alumni Association president-elect Phil Reynolds presented Sharp with a gift—a blue Gore-Tex jacket, selected even before the afternoon showers that the hikers had come to appreciate.

Reynolds praised Sharp for his "good humor, endurance, and patience with our nonsense," and Sharp responded, "We hope this has become an experience that creates one of those memories that nobody can take away—and that becomes better and better as you share it with other people."

Other alumni voiced a more pragmatic concern: "Just tell us where you're taking us *next time*," one of them beseeched. And there seems little doubt that, wherever that may be, plenty of alumni will be ready to join the trek.

On the cover

Robert Sharp describes the characteristics of a lava sample to Robert Burket, BS '65. Photo by David Groce.

Lowenstam claims an honor 44 years delayed

By Winifred Veronda

Heinz Lowenstam returned to Germany in May for the first time in 44 years to receive an honorary degree from the university that denied him his PhD in 1937 because he was Jewish. Lowenstam has been a member of the Caltech faculty since 1952, as professor of paleoecology.

The University of Munich awarded him an honorary PhD degree during a morning ceremony on May 20, and that afternoon a symposium was held in his honor. Many friends of the distinguished paleoecologist, including former students, came to Munich for the event from throughout Europe and the United States.

Lowenstam, then 24, was within a few days of receiving his PhD in 1937 when a rule was instituted by the Nazi regime precluding the awarding of PhDs to Jews. His dissertation, on the geology of the eastern Nazareth Mountains, had already been accepted, and he was to take his oral examinations within a week.

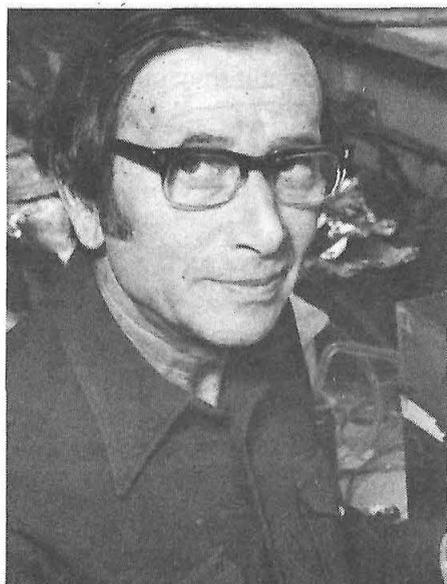
His friends advised him to leave Germany for his safety and he traveled to Chicago, where he had friends, carrying letters from two of his professors stating that he had completed the work for his PhD but had not been awarded it because of "political reasons."

The professors—Edgar Duacqué and Ferdinand Broili—put themselves in serious danger by writing the letters, Lowenstam said, and he added that one reason why he returned to receive the degree was to pay tribute to them.

Lowenstam's parents also left Germany, and the town of Beuthen where his family had lived for 400 years, and they resettled in Brazil. His grandparents stayed behind and became casualties of the Nazi regime.

When he came to the United States, Lowenstam believed that he had lost all hope of earning a PhD. In Germany at that time, persons going

on for their PhDs were not awarded preliminary degrees, either bachelor's or master's. Thus he had no official academic credentials to show for his years of work.



Heinz Lowenstam

But the University of Chicago accepted the letters he carried from his mentors at the University of Munich, gave him a scholarship, and awarded him a PhD after he had conducted research for a year and a half on local paleontology.

He went to work as a state paleontologist at the Illinois State Museum, as geologist for the Illinois State Geological Survey, and as research associate and associate professor at the University of Chicago. In 1952 he came to Caltech as professor of paleoecology.

Here he has conducted research on the ecology of living and fossil marine organisms; the effects of temperature, pressure, water chemistry, and evolution on the skeletal mineralogy of marine invertebrates; and the ecology of ancient seas.

Lowenstam says that for a long time he chose not to return to Germany because he felt the experience would be too painful. But over the years he met young Germans through professional associations and talked with them about their own experiences.

"I recognized that these young people have nothing to do with the Nazi era," he said, "and that many of

them suffered deeply because of it. This made me feel totally different about going back. Because of my young friends there, the experience wasn't painful for me."

These individuals, through their influence, played a major role in the decision to award Lowenstam the honorary degree, he said. "I respect them highly for their humanity, and this kind of humanity is something I felt it was important to support," he added.

Lowenstam spent only a week in Germany, visiting a fossil deposit at Holzmaden, near Stuttgart, and presenting a seminar at the University of Oldenburg. Then he returned to the United States to lead a group of his graduate students on a field trip to Baja California.

Wolfram's windfall: a \$128,000 grant, no strings attached

Stephen Wolfram was surprised when he received a telephone call telling him that he'd been awarded a grant of approximately \$24,000 a year for five years (\$128,000 total), no strings attached and no reports to make—especially because he didn't know he'd even been nominated for the funding.

"It's hard to know what to say under these circumstances," said Wolfram. "It isn't every day that someone calls up and tells you they're going to give you a lot of money." Wolfram took the news calmly; he didn't even go out to celebrate.

Wolfram, a research associate in theoretical physics at the Institute, was one of 21 recipients of awards ranging up to \$300,000 over five years from the John D. and Catherine T. MacArthur Foundation of Chicago. The objective of the awards is to give winners—"exceptionally talented people"—economic freedom to devote themselves fully to their own creative endeavors.

All the winners were suggested by anonymous "nominators" who recommended recipients from within their disciplines; those chosen included individuals from both the sciences and the humanities.

Wolfram did his undergraduate work at Oxford University. He earned his PhD at Caltech in 1980, at age 20. Here he has done research in theoretical elementary particle physics and cosmology, and he has designed computer language for symbolic manipulation. He says he has not decided yet how he will use the money.

Four on Caltech faculty elected to NAS membership

Four Caltech faculty members have been elected to membership in the National Academy of Sciences. They are Jesse L. Beauchamp (BS '64), professor of chemistry; William B. Bridges, professor of electrical engineering and applied physics; Norman H. Brooks (PhD '54), the James Irvine Professor of Environmental and Civil Engineering and director of Caltech's Environmental Quality Laboratory; and Hugh P. Taylor, Jr. (BS '54, PhD '59), professor of geology.

The four scientists were among 60 new members of the Academy. Their election brings to 49 the number of NAS members at Caltech.

Beauchamp, 38, has conducted extensive research involving ion cyclotron resonance (ICR) spectroscopy as a tool for studying the chemistry of ions in gases. His research team uses a variety of spectroscopic methods to gain insight into the properties and reactions of organic and inorganic molecules and ions in gases and at the interfaces between gases and solids. This work is helpful in predicting and controlling chemical reactions. He received his PhD degree from Harvard University.

Bridges, 46, the discoverer of laser oscillation in noble gas ions, spent several years in research on the engineering development of practical high-power visible and ultraviolet ion lasers for military applications. He also has worked on laser isotope separation techniques and on the development of a high-performance space-qualified hydrogen maser clock.

Brooks, 51, has been a technical consultant on the hydraulic design of submarine outfalls for sewage disposal for numerous agencies and is a member of the National Academy of Engineering. He is responsible for developing many of the concepts widely used throughout the world for wastewater and cooling-water dispersal in the ocean. He graduated magna cum laude in mathematics from Harvard College and has received numerous honors in his field.

Taylor, 48, has conducted research for 20 years on the oxygen and hydrogen isotope geochemistry of terrestrial rocks and ore deposits, meteorites and lunar samples. For his research and achievements, he was elected this spring to membership in the American Academy of Arts and Sciences.

Pings to join vice presidential ranks at USC

Cornelius J. Pings (BS '51, MS '52, PhD '55) has been appointed senior vice president for academic affairs at the University of Southern California, effective July 1. A member of the Caltech faculty since 1959, Pings has been professor of chemical engineering and chemical physics, and vice provost and dean of graduate studies.

Before coming to the Institute, he was a faculty member at Stanford for four years. In his new role at USC, he will be responsible for the administration of all academic programs and research, including all graduate and professional schools; the College of Letters, Arts, and Sciences; and student affairs.

A leader in professional activities, Pings was president of the Association of Graduate Schools in 1977-78, and he is a member of the board of directors of both the Council of Graduate Schools and the Council on Governmental Relations. He recently completed a two-year assignment as a member and director of the National Commission on Research. In the local community he has been a member of the Pasadena Redevelopment Agency since 1968 and chairman since 1974.

Pings's research specialties include liquid state physics and chemistry, statistical mechanics, and applied chemical thermodynamics. He was elected this year to the National Academy of Engineering for his achievements in his field and for educational leadership as a teacher and administrator.

Sargent honored

Wallace L. W. Sargent, the Ira S. Bowen Professor of Astronomy at Caltech, has been elected a Fellow of the Royal Society of Great Britain.

Sargent, who is also the executive officer for astronomy at Caltech, was chosen for his "achievements in observational astronomy, particularly with respect to studies of Seyfert galaxies and quasars." He came to Caltech in 1966 as assistant professor of astronomy and has conducted research on the composition of stars and their mass loss, the composition of quasars and active galactic nuclei, the dynamics of clusters of galaxies, and the evolution of galaxies.

Preisler, Lamb conclude Tech coaching careers

Two Caltech coaches with a total of 70 years at the Institute—John Lamb and Ed Preisler—retired in June to a chorus of good wishes from faculty, staff, and former students.

Lamb came to the Institute in 1945 after service in the Merchant Marine. As the Stanford tennis coach in 1941-42, he led the team to Pacific Coast and National Collegiate championships. In San Diego as a high school student, he learned his tennis from one of the great teachers of the time—Eleanor Tennant, who developed Alice Marble and Bobby Riggs, and many other top-ranked players.

Preisler joined the staff in 1947, coming from Colton High School where he taught and coached. As a student at San Diego State he earned varsity letters for three years in baseball, basketball, and football, and was twice voted outstanding all-around athlete. At the Institute he became baseball coach and freshman coach for football and basketball, and from 1947 to 1959 he was the head basketball coach. Over the years he has taught classes in badminton, basketball, gymnastics, softball, touch football, and weight training.

Both men arrived at a time when Caltech teams could give their opponents in the SCIAC some strong competition. But over the years the power balance shifted and their jobs became increasingly difficult, as the other schools recruited aggressively among high school athletes. At Tech, meanwhile, there were to be no athletic scholarships and no breaks for athletes in the admissions office. And, as Lamb expressed it, "Poor, bright tennis players are fairly rare."

But winning championships has never been the main goal of the Institute's athletic program. Rather,

the coaches' objective has been to give all interested players the chance to participate, to develop increasing skill, and to work off the tensions of academia.

Lamb, who came to Tech when there was no athletic field and only three tennis courts near the present housing office, says, "I always told my students that if they improve



Ed Preisler

while they're here, we've been successful, and generally they *have* improved. We've faced some tough problems in building winning teams. For one thing, Caltech students generally don't play tennis over the summer. They're in a lab, doing research, while tennis athletes at other colleges are in tournaments."

Warren Emery, director of athletics, observed that the Caltech tennis program under Lamb has developed "from scratch to the most popular athletic activity on campus," and says he feels that much of this is due to Lamb's reputation as a tennis teacher. During some years, as many as 150 people have been enrolled in tennis classes, and since the physical education requirement for undergraduates has been reduced, there has been room in the program for some faculty and staff.

As Preisler reminisces about his years at the Institute, he observes that baseball generally doesn't come easy to Caltech students, because it requires the capacity to make automatic decisions, not intellectual ones, and to respond by reflex.

He noted that, in a good year, he could hope for three entering students who had played baseball in high school. "If I could have gotten three a year I would have been happy," he says, "because over a four-year period I would have had enough experienced players for a team."

In attempts to attract players, he

resorted to such measures as putting notices in the *California Tech*, contacting every new student who expressed an interest in any sport, and hosting a steak dinner at the beginning of the year for interested players.

"I always told the students that school work came first, and then the team," he said, "and I always excused them for academic work."

"Ed has a good feeling for the role



John Lamb

of sports in the total life of a student here," says Warren Emery. "He's been deeply concerned about the students, and he's gone out of his way to do things for them."

Both Preisler and Lamb noted that Caltech students as a breed are not easy to coach because they're bright, independent (read that hardheaded), and used to making their own decisions rather than letting someone else lead them.

After retirement, Preisler plans to do some traveling, including a trip to his parents' homeland, Czechoslovakia, and Lamb, who has been working part time as an investment counselor, will continue in this endeavor. "I thought it was time for the players here to get a new young tennis coach," he said.

But whatever new coaches may come, these two will be long remembered by the hundreds of students who found an outlet—and an opportunity—via their tutelage in the Caltech athletic program.

A Party for Kellogg

The W. K. Kellogg Radiation Laboratory at Caltech celebrates its 50th birthday this year—and William A. Fowler (the Institute Professor of Physics) celebrates his 70th. Moreover, Kellogg has gained a new accelerator laboratory, and all of these events offer more than adequate reason for a reunion.

The event will take place November 5-6 with a two-day meeting of invited papers in nuclear physics and its application to other sciences. Birthday parties for Fowler and an old-fashioned Kellogg party (with former members of the Kellogg Band performing) will dominate the evening schedules.

Obituaries

1930

HENRY O. IMUS on March 20, of cancer. He worked as a camera technician for 35 years for Technicolor and as a consultant for Movielab for 10 years. He shared an Academy Award for the invention of wet printing motion picture film. He is survived by his wife, Marian, who lives in Glendale, California; a son, two daughters, and seven grandchildren.

1931

JAMES M. GERSCHLER, Ex, on March 13, from complications of the flu. Gerschler "left Caltech while in engineering aeronautical studies. Gerry Vultee, then Lockheed's chief engineer, persuaded him to go to the early Lockheed Company. During the plant closedown in 1930, he worked with Dick von Hake using stock parts to put together a special Orion for record-breaking Jimmy Doolittle—with a metal fuselage and wooden wings. Jimmy (Gerschler) was personally rehired by the new company president, Robert Gross, in 1932. He followed a career of engineering assignments—project engineer on the XP-38, assistant chief engineer under Hall Hibbard, and 20 years division engineer for structural research labs, including the wind tunnel at B-1. He worked with Wiley Post's Vega 5C for the first stratospheric flight. At the time of his retirement in 1964, he said about his Lockheed career, "I liked the romance of the business." Gerschler's wife of 47 years, Nina Wyatt Gerschler, sent *Caltech News* the above information. He is also survived by two sons.

1932

ALVIN J. TICKNER on February 18. He worked at the Naval Undersea Center in Pasadena (known for most of that time as the Naval Ordnance Test Station) for more than 20 years, retiring in 1972. He was head of the systems technology department and later associate head of the computer sciences and engineering department. He directed development of simulation capabilities for weapons such as the Mark 46 torpedo. Earlier federal service included a tour with the Naval Ordnance Laboratory during World War II, where his work on magnetic locators for submarines earned him the Meritorious Civilian Service Award. He had begun his career in the sound departments of MGM studios and at Disney. Tickner's death followed shortly that of his wife, Lind.

1935

JOHN C. (PETE) STICK, JR., in August 1980, of cancer. He was living in Tierra Verde, Florida, with his wife, Ruth, after retiring in 1977 from The Perkin-Elmer Corporation in Weston, Connecticut. In his 16 years with that firm he served in several managerial positions, including director of research, international operations, and technical director of the instrument division. Before joining Perkin-Elmer, Stick spent 24 years engaged in scientific development for the oil industry.

1956

WILLIAM M. CHAPPLE, MS '57, PhD '64, in February of cancer. He was professor of geological sciences at Brown University.

Personals

1930

EDWARD M. THORNDIKE, PhD, reports, "Retired from the physics department of Queens College of CUNY a good many years ago but still doing a little work in optical instrumentation for use in the deep sea as a visiting senior research associate at Lamont-Doherty Observatory at Columbia U."

1936

PETER SERRELL, MS '39, and wife, Kathleen, recognizing their dream home, have bought a condominium in Portland, Oregon, where he runs a one-man consulting business, working with TOM LANG, BS '48, BS '50, and his Semisubmerged Ship Corporation on ship structure and propulsion systems. After 15 years in Solana Beach, California, the Serrells say, "Portland served us a mild winter to break us in gradually, and with two of our four daughters nearby, and with our condominium association forming a sort of intentional community, we are quite content. We are within walking distance of almost everything we want, and are enjoying the urban experience."

1938

PAUL C. HENSHAW, MS, PhD '40, chairman of the board of directors of the Homestake Mining Company, has been awarded the Charles F. Rand Memorial Gold Medal. He was cited "for his unique combination of skills in innovative mining exploration, development, technology, and financial management, while serving fully his professional and civic responsibilities."

1940

KIYO TOMIYASU, consulting engineer at General Electric Valley Forge Space Center, Philadelphia, has been named recipient of the 1980 Microwave Career Award given by the IEEE Microwave Theory and Techniques Society.

1947

STANLEY H. MENDES received the Engineer of the Year award from the ten Ventura/Santa Barbara engineering societies during National Engineers Week. As a consulting structural engineer in Santa Barbara, Mendes specializes in investigations and strengthening of existing buildings. He notes, "By an incredible coincidence, featured speaker of the evening was DONALD C. TILLMAN, BS '45, MS '47, city engineer of Los Angeles, a Caltech classmate and football and track teammate. This reunion stirred sweet memories of the 1944 undefeated and unscored upon football team and the 1945 track team that handed University of Southern California their only dual meet loss during the twenty-year period 1935-1955." Tillman captained both the Caltech teams.

1950

S. R. R. VALLURI, MS, PhD '54, formerly director of the National Aeronautical Laboratory in Bangalore, India, reports that as of April 1 he was to become scientific adviser to the Defense Minister in Delhi. In a letter to Professor Hans Liepmann he writes, "I am taking up this assignment with the hope that I will be able to do something more positive in the field of aeronautics in the country . . . I have been profoundly influenced by the years I spent at Caltech in whatever I have done during the last one and

a half decades in Bangalore . . . and so Caltech is contributing one more person with a scientific background to work in higher echelons of our country."

1953

ALBERTO MISHAAN, of Guatemala City, is production manager for a family-owned enterprise, Peter Pan S.A., the largest bubble-gum manufacturer in Central America. After he graduated from Caltech, Mishaan and a brother-in-law formed Tip Top, a company marketing potato chips and other snacks (theirs were the first potato chips to be commercially made and marketed in Guatemala) and later they branched into the manufacture of bubble gum. The product is sold in the United States, Japan, Saudi Arabia, and other countries, but its major markets are in Central America. "What I gained most from my Caltech education," says Mishaan, "was a way of thinking that focuses on problem solving, and an attitude that never lets you give up. A Caltech education is of great benefit to anyone in any career." He and Mrs. Mishaan have three daughters, ages 20, 18, and 14.

1955

ALLEN E. FUHS, MS, PhD '58, Distinguished Professor at the U.S. Naval Postgraduate School in Monterey, California, has received the 1981 Ralph R. Teeter Award for excellence in the teaching of engineering.

DAVID M. WILSON, MS, reports, "Assigned as AID (Agency for International Development) mission director to the Republic of Mali after civil war forced our evacuation from Chad." AID is an arm of the U.S. State Department.

1959

PHILIP HARRIMAN is on leave from his position as program director in genetic biology with the National Science Foundation, on a Congressional Fellowship. He will be working through August with Congressman David McCurdy (Oklahoma) on his Washington staff.

1963

JOHN M. MAY writes from Sierra Madre, California, that he has recently opened his own office for the practice of patent, trademark, and copyright law and is interested in corresponding with other alumni who have pursued legal careers.

1965

FRANCIS NAKAMOTO has been selected by Rockwell International to receive an Engineer of the Year award. The company's top recognition for achievement goes to Nakamoto, member of the technical staff for Rockwell's Collins Communications Systems Division in Anaheim, California, for contributions to the conceptual design of advanced satellite communications systems.

WILLIAM G. SPRING writes, "After 15 years in the aerospace industry, I left my job as an engineering specialist in flight simulation for Northrop Aircraft. My wife and I had had enough of the rat race. We packed up our new baby daughter and moved to the mountains of Colorado. Our little girl and my new computer consulting business, Paradise Research, are alive and well in our newfound home."

1966

JEFFREY A. GORMAN, MS, PhD '68, reports from McLean, Virginia, "Two friends and I started a new firm July 80—Dominion Engineering, Inc.—consulting engineering for electric power plants and offshore oil

structures (they break it, we fix it). Prospects look good. We've even started to pay ourselves!"

1967

BOB SUZUKI, PhD, has accepted the position of dean of graduate studies and research at Cal State L.A. He writes, "Our move from Massachusetts was a highly traumatic experience, mostly because of the incredibly high cost of housing and astronomical interest rates. However, we are slowly recovering from the move and beginning to enjoy the benefits, once again, of living in southern California."

1968

ULLI HARTMANN writes, "Was married in May 1980 to Darlene DeWarr. Moved to Huntington Beach in August when my employer, Ball Aerospace Systems Division/Western Laboratories, relocated its facilities to Huntington Beach. I am currently manager of advanced programs at Western Labs."

1970

PETER C. BROWN sends an update: "Last year I started working for NCA Corporation as a computer programmer. This is a small company in the Santa Clara Valley (California) which sells software used in the analysis of integrated circuit designs. My duties include installation of our software on customers' computers and documentation of our products."

JEAN-PIERRE DOLAIT, MS, Eng '72, was appointed in January as manager of European Educational Product Business and Speech Synthesis Laboratory for Texas Instruments in Nice, France.

1973

CLIFF I. DAVIDSON, MS, PhD '77, and his wife, Megan, write from Pittsburgh, where Cliff is assistant professor at Carnegie-Mellon University, "Our first baby, Ian Emet, was born on December 28, 1980. This year we'll be researching long-range atmospheric transport of air pollution in Alaska, Greenland, and several U.S. national parks."

ROBERT PLAGG reports that he left the Air Force on May 18, 1980—"(Mt. St. Helen's Day) after six and a half years flying Phantoms. Presently attending University of Washington towards a PhD."

1975

DONALD A. SIMONS, PhD, writes, "I returned to southern California in the fall of 1979 to take a position as research specialist with R&D Associates, a defense think tank in Marina del Rey. My latest spare-time project has been the building of a harpsichord."

1977

ELLIOT FISCHER, PhD, and his wife, Kathy, announce the birth of their son, Aaron, Samuel, on February 10, 1981. The Fischers live in Virginia where Elliot is a member of the research staff at the Institute for Defense Analyses.

CALTECH NEWS



For three days, senior Terry Grant had been hauling cement and iron bars into his room in Fleming House, and keeping up a steady drone of power equipment late into the night—suggesting the creation of a superb brute force stack. But when undergraduates mounted an attack on his room on Ditch Day, power equipment ready, they only found a concrete cow as the product of his efforts. A native of Iowa, Grant had earlier shared with Tech students a Midwestern late-night collegiate custom of tipping live cows over, and had earned the nickname, "Tipper," as a result. The students quickly tipped over Grant's concrete cow, but were so taken aback by the general lack of defenses that they left the rest of his room in order.



Robert Sharp leads an alumni expedition to Hawaii's volcano country.

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