

The Summer at Caltech

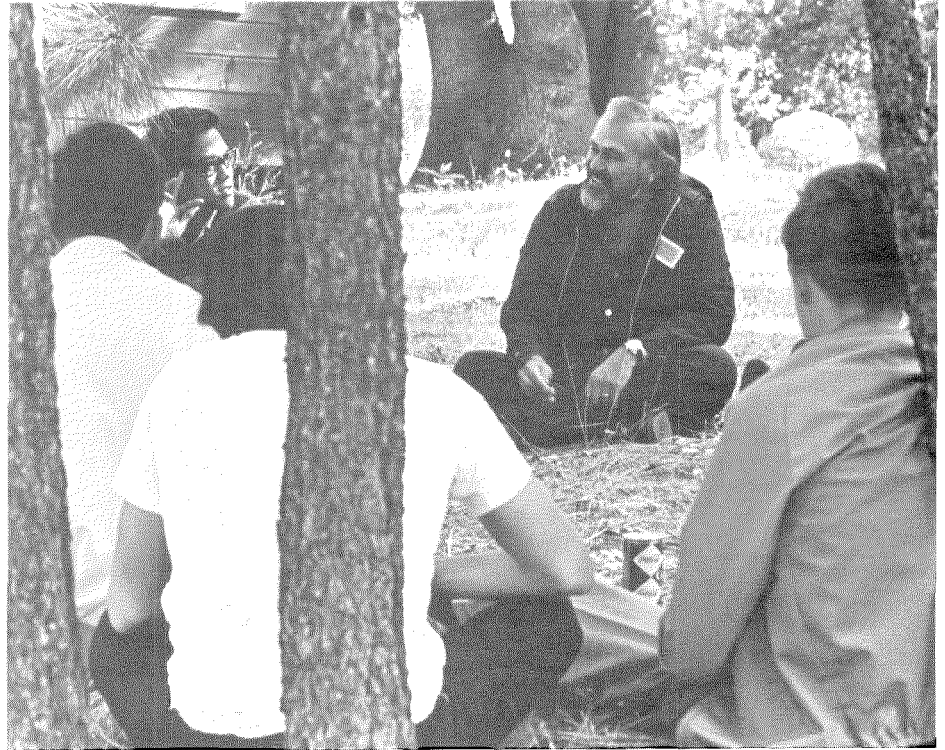
At Last -- Women

Some traditions die hard, but as Caltech's oldest enters its last year, there is little distress on campus. Beginning next spring the faculty committee on freshman admissions will be interviewing bright young ladies along with the men, and in the fall about 25 women—freshmen and transfers—are expected to enter the Institute. They will be followed in 1971 by another 25, and by 1973 there should be about 70 women undergraduates.

Caltech's trustees approved the admission of women "in principle" a year ago, but wanted to see a definitive plan before giving final approval. On October 6, 1969, they saw the plan and gave their unanimous consent. Surprisingly, women undergraduates can be integrated into the all-male community with little difficulty—at least on paper.

They will not live in a separate dormitory as was contemplated originally, but are taking over adjoining sections of Dabney and Blacker Houses. Each of the women will be a member of one of the two houses. Their quarters are going to be refurbished next summer as the first step in the eventual rehabilitation of all four old student houses.

The coeds will be counseled by the usual advisers and deans, and a woman adviser will probably be hired part-time for personal and career counseling. In the athletic department the women will



New master of student houses David Smith with some of his charges at New Student Camp.

displace the visiting teams in their locker rooms; Caltech's opponents will have to share the main locker room.

Meanwhile, the admissions office is busy advising high schools all over the world that the last barrier is down; Caltech is out to get its best freshman class ever in 1970.

Growing Up with Smith

The Olive Walk office of the master of student houses has a new occupant this fall—David R. Smith, an associate professor of English who joined the Caltech faculty in 1958.

The master is responsible for "the

quality of the non-academic life" in the seven undergraduate residence halls, and Smith wants to work with students on a long-range program to make the houses more civilized places in which to live. "Not," he emphasizes, "that I expect to outlaw fun or to institute fingernail inspections, but the raunchiness that turns up now and then reminds me painfully of situations in *The Lord of the Flies*."

Smith hopes improvements can take place by "self-directed change, possibly through the formation of a kind of free university within the houses where students would have the chance to try out some of the changes they seek in the Institute."

The existence of a Master's Fund makes it possible for Smith to underwrite some special projects. For instance, on November 5 Blacker House will begin a series of seminars in "role-playing" led by actress Nina Foch and by Ian Hunter, the new Institute psychologist.

For those houses with particular interests in music, Smith plans to invite some of southern California's small but good groups to give house concerts.

He would also like to provide art seminars for the houses—aimed not only at aesthetic appreciation but also at a knowledge of technique.

A really long-term plan for the houses is to mix men and women undergraduates and graduates into all of them. Perhaps some day there may even be research fellows and an apartment or two with married students in residence. This kind of change presupposes a decision to make all 11 student houses—seven undergraduate and four graduate—into amalgams of age and gender groups. Though each might still keep a particular balance and individuality, they all would become less fraternally oriented and more creative centers of residence.

Smith's appointment climaxed several months of shifting names, titles, and personnel in official Caltech faculty-student relations. Several months ago Lyman Bonner, associate in chemistry, was appointed to the newly created position of director of student relations; Robert Huttenback, professor of history and for 11 years master of student houses, became dean of students; and David Wood, professor of materials science, was made associate dean of students.

New Duties

Cornelius J. Pings, professor of chemical engineering, is the new executive officer for chemical engineering. He will assist division chairman George

Hammond with faculty appointments, student counseling, and department budgets. Pings is the Institute's seventh executive officer. The others: Robert Christy, physics; Norman Davidson, chemistry; David Elliot, humanities and social sciences; Jesse Greenstein, astronomy; Marshall Hall, mathematics; and Ernest Sechler, aeronautical engineering.

"My job is to help Dr. Brown make more efficient use of his time." Since Brown is already spending more hours at his desk than just about anyone, that responsibility should keep his new executive assistant, Hardy Martel, hopping. Martel, associate professor of electrical engineering and also secretary of the faculty for the past eight years, will spend about three-fourths of his time at his new job and will continue to teach an undergraduate course in electronics.

The extent of his new duties is still nebulous, and Martel is the first to admit that a clear description of his job is impossible. He does anticipate much "fact-finding," and he'll handle the follow-up on many of Brown's meetings.

Brown wants an open door policy with students, faculty, and administrators, and, having invited all that activity, he wants the extra eyes, ears, and mind of an executive assistant.

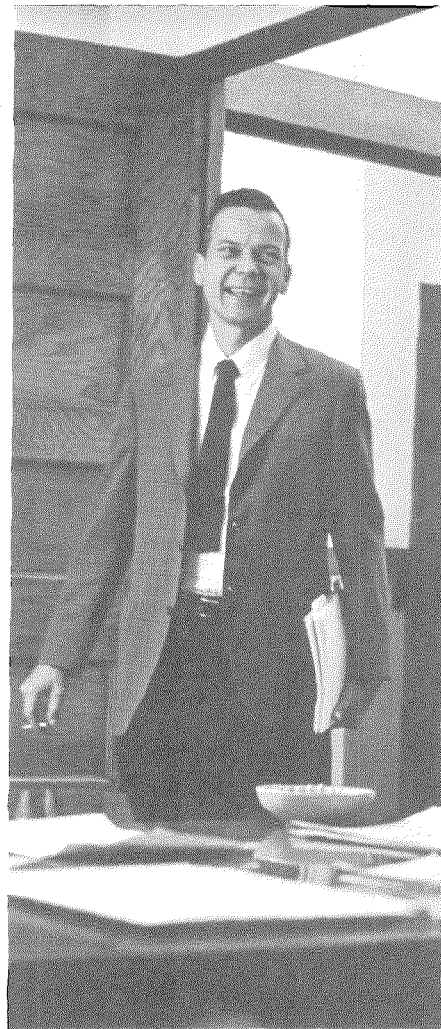
Martel, son of the late Romeo Martel, a Caltech professor of structural engineering for 42 years, received his BS from Caltech in 1949 and his PhD in 1956. He has been on the faculty since 1953.

Alexander Kosloff

Alexander Kosloff, 67, part-time lecturer in Russian at Caltech since 1955, died in Mexico City early in September. Kosloff was also an associate professor and head of the Slavic studies department at the University of Southern California.

Trustee

Stanton G. Hale, president and chief executive officer of Pacific Mutual Life Insurance Company, was elected to Caltech's board of trustees in June. Hale entered the insurance business as a salesman for Mutual of New York where he later became vice president in charge of sales and finally senior vice president. In 1963 he joined Pacific Mutual in Los Angeles and was named chief executive in 1967.



Hardy Martel

Honors and Awards

Harry B. Gray, Caltech professor of chemistry, has won the \$2,000 Award in Pure Chemistry for 1970 from the American Chemical Society. The award, given annually to chemists no older than 35, for fundamental research, recognizes Gray's contributions to the understanding of complex and unusual compounds containing transition elements such as rhodium, palladium, and platinum.

He is also known for his studies of iron- and oxygen-containing proteins and polymers, and for his description of the electronic and structural configuration of the transition elements and their reactions. Gray, who in 1961 was the youngest full professor ever to teach at Columbia University, is the chairman of the freshman committee on the Advisory Council of College Chemistry of the ACS, and is the associate editor of *Inorganica Chimica Acta*.

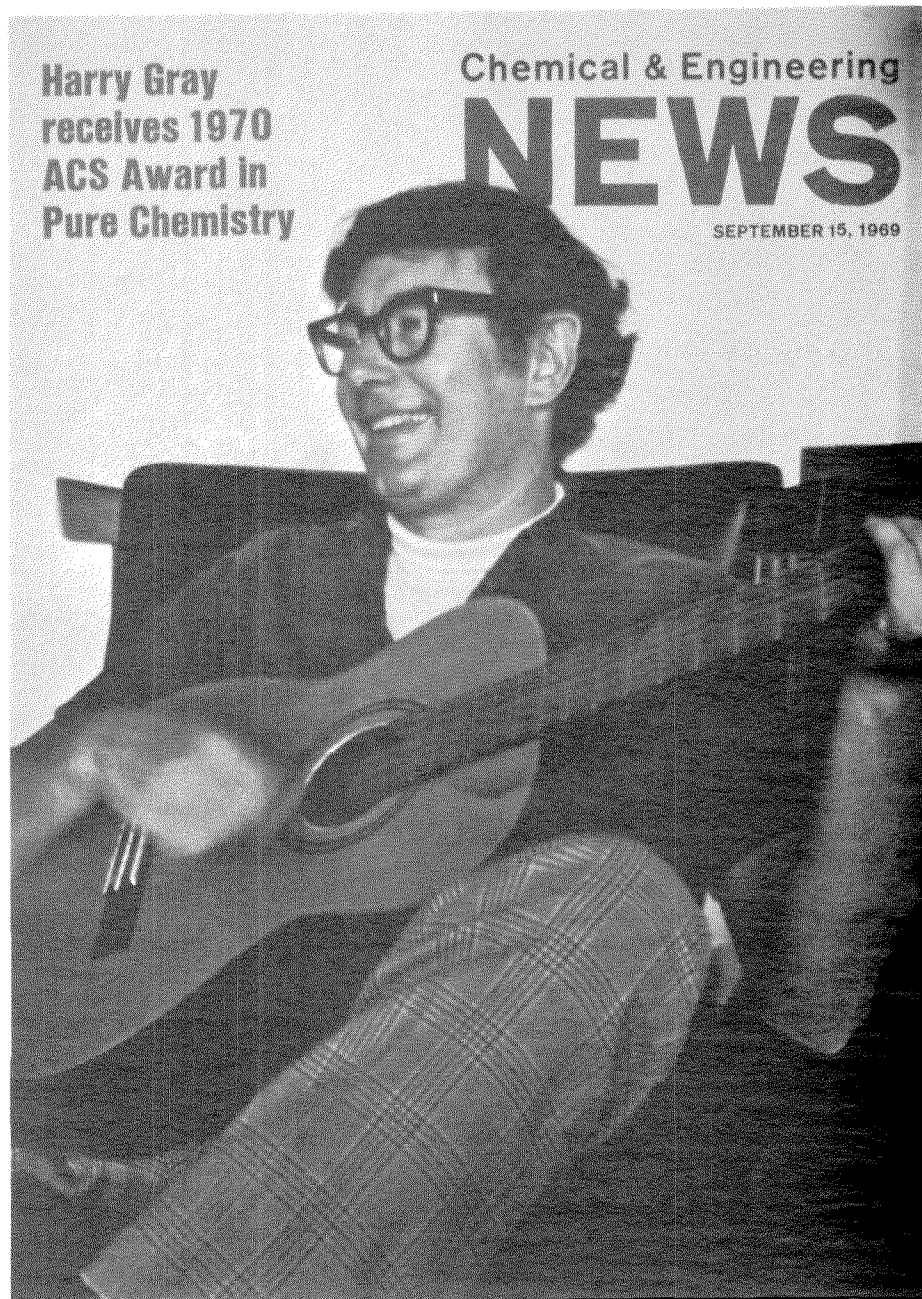
Previous Caltech winners of the award are Nobelist Linus Pauling and John Roberts, both former chairmen of the division of chemistry and chemical engineering.

The American Chemical Society's annual \$2,000 Award in Colloid Chemistry will be presented next May to Jerome Vinograd, Caltech professor of chemistry and biology. Vinograd's studies in submicroscopic particles have verified the existence of "circular" molecules, combined in chain-link structures. In isolating these molecules he also contributed significantly to the study of nucleic acids, viruses, and proteins.

The \$25,000 Louisa Gross Horwitz Award was presented on October 8 to two microbiologists, Caltech professor of biology Max Delbrück and Salvador E. Luria of MIT. Given annually since 1966 by Columbia University, the prize was split between the two men in recognition of outstanding research in biology.

Both are credited with work leading to the birth of the Phage Group of scientists whose prime interest is the study of bacteria and viruses. Delbrück was the first to discover genetic recombination in a phage, a cell that destroys other cells; Luria discovered mutations in viruses.

Delbrück donated his \$12,500 share of the prize to Amnesty-International, an organization devoted to helping obtain freedom for political and religious prisoners throughout the world. He said that "If society expresses its debt to scientists by happenings like the present [award], it seems to me that the scientist might as well express his debt



Harry Gray

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to society, which permits him the pursuit of truth in a life exceptionally free of the constraints put upon most of its members. In my case I feel I owe my life as a scientist to the fact that I did not remain in Germany during the Nazi days to participate in one form or another of the German resistance. Many did and paid with their lives. It is in memory of these prisoners of conscience, and as a debt to all prisoners of conscience that I wish to support Amnesty-International. The pursuit of truth is a many-sided thing. Science is one of them."

Provost Robert F. Bacher has been elected president of the International Union of Pure and Applied Physics.

Ian Campbell, research associate in geology, is recipient of the 1969 American Federation of Mineralogical Societies Foundation Award.

Hans W. Liepmann, professor of aeronautics, will receive the 1969 Worcester Reed Warner Medal of the American Society of Mechanical Engineers for his contributions in gas dynamics and turbulence.

Wallace L. W. Sargent, associate professor of astronomy and staff member of the Mt. Wilson and Palomar Observatories, will receive the Helen B. Warner Prize of the American Astronomical Society for significant contributions to astronomy before the age of 35.

Greenhouse Art

Art joined technology at Caltech this fall as artist-in-residence Lukas van Vuuren opened an art workshop in the vacant Earhart Plant Research Laboratory. Van Vuuren, who comes to Caltech from Scripps College, has begun a three-year stay as head of a broad art program for interested students and staff.

Van Vuuren is enlisting other southern California artists to help him teach both traditional and experimental forms of the visual arts. Classes are being given in the methods and materials of drawing, painting, and sculpture.

In addition, he is encouraging students and faculty to generate new art forms through the application of technology. As examples, he suggests such works as laser-holograms for organic sculpture, photo-cell-activated light shows, computer-generated films, or flying sculptures. Van Vuuren, a member of



Lukas van Vuuren meets with an art class in the converted Earhart Plant Laboratory.

Experiments in Art-Technology, an organization of artists and engineers, is currently working on "environments" in which the art forms can be heard and touched as well as seen.

The opening of the art workshop is the first objective of a larger art program supervised by Van Vuuren and the faculty committee on art, headed by J. Kent Clark, professor of English. In addition to the studio classes, seminars will be given in art history. Van Vuuren also hopes to establish a lending library of prints and open a campus art gallery where a Caltech art collection would be housed. He has already commissioned artist David Elder to begin a sculpture for the Millikan Library pond, and he intends to hold three exhibits of contemporary art work during the year.

The existence of technical facilities on

campus and the adaptability of the Earhart greenhouses for art classes help defray the initial costs of the program, all of which are being met by funds from sources outside the Institute.

Plugging In

Caltech will soon be sharing its computers with faculty and students at ten other colleges in southern California. Using leased telephone lines and typewriter consoles like the 25 already in use at Caltech, the other schools will have direct access to the computing center almost 24 hours a day. The colleges are University of Redlands, the six Associated Colleges of Claremont, LaVerne College, California Lutheran, and Occidental.

Users will have a choice of the mathematical languages, like Citran and Fortran, and also Caltech's English-speaking Rapidly Extensible Language (REL). REL enables the computer to understand most English grammar—and even enables most English grammarians to understand the computer.

Help Wanted

Faculty committees have begun the search for successors to three Institute administrators. Robert Bacher, 64, provost since 1962; Carl Anderson, 64, chairman of the division of physics, mathematics and astronomy since 1962; and Hallett Smith, 62, chairman of the division of humanities and social sciences since 1949, are all looking toward retirement.

This year will probably be Bacher's last as provost. Anderson, due to retire from the faculty in 1971, will give up his administrative duties as soon as his successor can take over. Smith, whose formal retirement from the faculty is still three years away, will also step down as division chairman when the new person is available.

Moving Day

The scientific method has rarely been better demonstrated than in the following research report from Fred Anson, professor of analytical chemistry. The story also seems to have a distinct moral—but perhaps it would be best not to look for this.

One day last summer my students and I decided to move our "small" half-ton computer from a room on the first floor of the Gates chemistry laboratory to one directly below it in the basement. We agreed it would be foolhardy to submit the ancient Gates elevator to a burden this much above its posted weight limit. So our plan was to push the computer to the elevator on the first floor of the adjoining Crellin laboratory, take it down two flights to the sub-basement, and then push it across the ramp connecting Crellin's sub-basement with the basement of Gates.

We took the door off our lab, pushed the computer out into the hall, and carefully guided it into the Crellin elevator. The computer, the students, and I then descended to the sub-basement of Crellin on the elevator. Unfortunately, the elevator door in the sub-basement of Crellin is four or five inches lower than the one on the first floor of Crellin.

Our computer wouldn't come out.

Disheartened, but not undone, we decided to take the computer up to the second floor of Crellin—there being no connection between Crellin and Church on the first floor—and push it across the bridge to the large elevator in Church laboratory. We would then descend to the sub-basement of Church, push the computer into the sub-basement of Crellin and across Crellin sub-basement to the ramp connecting with the Gates sub-basement, where the room we were headed for remained.

We arrived safely at the second floor of Crellin, found that this elevator door was just large enough to get the computer off, and began our trek to the Church elevator. When we were half-way there, I had a phone call and had to retreat to my office. I told my students I would meet them in the sub-basement of Church.

As I walked back to Church a few minutes later, a fire alarm was sounding, and as I descended deeper into the building, frantic activity became more and more evident.

In the sub-basement, people were running around with mops, sand, and foam. At the end of the basement near the elevator, the computer stood underneath a 1½-inch water pipe out of which was pouring about 50,000 gallons an hour of thick, black sludge. This was going directly into the central processing unit of the computer.

My three students, covered with sludge from head to toe, had obviously encountered some difficulty. Professor Vinograd, whose ultracentrifuge apparatus was beginning to be threatened by the rising water, was unhappy. And six Caltech plumbers who had been called to try and stem the tide were also unhappy—but not unamused—as they went about their work.

As it turned out, my students, earnestly pushing the computer down the Church hall, failed to notice that the ceiling suddenly dropped a few inches, permitting the computer to clip off an automatic fire extinguisher valve at the pipe—thus unloading ten years' collected sludge from the building's fire extinguisher system onto our computer.

The plumbers eventually found the hidden valve by which it is possible to turn off the automatic fire extinguishing system in Church. After doing what we could to clean up the mess, we continued our journey to the Gates basement, only to discover to our now considerable dismay that the doorway between Church and Crellin sub-

basements was too low for the computer to pass.

Thoroughly stymied, we pushed the computer back into the elevator of the Church sub-basement (there now being no fire extinguisher valve in the way), went back to the second floor of Church, pushed it back to the elevator on the second floor of Crellin, took it back to the first floor of Crellin, pushed it back into the room we had left only five hours earlier, and began a two-day period of cleaning the sludge from the computer.

The muck inside the main power supply was aspirated by hand with great care. And to remove the last traces of sludge, individual circuit elements were taken out and washed by hand with distilled water—the theory being that this would leave the least residue. Hot air was then blown over the computer, and we finally got it dried. But, since its auxiliary equipment had already been moved down to the basement of Gates, we couldn't try the computer out until we managed somehow to get them together down there.

At this point we decided to call for more expert help, which arrived in the form of the Buildings and Grounds moving crew. These six jolly men arrived at 1:00 one afternoon. We told them we wanted to move the computer down to the room in Gates basement but had tried it once before without much luck. We thought they would bring in a forklift truck, carry the computer out on the porch of Crellin, then around on San Pasqual St., and back into Gates through the lower doors.

But the B&G men were not nearly as concerned as we were about the weight limits posted on the Gates elevator—or about the fact that the computer wouldn't fit. They simply removed a couple of safety devices temporarily, shot the computer onto the elevator, rode it down—overweight and all—to the basement of Gates, pushed it out, and within 20 minutes had it installed in the room we had spent 5 hours trying to reach two days before. We were impressed.

After hooking things up, we plugged in the computer, stood back, and turned it on. One relay whose coils had been thoroughly soaked blew up, and a few water stains remained on the power supply. We replaced the relay, and since then, the computer has never worked better. We are seriously considering washing the contacts with distilled water on a regular basis, but we have no future plans for moving the computer to any other room.