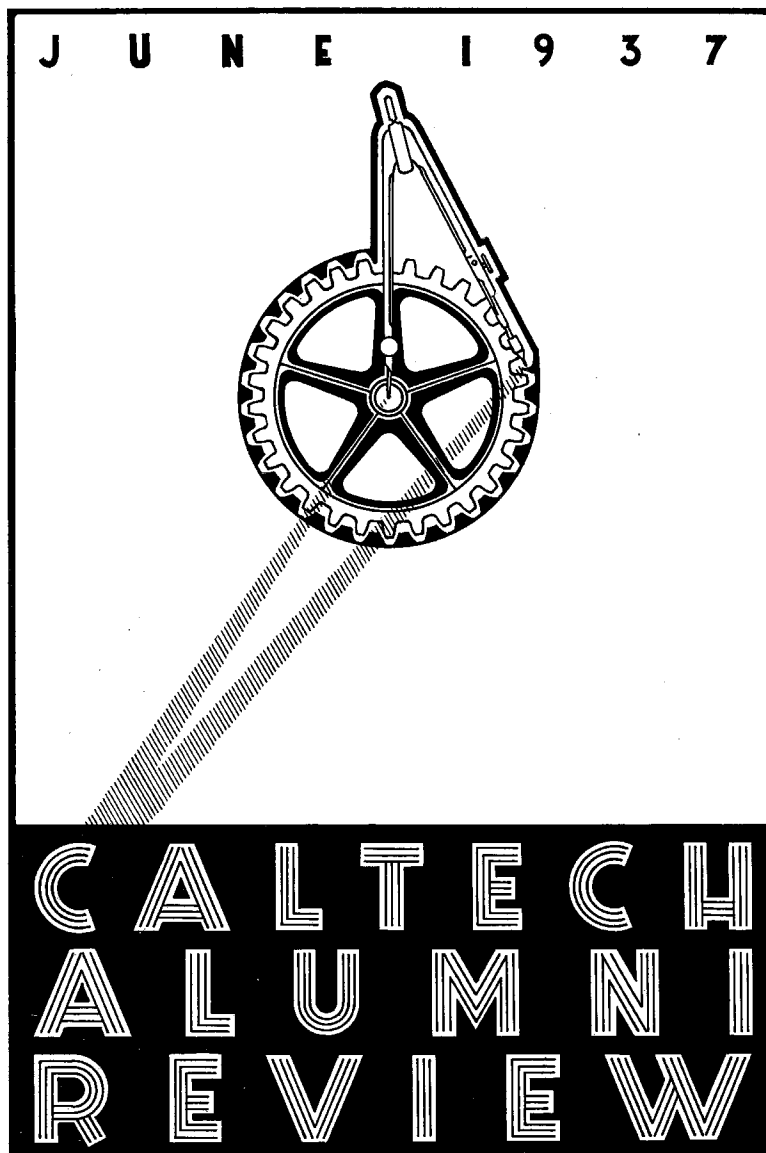
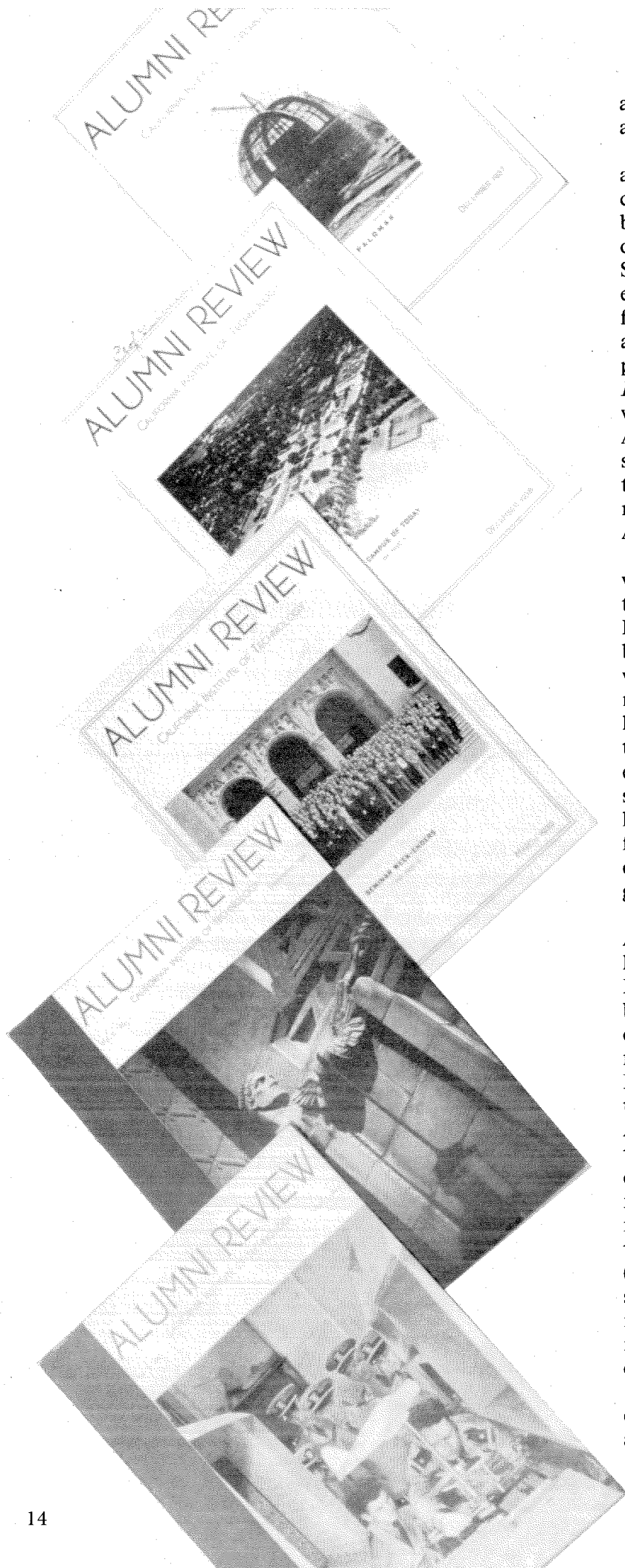


# Golden Anniversary for E&S

THE LIST OF ALUMNI HONORS that year was impressive: Carl Anderson won the Nobel Prize, Frank Capra won an Oscar (for *Mr. Deeds Goes to Town*), and Linus Pauling was appointed chairman of the Division of Chemistry. It was June 1937, and these were among the achievements reported in the first issue of the *Caltech Alumni Review*, which a few years later became *Engineering and Science*. In the 50 years since, the magazine has grown from a circulation of a few hundred to 16,000, which includes not only the members of the Alumni Association but also faculty and students, The Associates and other friends of Caltech, corporations, media, libraries, high schools, and even some subscribers.

Al Atwood, BS '32, MS '33, first editor of the *Caltech Alumni Review*, put out that original issue on a \$150 grant from the Alumni Association ("actually, I think I went \$45 over budget," he says). Atwood, whose field was electrical engineering, inherited, sometimes reluctantly, a publishing reputation. His father's status as a well-known writer for the *Saturday Evening Post* and *National Geographic* was the "bane of my life all through school. English teachers would expect me to be a writer too, and I wasn't." But he didn't escape his presumed destiny easily. He was editor of the *Big T*, Caltech's yearbook, and when the Alumni Association decided to start a magazine to bring news of Caltech to





alumni all over the country, the editorial task, as usual, fell to Atwood.

Atwood found other creative talents among the alumni. The first cover was designed by Harold Graham, ex '24, who had become a noted local artist and industrial designer, associated with painter Millard Sheets in Claremont. Among the assistant editors was George S. Rice III, '31, whose family owned a printing firm. George Rice and Sons (which today is still a well-known press in Los Angeles) printed the first *Alumni Review*. Two hundred copies of the first issue were run off and handed out at the Alumni Association's annual meeting. It was such a success that the board approved its continuation; so it was enlarged to a full-size quarterly magazine and mailed out to members of the Association.

At the time Atwood was back on campus working as the resident engineer at the Caltech Pump Lab for the Metropolitan Water District. Because the Pump Lab tests could be performed only when the wind tunnel wasn't running (they shared the same big motors), most of Atwood's work was done late at night, and he often had time during the days to work on the magazine. He enjoyed the task "because I was able to persuade a lot of people to write for it. I was lucky I knew so many people. It was a lot of fun but still an awful lot of work trying to contact all those people and keep my job going too."

Among the regular contributors was Atwood's friend and classmate, Bill Pickering, later to become director of the Jet Propulsion Laboratory. The first issue carried an article by Pickering on research on atoms and cosmic rays. Other articles in the magazine's first year chronicled the construction on Palomar Mountain and the building of the telescope; construction on the Colorado River Aqueduct, "the largest water supply system in the history of the world" (as the man in charge of measuring the aqueduct's water flow, Atwood threw the switch that let the first water through); and progress on the new technology of "Cinematography in Colors." ("Without fear of contradiction, it may be said that the production of a three-color motion picture print with sound track draws more liberally upon the physical sciences than does any other form of art.")

In September 1938 Atwood passed the editorship on to Ted Combs, '27. Combs had also been editor of the Big T for his class and,

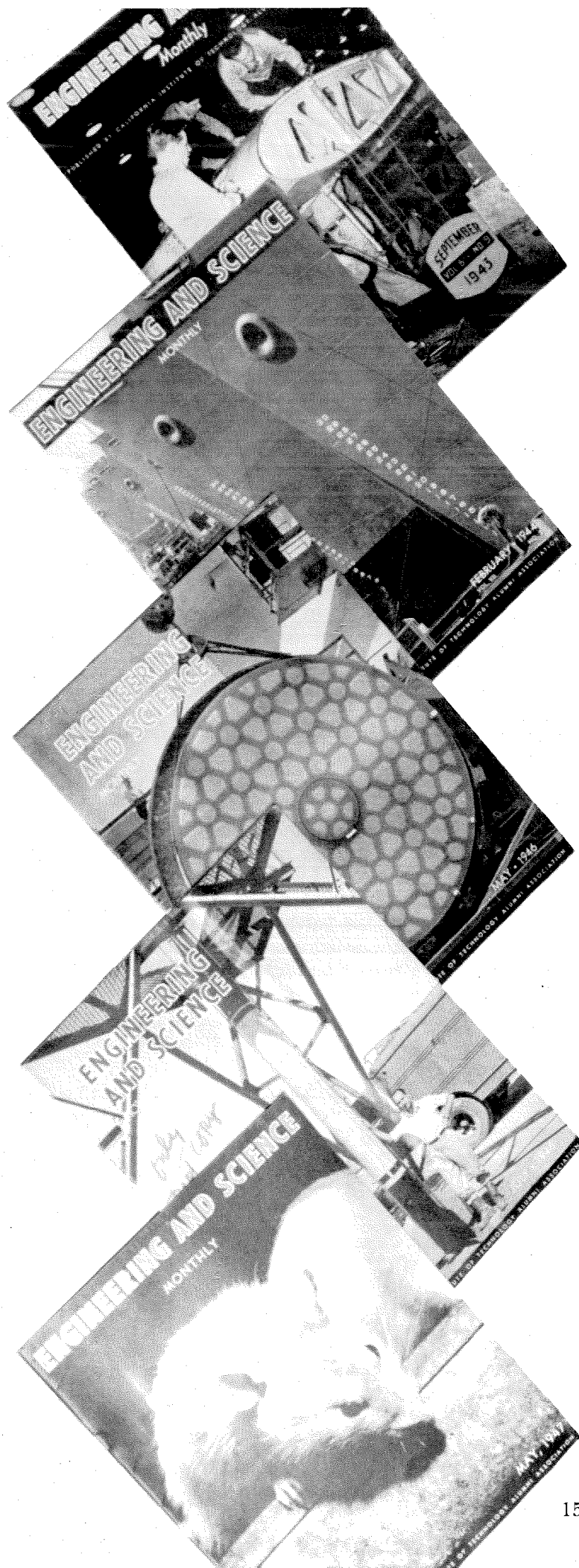
because engineers weren't being hired at any great rate in those days, went into the publishing business briefly. After the Long Beach earthquake in 1933, he became an engineer with the lumber industry, doing research on building code problems and helping rebuild schools but was willing to take over the task of getting out the *Alumni Review* in his spare time.

Although the magazine at that time was strictly for alumni, and alumni contributed most of the articles, from the beginning it stressed research. "We also had very good response from the faculty," says Combs, "who were quite willing to share their research and their findings. Caltech was small enough then that you could practically walk through the corridors of Throop Hall and see everybody you knew, buttonhole them, and make your arrangements."

Combs reported on the first Seminar Day in 1938 (which, he wrote, "marked a new high in alumni-campus relationships"). Among his favorite articles was one by Irving Krick, MS '33, PhD '34, in the December 1938 issue on "A Physical Basis for Long-Range Weather Forecasts." Krick later gained fame for predicting meteorologically favorable conditions for the Normandy landing on D-Day, but he had a local reputation long before then. "Movie companies wouldn't go out on location without his say-so," according to Combs.

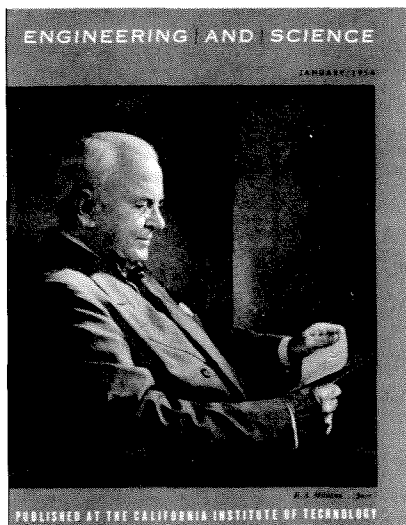
In 1939 Combs was succeeded as editor by George Langsner, '31, who was in turn succeeded a year later by Hugh Colvin, '36, who worked for Union Oil and had become active in Caltech's Industrial Relations Center. Like his predecessors, Colvin had worked on the *Big T* and was also sports editor of the *California Tech*. (His interest in publications also led him to help start a monthly newsletter at Harvard Business School, the Harbus News, which also still survives.) Colvin remained editor until June 1942, when Don Clark '29 (PhD '34) took over. During these years the difficulties of putting out a magazine while holding a full-time job became insurmountable, so the *Alumni Review* editors turned their articles and illustrations over to the Colling Publishing Company in Los Angeles, which then handled everything else — layout, production, printing, and distribution.

According to Colvin, it was R. C. Colling of that firm who suggested building the *Caltech Alumni Review* into a more important



Yousuf Karsch's portrait of Robert A. Millikan appeared on the cover of the January 1954 issue announcing Millikan's death a month earlier.

The February 1954 cover depicted Linus Pauling, head of chemistry, and George Beadle, head of biology, for an article on "Chemical Biology at Caltech." Both later won Nobel Prizes.



magazine—expanding its scope and audience and issuing it monthly to appeal to advertisers. (All the early editors had problems soliciting enough advertising.) In 1943 Colling hired a young man to sell advertising space in the magazine, and in September the *Alumni Review* was reincarnated as *Engineering and Science Monthly*. Clark remained editor-in-chief, with Colling as managing editor and the Colling Publishing Company in charge of business management.

Colvin, who remained on the magazine's editorial advisory board through most of the 1940s, remembers lengthy (and heated) discussions among the alumni board members, Colling, and himself over all these proposed changes—including the name. He's not sure, but Colvin says, "It sticks in my mind that maybe I came up with *Engineering and Science*." In his introduction Robert A. Millikan explained the new name with an opening sentence that could have benefited from an editor:

"A name such as 'Engineering and Science' for a magazine that is to be used for the presentation of technical and semi-technical articles by those who have graduated from, and those who are connected with, the California Institute of Technology is very appropriate, for it reflects the very close association that should exist between these fields, an association the creation of which has in fact been one of the most distinctive objectives in the Institute's development."

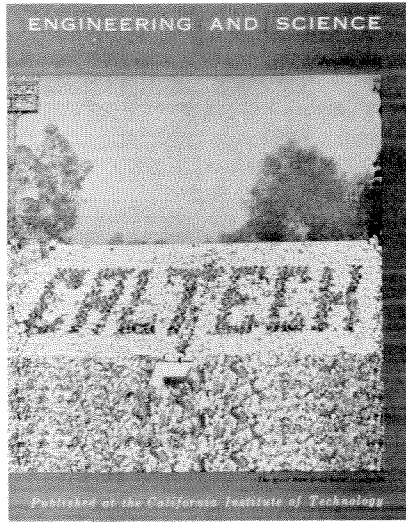
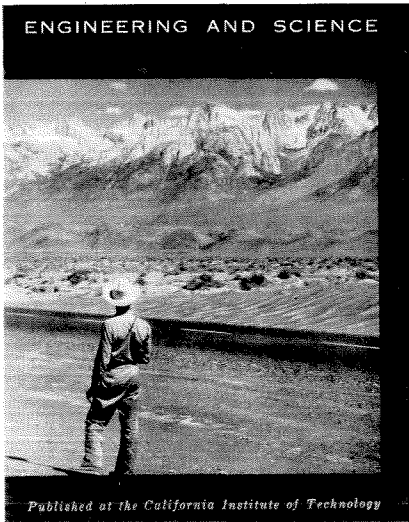
Millikan continued: "It is a familiar but a very true observation that the fundamental science of one generation is the applied science of the next. The solution of the problems associated with the war has furnished

very recent and very powerful verification of the correctness of this assertion.

"With the inauguration of this magazine which replaces the 'Alumni Review' a new means has been provided for the dissemination of information on the technical work of Institute graduates in the general field of engineering and science. With the greater circulation anticipated, it is hoped that more people will thus have an opportunity of seeing the high caliber of the work of Tech men. The new magazine will also provide another outlet for interesting information resulting from the developments going on at the Institute itself."

While the newly conceived magazine began to carry more Institute news, many of the articles were still contributed by alumni. And during the war its pages were indeed dominated by "the solution of the problems associated with the war," as Millikan had observed. Common were articles such as "Electronics in a Postwar World" (March 1943), "Oil is Ammunition!" (September 1943), "Engineers for the American Service Forces" (March 1944), "Steel in the War" and "Human Blood: Life Saver 1 in World War II" (February 1945). Leavening the relentless military/industrial focus of the war years were the frequent contributions of Chester Stock, professor of paleontology, who wrote on his numerous fossil discoveries in the western states and Mexico.

*Engineering and Science* survived the war—with a little help from the Institute—but the desired increase in advertising revenues to support the new expansion never quite materialized, and the advertising representative was let go. When advertising dropped off



When Ed Hutchings intentionally reversed the picture of the Sierra Nevada on the May 1960 cover because he wanted the man looking in the other direction, he “caught hell from every Caltech geology graduate.”

The January 1961 E&S with the story of the great Rose Bowl stunt was one of the most popular issues. But many readers noticed that Hutchings had pulled a stunt of his own. Since the original photograph was horizontal, he lengthened it by recycling some of the crowd at the bottom.

still further during the early postwar years, another reassessment was in order. But instead of cutting back, Caltech decided in 1948 to try to improve the magazine.

At the June 1948 annual meeting of the Alumni Association it was announced that “we have embryonic plans for expansion of the magazine with greatly increased Institute aid. We plan to make the magazine not only larger, but better. We have engaged a professional journalist of top rank to manage the magazine. . . . We haven’t yet definitely determined what the character of the new *Engineering and Science* will be but we expect to have it tell more of what the Institute is doing.”

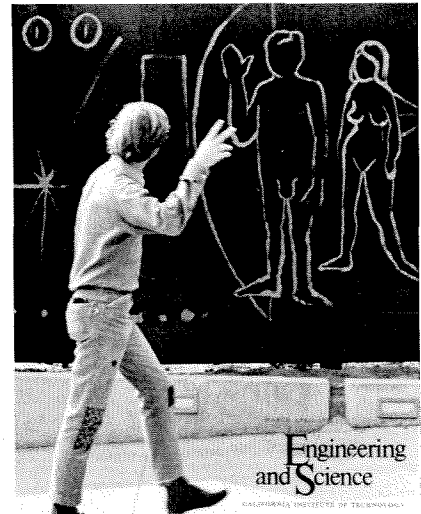
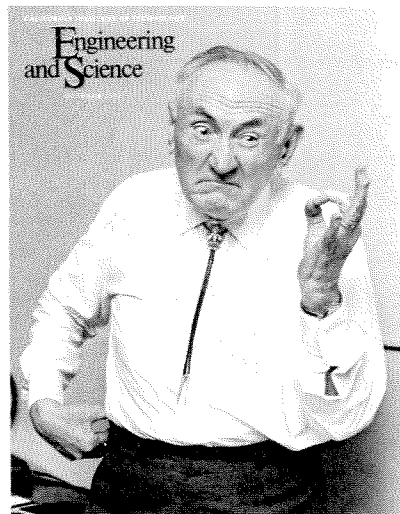
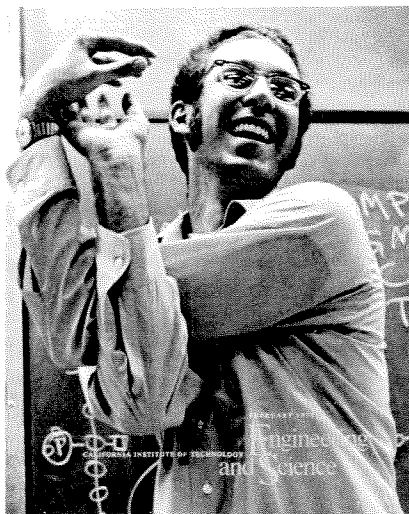
The “professional journalist of top rank” turned out to be Edward Hutchings Jr., who “definitely determined what the character of the new *Engineering and Science*” was to be for the next 31 years. A 1933 graduate of Dartmouth, Hutchings had worked on the

*Literary Digest*, *Tide*, *Business Week*, *Look*, and *Liberty*. When Chuck Newton, then assistant to the president, went to New York to recruit an editor, he found Hutchings working on *Science Illustrated*, a magazine published by McGraw-Hill, which folded eventually because, according to Hutchings, it didn’t really have a theory about what it wanted to do.

Hutchings *did* have a theory about explaining science, and it was this personal view that came to shape *E&S*. Hutchings puts it simply: “I tried to get people to write so that *I* could understand it.”

It was through this goal of making science understandable and the vision of *E&S* as a *Caltech* magazine rather than just another alumni magazine that Hutchings left his mark. “I always figured that what the alumni — from this kind of a place, especially — wanted to read was what everybody wanted to read. Like the science editor of the *New*

*Other favorite covers include grad student Bill Beranek impersonating a double helix (February 1971); Professor of Astrophysics Fritz Zwicky impersonating Fritz Zwicky (October 1971); and an anonymous Caltech undergraduate’s friendly greeting to the figures (reproduced on a construction fence) that originally graced an etched plate on Pioneer 10 as a message to other possible worlds (March-April 1972).*



*York Times*, they want to know: What are we doing here? How good is it? Who's doing it? How important is it? They don't want to know that Joe Blow had a baby."

For breaking new ground with "this understandable science business," the magazine began to collect a number of awards. In the late 1960s and early 1970s it was rated among the top ten alumni magazines in the country. In 1971 a special *E&S* issue on the environment won the *Newsweek* Award for excellence in presenting public affairs. As the awards rolled in, Hutchings felt obliged to come up with an official statement of purpose for *E&S*. He described it thus:

"*Engineering and Science* is a magazine about the California Institute of Technology — about the people who teach and study here, their research and ideas. The articles in the magazine are written by Caltech faculty, students, alumni, and distinguished visitors to the campus, and they are intended to give a sample of some of the current life, work, and thought at Caltech."

Hutchings credits the magazine's success to a great stable of writers ("who offered us articles!") — Arie Haagen-Smit, who introduced smog in *E&S*, James Bonner, Peter Kyropoulos, Bob Sharp, Dick Jahns, and "the earthquake boys" — Hugo Benioff, Beno Gutenberg, and Frank Press — "I just couldn't stop printing them." And "it was an editor's salvation to have someone like [former President] DuBridge. When I had a five-page hole to fill, I would always think, 'Ah, DuBridge!' He saved my life again and again."

Among Hutchings's favorite articles are "anything by Feynman," but especially "There's Plenty of Room at the Bottom" (February 1960) and "Los Alamos From Below" (January- February 1976). These were also frequently requested as reprints. The Rose Bowl stunt (January 1961) was another popular issue, but the all-time winner was Elting Morison's "A Case Study in Innovation" (April 1950). Reprints of Morison's "little talk at the Athenaeum" were requested by the thousands for a couple of decades. (Its popularity has waned, but a few requests for it still come in every year.) Another one of Hutchings's early issues (November 1948) contained an article entitled "Xerography, A Newcomer to the Graphic Arts," by Chester F. Carlson, '30, who invented the now ubiquitous process. "He submitted the article," says Hutchings, "and I thought it was an

interesting thing. Damn; I should have bought stock."

The magazine changed its look many times over the decades, and for a brief time in 1967-68 changed its name to just *E&S*. The full name returned, but the ampersand officially replaced the "and" in 1977. Its frequency has ranged from nine to seven to four to the current five times per year. Hutchings retired from *E&S* in 1979, although he still teaches journalism and is adviser for the *California Tech* (and edits an occasional best-seller, such as *Surely You're Joking, Mr. Feynman*). Jacquelyn Bonner, who as associate editor and managing editor had been with the magazine since 1965, succeeded him and remained editor till 1984.

Among Bonner's favorite stories were those on the Apollo missions ("the glamour of that time trickled down even to us") and articles by such articulate writers as Bob Sinsheimer, Jesse Greenstein, and Willy Fowler, "who made scientific concepts almost poetically beautiful." And then there was the April 1970 issue — a special issue on the biological bases of behavior. "The printer thought it was obscene (because of *National Geographic*-like anthropological photographs) and at first refused to print it. Ed insisted, but they gave us a short run, and we never had enough copies." Bonner also remembers as popular articles by Ray Bradbury and Al Hibbs and the recent oral histories.

Probably the most popular article of the current year has been Francis Clauser's "The Boat That Almost Was" (November 1986) about his bold ideas for 12-meter yacht design and his experiences with an America's Cup syndicate (to which he had been recruited by Chuck Newton, who appears to have done a lot of this sort of thing). Clauser has old ties to the magazine. In the June 1937 issue of the *Caltech Alumni Review*, a column of alumni news called "Ye Editor Comments" contained the following notice: "Miss Catherine McMillan, demure blond custodian of Dabney library, has become engaged to one of the famous Clauser twins. Rumor has it that the lucky one is Francis H. Clauser, but being unable to tell them apart we cannot verify this."

It was indeed Francis Clauser, BS '34, PhD '37, former chairman of the Division of Engineering and Applied Sciences and now the Clark Blanchard Millikan Professor of Engineering, Emeritus, whose career has spanned 50 years of *E&S* — so far. □ — JD



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