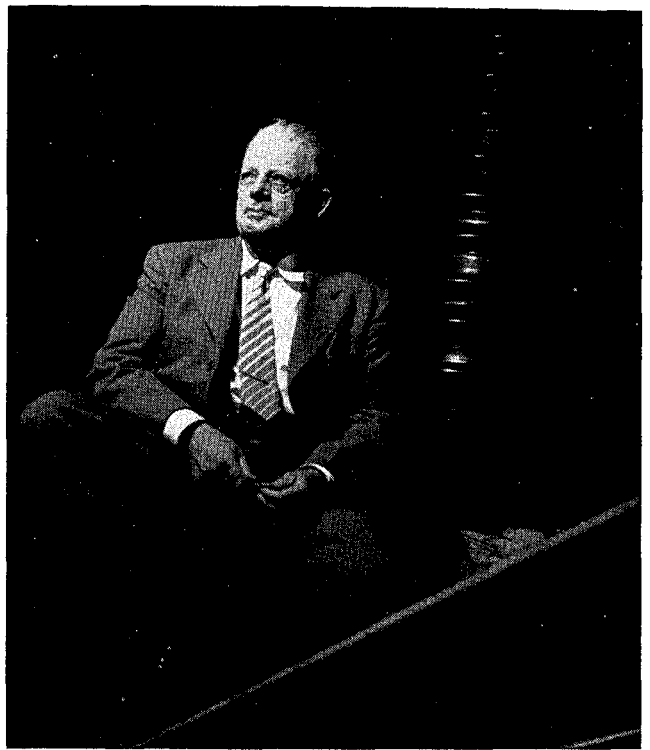


# ROYAL W. SORENSEN

He came to Caltech for five years  
—and look where he is now



IN 1910, when he was five years out of college and working in the engineering department of the General Electric Company in Pittsfield, Massachusetts, Royal W. Sorensen was invited to come to Throop Polytechnic Institute and start a department of electrical engineering.

Sorensen was not particularly interested in teaching and his limited knowledge of California made him think it was a place too hot for comfortable living. He had already turned down several other teaching offers, but the prospect of starting his own department and working with George Ellery Hale and James A. B. Scherer in producing a new type of engineering college turned the trick. He packed up his family and came to California—fully determined to stay at Throop for five years and then go back into industry.

As next to nobody needs to be told, Royal Sorensen is still on the job here. He has not only outlasted Throop Polytechnic Institute itself, which became Caltech in 1920; he has stayed far enough beyond his self-imposed five-year limit to have totted up the longest record of service of any member of the Caltech staff.

He hasn't regretted a day of it either. He still tells students that the best advice he can give them is to do what he did himself—hitch their ambitions to the ideas of good men.

Born in, believe it or not, a log cabin in Wabaunsee, Kansas, Royal W. Sorensen grew up in Golden, Colorado, home of the Colorado State Industrial School and the Colorado School of Mines. The town had a considerable Scandinavian population, and for 35 years Royal's father, Soren Sorensen, ran the Scandinavian grocery store there—and taught the trade how to vote the straight Republican ticket.

After his graduation from high school in 1900, Royal went to work as an apprentice with the Flint Lomax Company in Denver, manufacturers of electrical equipment. He hadn't been on the job long, however, before it occurred to him that a college education would do him a lot more good than working his way up from the bottom of a small machine shop. He quit and went to work for six months as engineer and packer in a flour

mill, to earn enough money to enter the University of Colorado at mid-term in February, 1902.

He worked his way through college on the usual assortment of odd jobs, the oddest probably being the one he held for a solid year, running the graveyard shift at the University's power plant. The job took eight hours a night, seven nights a week, which meant that Royal had to snatch his sleep when he could find it, which was usually in the afternoon as soon as college classes were over. He claims to have fallen asleep on the job only once.

After graduation in 1905 he went to work for General Electric in Pittsfield, Massachusetts, first as a test man, then in the engineering department.

When he came to Throop in 1910 the school had 31 students. There were three engineering graduates in the class of 1910. Two of them received their degrees in electrical engineering, and one in mechanical engineering—though, frankly, all three took the same course.

From the beginning, the whole idea of engineering education at Throop was to require students to take 25% of their courses in the humanities as well as to get a sound foundation in the sciences along with their regular engineering studies. In 1912, when Throop Hall was the only building on the campus, George Ellery Hale asked Sorensen to plan an electrical engineering building as the school's second structure. Sorensen turned the idea down, and Hale then agreed with him that the Institute's science facilities should rightly be expanded first. As a result the second building on campus was the Gates Laboratory of Chemistry—and Sorensen hasn't got his new electrical engineering building to this day.

In 1923, however, with funds supplied by the South-

ern California Edison Company Sorensen did get a high-voltage laboratory. It was the first laboratory in the country to have a 1,000,000 volt power frequency, provided by a cascade system of transformers designed by Sorensen himself.

Available for research as well as industrial tests, the facilities of the high-voltage laboratory have been used to aid the Southern California Edison Company in the development of high-voltage transmission lines, to furnish lightning protection of oil storage tanks for the oil industry, and for numerous other researches of undeniable benefit in the industrialization of southern California.

For a number of years Caltech and Stanford (whose alumni banded together and built the Ryan high-voltage laboratory soon after Caltech's was completed) were the outstanding schools in the country in the teaching of high-voltage work. For a few years Caltech was even giving more Ph.D. degrees in electrical engineering than M.I.T.

Perhaps the best indication of the place held by Royal W. Sorensen in the field of electrical engineering can be given by noting a few of the scores of professional honors which have come to him during his career.

### Some honors and awards

His alma mater, the University of Colorado, has twice honored him, with an E.E. degree in 1928 and a D.Sc. degree in 1938. The Engineers and Architects Association of Los Angeles presented him with its "most valuable engineering service" scroll in 1944. The National Academy of Sciences selected him as one of a six-man Scientific Advisory Committee which was sent to survey the reorganization of scientific and industrial development in Japan in 1947. In 1950 he was elected an Eminent Member of Eta Kappa Nu, a national honorary organization of electrical engineers. In 1951, upon the recommendation of the American Institute of Electrical Engineers, he was made an honorary member of the Institute of Electrical Engineers of Japan.

He served as consulting engineer for the Pacific Light and Power Company (now a part of Southern California Edison) when power was first transmitted 231 miles from Big Creek to Los Angeles at an unheard of 150,000 volts.

He was president of the American Institute of Electrical Engineers in 1940-41, and is a Fellow of that organization. In 1950 the AIEE Fellows in the Los Angeles area set up an organization known as the Royal W. Sorensen Fellows. He is a member of the California State Board of Registration for Professional Engineers and the Society for the Promotion of Engineering Education as well as such organizations as the American Association for the Advancement of Science, Tau Beta Pi and Sigma Xi.

Not that Sorensen's activities have all been confined to engineering: Like a good many active men, he seems to have been hyperactive. He was president of the Pasa-

dena YMCA for six years, and is still a board member. He is chairman of the Board of Trustees of the First Baptist Church of Pasadena, a Rotarian and a Mason.

On the campus Sorensen has of course served on an uncountable number of faculty committees, and was, in fact, chairman of the faculty in 1938-39. His most impressive jobs, though, have been on the Alumni Relations Committee and on the Physical Education Committee.

Always a favorite of students and alumni, Sorensen was signally honored last year when a group of his former students took the occasion of his retirement to establish a \$900 annual graduate fellowship in electrical engineering in his name. This honor is particularly fitting because of Sorensen's outstanding pioneer work in graduate engineering training. His plan of graduate study in electrical engineering at Caltech was based solidly on physics, mathematics and engineering analysis rather than on the infinite details of modern technology which men can learn better in industry. Unique at the time, the plan has since spread to other schools.

He was chairman of the Physical Education Committee from 1913 until his retirement last year. From the start, Caltech has had a faculty-controlled physical education program—with, incidentally, a large student participation. In the early days of Throop Polytechnic Institute, however, there was a ruling that the school was to have no competitive teams. By 1913 the students did their best to persuade the school that they should at least be allowed a football team. Sorensen took their side and as a result was given the job of putting the new team together. How about a little money to get started? No, there was no *money*; he'd have to get that himself. So he did. He solicited enough around town to hire a coach and buy some uniforms.

The coach turned out to be something of a problem. For one thing, *he* was determined to win every game—and apparently even in those days that was not a primary consideration with the students themselves. In the first game of the season, with Redlands, the panicky coach began to give his team a series of signals, involving his tipping his hat at various angles, which would call for specific plays.

This kind of coaching was strictly unethical, and one of the sturdy young men on the Throop team listened patiently for a short time and then stepped up to the coach and said, "You can go to hell, mister. We don't play that way here." They didn't either.

The coach, not having the confidence of his team—and not being as big as they were besides—didn't last much longer.

Professor Sorensen officially became professor emeritus last year. Though he was relieved of administrative responsibilities, he has actually continued to be as active as ever in the electrical engineering department. This is at least partly due to the fact that activity is a habit he's unable to break—and partly because, in his position as head of the electrical engineering department at the Institute, Royal Sorensen has come about as close to being irreplaceable as a man can get.