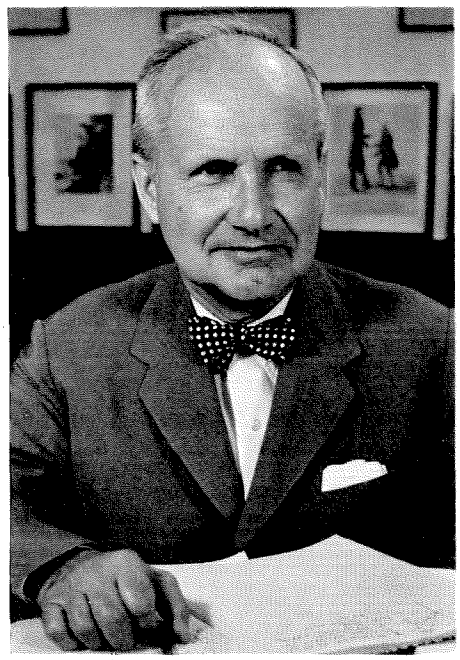
EARNEST WATSON
1892-1970



Earnest C. Watson, retired dean of the faculty and emeritus professor of physics, died suddenly on December 5 at his home in Santa Barbara.

Mr. Watson was born in Sullivan, Illinois, in 1892, where his father was a Presbyterian minister in the home missions field. In 1906 the family moved to San Francisco, and Earnest made the journey from the Middle West by freight train to tend his pet ponies.

After graduation from high school in San Francisco, Earnest attended Lafayette College in Easton, Pennsylvania, from which he was graduated in 1914, having been elected to Phi Beta Kappa. Lafayette in 1958 awarded him a ScD degree. From 1914 to 1917 he did graduate work in physics at the University of Chicago, leaving for service in World War I, in which he was engaged in antisubmarine research work.

After the war Earnest returned to the University of Chicago as an assistant professor of physics, but soon was sent to Pasadena to supervise the building of the first physics laboratories at Throop Institute, soon to become the California Institute of Technology, in preparation for Robert Millikan's move to the school.

The remainder of Earnest Watson's career was at the California Institute of Technology where, working closely with Dr. Millikan, Dr. A. A. Noyes and George Ellery Hale, he played an important role in the development of innovative programs in science education. He was made a full professor of physics in 1930, and dean of the faculty in 1945, a post he held until his retirement in 1959. He also acted as chairman of the division of physics, mathematics and astronomy from 1946 to 1949. During World War II he was a member of the National Defense Research Committee and acted as administrative director of a research and development project on artillery rockets, torpedoes, and other ordnance devices.

An interest in the history of science led Earnest Watson not only to write many articles on facets of the subject but to develop an important collection of books, manuscripts, and works of art in the field, which he has presented to Caltech. This interest also spurred some of his travel to remote areas of the world.

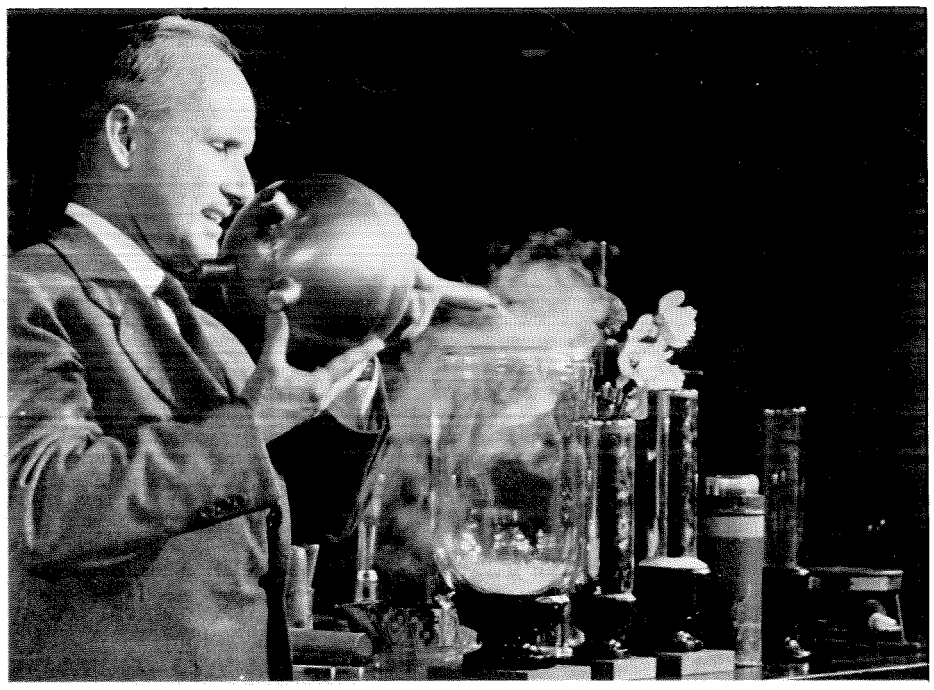
In 1954, while on a sabbatical leave, Earnest married Elsa Jane Werner in Tarbert, Scotland. Until his retirement from Caltech, the Watsons spent weekends and holidays in their Knollwood Drive home in Santa Barbara, where they made their home after 1962.

In 1960 Earnest was appointed science attache to the United States Embassy in New Delhi, India, where the Watsons lived for two and a half years, making a large collection of Indian arts during this period. As a result of the Indian experience and his long career in science education, Earnest was made a consultant to the Ford Foundation on educational projects in India and Pakistan, and was still active in this work at the time of his death.

A memorial service was held in Dabney Lounge on the campus on December 10. Arnold Beckman, chairman of the Caltech board of trustees, presided at the service—since President Harold Brown had been called back that day to the Strategic Arms Limitation Talks in Helsinki. Beckman and three of Earnest Watson's associates reviewed some highlights of his half-century-long career at Caltech. These are some excerpts from their tributes to him:

Ernest Swift, professor of analytical chemistry, emeritus, and former chairman of the division of chemistry and chemical engineering: Earnest had been at Throop College of Technology only a few months, and was an assistant professor, when I arrived in the spring of 1919 as a graduate student. I remember that our first meeting was by chance in a small restaurant on Colorado Street between Raymond and Fair Oaks where one could obtain at that time a very acceptable dinner for 65 cents. It was common practice to take the streetcar at the entrance to Tournament Park, ride down, then walk back when it was cooler. Earnest always had a relatively youthful appearance for his age, and I remember questioning on this first meeting how this quiet, somewhat reticent, even shy-appearing person had acquired the, to me, exalted title of Assistant Professor.

Then I remember my enlightenment when, a couple of years later, I began attending faculty meetings as a lowly instructor. This apparently shy person would sit through an aimlessly wandering debate on an ill-conceived motion until he could no longer contain himself.



Earnest Watson performs his famous liquid oxygen experiment.

He would then rise, and in forceful, vigorous, and at times devastating, terms bring the proposal into logical focus. He would be likely to conclude with that little smile of his, and a disarming remark such as, "At least that is how I see the matter."

I have memories of seeing Earnest and Dr. Noyes sitting on a bench somewhere on the campus in deep discussion. I know that Dr. Noyes valued these discussions, and valued Earnest's friendship. Often these discussions were continued on camping trips to the mountains and the deserts. Those were the days when many policies were formulated and many projects initiated. We will never know the contributions Earnest may have made to those policies and projects—projects such as the European travel prizes for junior students and demonstrations and lectures for high school teachers and students. I remember seeing Earnest loading his car prior to one of his often long and strenuous trips with his famous liquid oxygen demonstration. I think those trips were one of the most effective means ever used for establishing good relations with the high schools of the west.

It was later, and during the time that Earnest was planning and building his house in Santa Barbara that we became most closely associated with him.

I think that the period when he was planning and building his house there was one of the happiest in his life up to that time. It was a delight to see his enthusiasm. He originally planned to remodel simply a one-room shack that was on the place. But he got together with Lockwood DeForest, a landscape designer and frustrated architect with original and most effective ideas for making the most of the outstanding natural features of the site. They were indeed a synergistic couple.

But I think that after completion of the house he was lonely and became restless. So he decided to take a trip around the world. Quite some time after his departure, we received a letter which provided one of the surprises of our lives. He wrote, and the words are still clear in our memories, "I have something surprising to tell you. In fact, I'm still surprised myself. I'm going to be married." He then told us about Jane and her accomplishments and concluded by saying that we were free to tell others. Helen and Winch Jones were staying at his house at the time, and Elizabeth promptly called to share the news. Winch answered the phone, and the news produced the only occasion in our memory when Winch admitted being speechless. Naturally, many of us wondered about the outcome of this shipboard romance, about Jane, and about how this independent, sensitive bachelor would adjust to the vicissitudes of matrimony. You all know the answer, and Earnest's happiness has been a joy to all of his friends. We all know the contribution Jane has made to this happiness. It should be a great comfort to her, and we all love her for having made this happiness possible.

H. F. Bohnenblust, professor of mathematics and dean of graduate studies: When I arrived at Caltech, it was at the end of the war, and during the transition period from one president to another. The man who guided Caltech through this difficult time, and who held it together, was Earnest Watson. Even if I failed at that time to recognize the extent of his involvement in Caltech, it was evident that he was the person to turn to with one's own difficulties. A quiet listener, attentive and sensitive to the problems of those who approached him for advice and help—that was my first impression of the man whom I knew then as chairman of a division, as chairman of the faculty board, as dean of the faculty, but also who carried many other jobs for which he neither expected nor received any formal recognition.

This first impression failed to recognize more important facets of his character. My respect and my admiration for him grew constantly as throughout our acquaintance he revealed again and again new aspects of his personality and evidence of his exceptional qualities.

Outstanding was his strength, his courage, and his dogged determination to carry out the ideas he judged important, never compromising with his ideals. Luckily for the Institute, he had great ambitions for Caltech, and an unshakable loyalty to it—an intelligent, critical loyalty. Caltech has been remarkably fortunate in being able to attract to its top positions the right men at the right time. Watson was one of these men. He was active here at a period which used his talents—a period of individualism when the burden of leading Caltech was carried by relatively few people while the rest of the staff were free to pursue their own work, unhampered by time-consuming (and often resented) responsibilities.

The faculty gave him their full confidence and happily let him take the brunt of the many crises which had to be faced. We knew, each of us, we had a champion, but I don't believe that any

of us realized how much he did for us.

As often as he could, Watson spent weekends in his house in Santa Barbara for relaxation. Usually, "relaxation" meant hard and critical discussions with trustees. In politically troubled times he fought our battles. He defended the faculty and its rights. On campus, he educated the faculty to accept a sense of responsibility in Institute problems through his Friday afternoon informal discussions. He played a leading role in the reorganization of the faculty, the formulation of its bylaws, the creation of the Committee on Academic Freedom and Tenure, and the over-all strengthening of the position of the faculty. All of us who, either directly or indirectly, benefited from his devotion, owe him a great debt of gratitude.

Lee A. DuBridge, president, emeritus: There are many ways, and there were many times, during the past 50 years when Caltech would have been a very different—and a much poorer—institution, had it not been for Earnest Watson. No one served the Institute so long in positions of such high responsibility. And no man in any position served the Institute more effectively and more devotedly. No one had a more continuing, a more beneficial, a more constructive influence on Caltech.

Let me testify that two rather long Caltech administrations found Earnest's services indispensable, and two Caltech presidents received great credit for successes, activities, and qualities of this institution for which Earnest was often the chief architect and frequently the managing engineer.

It is a matter of history that during the two decades between 1920 and 1940, the Norman Bridge Laboratory became famous throughout the world. (It amused me when I first arrived here in 1946 as president, and was introduced on several occasions to various gatherings as Dr. Norman DuBridge.) The fame of that lab rested not only on the achievements which emerged from it, but from the many great people who came to work there—because it was such a wonderful place to *be*. Millikan, of course, was the great inspirational leader. Watson was that essential supporting colleague who made sure that things went pleasantly, efficiently, smoothly.

Beginning in 1940 the Institute went through a great upheaval, and a relatively small handful of Caltech faculty soon found itself running not one, but several large military research, development, and production enterprises, employing thousands of people and spending millions of dollars. It was those millions of dollars which were a great worry to the Caltech trustees, as I learned many times later. James R. Page, then chairman of the board, told me of the bad dreams he used to have, in which some careless professor made a mistake so costly that the Institute's endowment was completely wiped out. (Jim Page, as many of you remember, never trusted any professor when it came to money.) Nevertheless, the trustees soon realized that there was a steady hand at work, making sure there were no mistakes, that contracts were properly written and carried out, that project teams were organized in such a way as to be effective. Hence, there were these great achievements, and not a dollar of Caltech endowment was lost. And as Jim Page often said, "It was Earnest Watson who kept us all out of jail." That was about as big a compliment as Jim knew how to pay to any professor.

A college president often gets a lot of blame when things go wrong. And so he should. But he often gets too much credit when they go right, and that is curious, for, while the president all alone can make things go badly, to make them go right, he needs a lot of help. He needs the help of strong, experienced, devoted, and farsighted people all around him, and how fortunate we have been these past 25 years to have had so many such people around. Personally, I shall always be grateful that for 16 years I had at my right hand one of these great figures of Caltech history—one who was always loyal, always devoted, always perceptive, always honest, always modest. And always aware that it was people who made any institution, and that an institution could become and remain great only as it brought together the best people, and created the conditions under which they could work together, individually and collectively, most happily and most effectively. That's just what Earnest made it possible for us to do at Caltech.

Arnold Beckman: We are saddened at the passing of a good friend, but we can be thankful that Earnest Watson was able to live such a full and fruitful life. He has enriched and eased the lives of many. I should like to mention two small personal items.

When Dean Watson was scientific attache to the United States embassy in New Delhi, I had occasion to make a brief business trip to India. I wrote to Earnest, asking if he could advise me of the best ways to get to some laboratories that I wished to visit. When I arrived in New Delhi, Earnest briefed me on the scheduling he had worked out. It was incredible. He had managed to make arrangements for me to meet, in the short space of ten days or so, more scientists and businessmen, and to visit more laboratories and industrial plants than I normally would attempt to meet and visit in several weeks.

This brutal schedule was not for me alone. Earnest himself accompanied me on the more difficult portions. How cheerfully he would start out at four o'clock in the morning with a driver and a jug of safe drinking water to take me to a remote village where laboratory apparatus was being made under the crude cottage industry conditions. Back at midnight, after driving all day over the rough roads, then up early again the next day for the next day's trip. Surely, this was service above and beyond the call of duty. The experience illustrates the meticulous planning and effective execution that characterized all of Earnest Watson's activities. It also testifies to his remarkable energy and vitality and his great desire to help others.

The second item relates to the auditorium. At the time of its completion, there was much discussion about who should give the first lecture in it. Obviously, it would be a milestone event, so a lecture had to be one that would be truly characteristic of Caltech, one that would focus attention on some important facet of the Institute's activities. Thinking back over my early years on the campus, I recalled the popularity and usefulness of the Friday Evening Lectures, and how much I enjoyed them. I stated that my first choice would be the liquid air lecture by Professor Earnest Watson. There was enthusiastic agreement. Although Earnest had retired, he graciously consented to give the opening lecture in the new auditorium. It was a great success, and an auspicious start for the popular Monday night lectures.