

Institute, and by 1925 he had actually turned over his first million dollars, which meant two million for Caltech, since at that time the Rockefeller Foundation had agreed to match dollar for dollar what we secured here. Three and a half million more came from the Rockefellers through their matching technique. Also in 1931 Mr. and Mrs. Balch presented us with the Athenaeum at a cost to them of \$600,000.

But Mr. Balch was only one of the men of means in Southern California who in the twenty-five years between 1920 and 1945 invested the bulk of their fortunes in irrevocable trusts or legacies in this tax-free institution.

One afternoon I was visiting Dr. Norman Bridge in his home in Los Angeles and as I came out Mr. Kerckhoff, who lived next door, beckoned to me that he wanted to have a word with me. What he said to me was, "I have been watching how through the research output of the Norman Bridge Laboratory Dr. Bridge's name and fame is now spreading through the world, and

I want to do the same thing in biology that he has done in physics." Very soon thereafter he turned over a million dollars for the establishment of the Kerckhoff Biological Laboratories at Caltech.

I could name at least twenty other men, who in the years from 1920 to 1945, developed enough confidence in Caltech's objectives and management to put their funds into it, either by will or through irrevocable trusts to the extent all told of at least \$40,000,000 by the year 1945.

In a word, under the daring and devoted leadership of the early founders, who could only picture in their dreams the great educational and scientific research institution which they had faith to believe would sometime rise here, a large number of later founders have also given themselves and their all to securely build substantial foundations for that structure which the coming generations will continue to build to greater and greater heights in the service of mankind.

FICTION LAGS AFTER TRUTH

by ROBERT G. CLELAND

WHEN AMOS THROOP established Throop University sixty years ago, Pasadena had only about 5,000 inhabitants and the older members of the community could remember when Los Angeles County had neither public school, college, library, newspaper, nor Protestant Church. The town's chief assets were its climate, location, and the quality of its people, a people who to an unusual degree met the requirement laid down by a man of large experience and judgment who answered the question, "What should the emigrant bring to Southern California?" with the laconic but all-inclusive statement, "Religion, money, brains, and industry."

"Search the world around," said the author of the Board of Trade annual brochure for 1894, "enjoy the sunny clime of Southern France; wander among the Alpine valleys of Switzerland; indulge in daydreams under the cloudless skies of Italy; muse among the ruins that border the banks of the beautiful Nile; eat the luscious fruits of the tropics as you pluck them from the fronded branches of the Isles of the Pacific; even spend a winter in our own fair Florida; then, if you would know the one spot that most nearly approximates the ideal . . . come to Pasadena and make your home!"

Well, many thus invited came—and many have been coming ever since. So the Pasadena of today bears but faint resemblance to the Pasadena of that day—and the California Institute of Technology of 1951 bears even less resemblance to the Throop University of 1891. In both cases, "fiction lags after truth, invention is un-

fruitful, and imagination cold and barren." Of the institution of those distant years, however, I would at least say this: It lived through long, difficult, discouraging times because its founder had a stubborn, unquenchable belief in the inestimable value of education and because the members of its faculty made sacrifices that to many of us today seem foolhardy and quixotic to keep the faint flicker of light from going out.

Of the California Institute of Technology of today, it would be gratuitous for me to speak at length. But let me at least say this: The Institute is an integral, inseparable part of Pasadena. Its roots go almost as deep as those of this community. It has been served and nourished by your hands; in return it has brought you large material returns, an element in your population that any city in the world might envy, a more desirable prestige and reputation than any of your other institutions.

I confess, even at a dinner given by the city's Chamber of Commerce, that I do not know what new industries the presence of the Institute has brought to Pasadena. I do not know what funds are spent within the community under its government and corporation contracts, I do not know how large a part of its monthly salary and payroll expenditure goes to local merchant, house owner, professional man, tax collector, and charity. The sum total of all these things, I am sure, must be very, very large.

But the noblest debt that Pasadena owes to the California Institute, to men like Amos Throop, Robert

Millikan, William B. Munro, and Lee DuBridge, is not for what the Institute has done financially or industrially for Pasadena, but for what it has done for the nation, for society, for all mankind in the realm where values are not measured by the standards of the clearing house and market place, but by the enlargement of man's knowledge, his penetration into hitherto unexplored mysteries of the universe, his command of forces that seem to lie within the borders of the Infinite.

How can we evaluate or adequately recognize contributions of such magnitude, contributions that the whole

world and all mankind will profit from not for a year or a decade, but, in some instances, at least, for as many generations as man shall live?

Of all Pasadena's many assets, the greatest and probably the most enduring is the California Institute of Technology. It is a city set upon a hill. "Neither do men light a candle and put it under a bushel but on a candle stick," said the great Teacher, "and it giveth light unto all that are in the house." For my purposes this evening I should like to shorten that last sentence so that it simply reads, "and it giveth light unto all."

THE FACTS ABOUT CALTECH

by L. A. DuBRIDGE

THE TWO PREVIOUS SPEAKERS have told you about how Caltech has developed from an obscure manual training high school to one of the great scientific centers of the country. It is a fascinating—an almost unbelievable story. It is a story about which those of you who have been very close to Caltech through the years have been well aware. Sometimes you have been even painfully aware of it. A big and hustling neighbor with a big and sometimes noisy family is bound to attract attention. And people are bound to wonder what this neighbor is up to—and whether he is really as important as he thinks he is.

Tonight I would like to ask you for a few moments to forget you are Caltech's neighbors. Let's pretend you are a stranger to the community—as I was a stranger just five years ago. Suppose you had never before heard of Caltech but were curious to find out about it. Suppose you came to me and said, "Look, I don't want any of your sales talk. I want the real facts about Caltech. What is Caltech's place in the field of education? What has Caltech done for the community and what has it done for the country?"

All right, let us look at a few facts. First, what is Caltech's place in the educational world?

First I take from my shelf the yearbook of the Association of American Universities. This is an organization of 37 of America's leading universities, each individually selected after a careful examination of the quality of its educational and research program, the quality of its faculty, the adequacy of its physical facilities. The membership list includes all the big name universities—Harvard, Yale, Princeton, Columbia, Cornell, Michigan, California, Stanford and the rest. Caltech has been a member of the A.A.U. for many years. Caltech is the only member whose student body numbers

less than 4000 students. We have hardly more than 1000.

Why is Caltech classed as a *university* at all?

That is an interesting point, too. A Commission of the A.A.U., of which Wally Sterling and I are both members, has been making a statistical study of all the institutions of higher education in the United States—some 1700 of them. It was found necessary for various purposes to attempt a classification of these institutions—and in view of their very diverse nature this proved to be quite a task. But they finally ended up with the following classes: junior colleges, liberal arts colleges (like Occidental and Whittier), complex liberal arts colleges (like the Claremont group and a few others), separate professional schools (schools of medicine, of law, of theology, etc.) and universities. When all the schools had been sorted out into these classes there were two left over; M.I.T. and Caltech. They did not fit the class of separate professional schools which typically offer one degree for a fairly specific curriculum of study. On the other hand, most universities have a whole collection of schools and colleges—law, medicine, engineering, agriculture, journalism, liberal arts and so on. But there is one distinguishing feature of a university—a substantial program of graduate work and research. Caltech and M.I.T. certainly have these—so they were classed as universities.

So the educational world then recognizes Caltech as an important center of graduate work and research. What other evidence is there in this direction?

The next volume I take off my shelf is the membership list of the National Academy of Sciences. This organization was chartered by the U. S. Government under President Lincoln to advise the government on scientific matters. The Academy elects its own membership and restricts it to only 450 men and women in the