

Speakers at the Caltech 60th Anniversary Dinner held on November 9—Pasadena Chamber of Commerce President Leon Delbridge, Caltech President L. A. DuBridge, Robert G. Cleland, R. A. Millikan, and J. E. Wallace Sterling.

## CALTECH'S 60TH BIRTHDAY

LAST MONTH Caltech celebrated its 60th birthday. On November 2nd, 1891, The Throop University opened its doors to students for the first time. This marked the humble beginning of the privately-endowed institution now known as the California Institute of Technology, one of the world's leading scientific and engineering education and research centers.

The anniversary passed without ceremony on the Caltech campus, but was commemorated on Friday, November 9th, at a formal dinner at the Huntington Hotel sponsored by the Pasadena Chamber of Commerce.

Speakers at the dinner were President L. A. DuBridge;

Dr. R. A. Millikan, Chairman of the Institute's Executive Council from 1920 until his retirement in 1945 and now Vice-President of the Caltech Board of Trustees; and Dr. Robert G. Cleland, a member of the permanent research group at the Huntington Library in San Marino. Dr. J. E. Wallace Sterling, former member of the Caltech faculty and now President of Stanford University, served as toastmaster at the banquet.

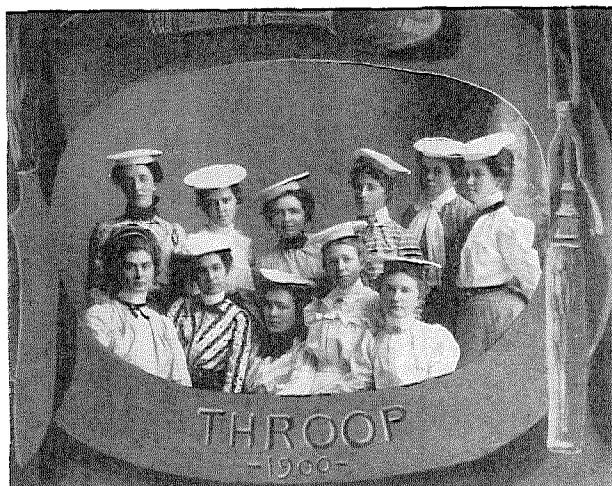
The following excerpts from the speeches of Dr. Millikan, Dr. Cleland and President DuBridge constitute a brief review of the Institute's first 60 years, as well as a glance at its present and future.

## THE FOUNDERS OF C. I. T.

by R. A. MILLIKAN

THE FIRST OF THE early founders of C. I. T. was Amos Throop, creative pioneer, who believed that American intermediate education in the 1890s was far too bookish and greatly in need of an injection of the manual arts.

He therefore gave himself and all that he had (his fortune was of the order of \$200,000) to the first steps of the founding of what soon became known, and remained known for eighteen years, as the Throop Polytechnic In-



*The early days: Cooking class at Throop Institute*

stitute. This, then, served well its own community and the cause of private education in the United States for nearly twenty years.

By that time the educational needs of the country, particularly of Southern California, had changed radically. The public school system, responding to the stimulus of Throop's work here, and similar leadership by Messrs. Belknap in Chicago and Woodward in St. Louis, had developed *within the public school system* the present well known manual training high school. This development left these three private manual training schools free for expansion into, respectively, the California Institute of Technology, the School of Education of the University of Chicago, and the Washington University in St. Louis.

### Eight new founders

This absorption actually took place in the case of Throop largely through the addition to the founding pioneers, Amos Throop and Norman Bridge, of eight new founders: Arthur Fleming, George E. Hale, Henry M. Robinson, John Wadsworth, Hiram Wadsworth, and James Culbertson.

In taking Hale into its membership this new Board of Trustees had accepted the condition on which he had agreed to join, namely, that the Polytechnic Institute as it had thus far existed be discontinued and a worthy rival of M. I. T. be created in its place in Pasadena.

Hale's blueprint for a new institution adequate to begin to meet the enormous scientific and industrial needs of the great new population which by 1908 was beginning to flow in big waves into Southern California, was adopted by the enlarged Board, and in 1911 the first graduates of the new institution, three in number, were handed their B. S. degrees.

In 1910 Throop Hall was built, just as it now is, on the campus opposite Tournament Park, this campus being the gift of Arthur Fleming and his daughter Marjorie to the new institution. The funds for the erection of Throop Hall, about \$170,000, were raised by subscrip-

tions made by the citizens of Pasadena, the largest contributors being Arthur Fleming and James Culbertson.

By the year 1916 three new founders had appeared: Charles W. Gates had been added to the Board of Trustees and he, with the help of his brother, P. G. Gates, had built at a cost of \$70,000, the first, or eastern-most, unit of the present Gates-Crellin Laboratories. Arthur A. Noyes, who had been acting President of M. I. T., had secured sufficient release from his responsibilities there to be able to act as Director of this new Gates Laboratory during the winter of each year.

Up to the time of our entrance into World War I, on April 6, 1917, there had been scarcely over a dozen graduates of the new institution. From that day on, in view of the enlistments in our defense activities and the draft, the whole institution was absorbed into war duties and did not get back to the campus in appreciable numbers before January, 1919.

But shortly after Armistice Day, November 11, 1918, Dr. and Mrs. Bridge offered to build the Norman Bridge Laboratory of Physics if I would direct it. I agreed to do such directing as I could in spending one quarter a year at the Institute, and I was here in the first quarter of 1920 when the name of the Institute was officially changed to the California Institute of Technology, a name which the public quickly abbreviated to Caltech.

When I returned to Pasadena a year later, in January, 1921, I found that Dr. James A. B. Scherer, who had been President of the Institute since 1908, was absent on sick leave, with definite indications that he would not be able to return. My close friends here began urging me to accept the presidency of Caltech and to transfer my full-time activity from Chicago to Pasadena, just as Noyes had by that time made his full-time transfer from M. I. T. to Caltech.

I was at first deaf to these suggestions because I was engaged at Chicago in a very heavy, and to me inspiring, research program which I did not feel that I could give up for any kind of administrative post. At this juncture Mr. Fleming told me that if I would transfer full time to C. I. T., with or without taking the title of President,



*The early days: Throop Institute's cycling club*

he would turn over in trust to the Institute his whole fortune, the value of which he estimated at \$4,200,000. Further, since what the Trustees wanted me to do first was to get physics, the foundation of all science, on the map at C. I. T., he would begin by providing from his own income \$90,000 a year for the physics budget alone, and would see to it that that annual physics budget rose in subsequent years to not less than \$130,000.

When great-souled Noyes came to me urging me to accept Mr. Fleming's offer, despite the fact that this meant that the great bulk of available funds would go into physics and leave chemistry in a quite subordinate place, I decided to make the change from Chicago to Caltech.

To enable me to do this, Hale, Noyes, Robinson and I set up a new form of organization which was designed to distribute as much of the administrative load as possible among the whole staff of the Institute so as to leave me free for doing and directing more of my own research problems than a president could normally successfully handle.

We set up the so-called Executive Council, consisting of four members of the faculty and four members of the Board of Trustees. The title which the Trustees gave me was Chairman of the Executive Council, rather than President, and I was able through it to follow and to participate in the research work of the Institute very much more fully than I could have otherwise done.

I list here a few of our early decisions, all of which were approved by the full Board of Trustees:

- (1) To remain small and compact, so as to facilitate the cross-fertilization of ideas, both with respect to the faculty, the graduate and the undergraduate students, the size of the total student body being maintained, if possible, between 1,000 and 1,500.
- (2) To concentrate on quality and leave mass edu-

cation to other institutions. This means large selectivity in the matter of admissions.

- (3) To encourage undergraduate teaching in moderation by all faculty members.

- (4) To organize graduate and research work in science and engineering more thoroughly than had generally been done in other technical institutions.

- (5) Since most C. I. T. graduates became industrial or civic leaders, to require all undergraduates to devote one-fourth of their time to courses in the field of the humanities.

For the first three years of my life here I devoted myself, night and day, as per contract with the Trustees, to trying to put physics on the map at C. I. T. Then one day Mr. Blacker, himself a Michigan lumber man and a C. I. T. Trustee whom I had met in Chicago, told me that the outlook for the Sugar Pine Lumber Co., from which Mr. Fleming derived most of his income, was pretty dark.

I conferred with Henry Robinson, and between us, with invaluable and very active aid from Allan Balch, Henry O'Melveny, Harry Chandler and Dr. Ricketts, we worked up the plan of the California Institute Associates with the idea of thus getting current funds sufficient to keep the Institute going until Mr. Fleming's investments returned to their old yields. That time never came! Instead, the crash of 1929 carried the Fleming trust down with it. But we tightened our belts, cut salaries of everybody, and balanced our budget.

But I fear we could not have done it without Mr. Allan Balch, who about 1924 had sold out his public utility holdings to advantage, and in 1925 became Vice President of the Board of Trustees. He told me a dozen times in those dark days not to worry (as did also Dr. Ricketts), for all that he had was ultimately going to the



*The entire Institute was absorbed into war duties in World War I. Above, bayonet practice in front of Throop Hall.*

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