

# . . . . OF INTEREST

## TECH ANNIVERSARY PASSES QUIETLY

Almost unnoticed in the midst of war news and defense activities, October 24 marked the 50th anniversary of the official opening of the doors of Throop Polytechnic Institute, forerunner of the present-day California Institute of Technology. On that day in 1891, Amos G. Throop, president, and Lewis F. Andrews, secretary, were in charge of registration of new students, some of whom under the original coeducational policy were girls.

"Father" Throop passed away many years ago after seeing the institution launched and on its way toward success. Mr. Andrews, however, is living and practicing law in Los Angeles.

### OPENED WITH ENDOWMENT

With an endowment of \$200,000, Throop Polytechnic Institute was able to secure a five-year lease on Wooster Hall, in the old Wooster Building, Kansas Street (now Fair Oaks Avenue) and Green Street. Larger quarters were secured later for the institution at Chestnut Street and Fair Oaks Avenue.

In 1913 the name of the school was changed to Throop College of Technology and in 1919 became the California Institute of Technology.

Mr. Andrews recalls the names of the original trustees who served on that opening day 50 years ago. Besides Father Throop and himself, there were: P. M. Green, treasurer; the Rev. E. L. Conger, Mrs. Jeanne Carr, member of the family that gave Carmelita Gardens its name; Prof. J. D. Yocum, Prof. C. H. Keyes, Mrs. L. T. W. Conger, W. E. Arthur, Enoch Knight, J. W. Scoville and E. E. Spalding.

### INCORPORATORS RECALLED

Incorporators included the names of some of the men who helped to make Southern California. Two of these, T. P. Lukens and Prof. T. S. C. Lowe, have mountains named after them nearby to perpetuate their memories. The incorporators were: H. W. Magee, W. A. Masters, Maj. George H. Bonebrake, Mr. Lukens, Professor Lowe, F. C. Howes, "Father" Throop, Dr. J. C. Michener, Dr. J. S. Hodge, Sen. Delos Arnold, E. F. Hurlbut, P. M. Green, Milton D. Painter and Ex-Gov. Lionel A. Sheldon.

"Father" Throop was in his 80th year when he founded the institution which was destined to become one of the best known centers for scientific research in the country and dwelling place of several Nobel Prize winners. During the three years that he lived, following the opening

## VON KARMAN WINS NEW AWARDS

Dr. Theodore von Karman, Professor of Aeronautics and Director of the Guggenheim Laboratory of Aeronautics at the Institute, was recently named recipient for two important engineering awards, the 1941 medal of the American Society of Mechanical Engineers and the Reed award of the Institute of Aeronautical Science. The presentations were made to Dr. von Karman in New York.

The Reed award, the highest recognition given by the aeronautical society, was endowed in 1933 by S. A. Reed, inventor of the metal airplane propeller, and is given each year to a scientist whom the society chooses as having contributed most to aviation progress.

Because of defense research, it was stated only that von Karman received the award for developments in "modern methods of fuselage design."

### A.S.M.E. MEDAL

In announcing the A.S.M.E. award, William A. Hanley, president of the society, revealed that the award to Dr. von Karman was made in recognition of his brilliance as a teacher, researches in elasticity and many fields of physics and mechanics, and his distinguished leadership in the fields of aerodynamics and aircraft design.

Dr. von Karman has been at Caltech since 1928. He becomes the second A. S. M. E. medalist on the campus, Dr. Robert A. Millikan, chairman of the executive council, being the first.

Along with the announcement of the award, it was revealed that Dr. von Karman again is supervising the second military meteorology course to be given at Caltech at the request of the War Department.

Ten field artillery officers and two coast artillery officers have been assigned to the course, which will conclude March 16.

This course is given under the sponsorship of United States Office of Education.

The course, one of the most highly condensed educational programs in the country, has as instructors, in addition to Dr. von Karman, the following: Dr. William V. Houston, Dr. Paul S. Epstein, Dr. Beno Gutenberg, Dr. Irving P. Krick, Homer J. Stewart, Leverett Davis, Jr., Dr. Wolfgang K. Panofsky, and Dr. M. A. Biott.

of the school, he had the satisfaction of knowing that his final effort toward bettering mankind had been well founded.

## PUZZLE PARADE

How is your stock of puzzles? Do your friends enjoy sharpening their wits on a good puzzle now and then? Most engineers enthusiastically accept the challenge of a tricky problem, and are soon hot on the track of the solution. If the solution to your puzzle is quickly found your friend will feel very proud of himself and ask for more. If the answer is not forthcoming he will be taken down a notch and may suffer a temporary loss of interest in puzzles.

Perhaps you prefer to sit down alone with a puzzle and test your will power by seeing how long you can keep from turning to the answers.

Here are a few teasers that have been gathered from various sources to start off this department. Try your luck at them. If you have a few favorites of your own that you would like to pass on send them to the Puzzle Editor, c/o Caltech Alumni Office, and they will be considered for future issues. Don't forget to include the correct answers with all contributions.

1. Three married men are named, Davidson, Bond and Holmes. They are not preacher, not doctor and not lawyer respectively. Mrs. Davidson and the lawyer's wife attended the same college. What is the doctor's name?

2. A goat is tethered with a 31.4 ft. rope to a hook on the outside of the wall of a silo 20 ft. in diameter. If the alfalfa crop around the silo runs one bale per 100 sq. ft. and the goat eats one bale per day, how long before the goat has eaten up his available fodder?

3. A certain fisherman on a cold April morning pushed his boat away from its dock and started rowing upstream at a constant rate. He had a partly filled bottle of—shall we say Coca Cola—in his hip pocket. After rowing a mile upstream, our fisherman unknowingly pushed the bottle overboard and it started floating down the stream. Fifteen minutes after this unseemly accident occurred our hero noticed the loss, quickly deduced what had happened, turned his boat around, and started rowing downstream with the same effort he had expended in going against the current. Just as the bottle reached the dock whence the expedition had gotten under way, the fisherman caught up with it, pulled it from the water, and decided to wait until the next day for another try at his sport. It looks easy, perhaps, but how fast was the river flowing?

(Answers on page 12)

## NEW RAIL COACH PUT INTO USE

An almost noiseless railway car, whose floor stays level—and consequently its passengers—even when it takes the sharper curves at high speeds, made its commercial appearance in November, according to information from the Santa Fe Railway. Idea for the new type of coach construction which made these achievements possible came largely from William Van Dorn, formerly associated with the Institute's Aeronautics Department; and Alumni Review readers will recall a detailed discussion of the technical features of this important development in railway engineering by Professor F. C. Lindvall in the June 1939 number.

In appearance conventional except for oblong windows, the coach is radically different in its method of suspension. Instead of resting on flat springs, as do railroad cars now, this car is hung on its trucks by four huge coil springs. These springs virtually eliminate sideway, and absorb much vibration. They are hailed by railroad officials as a potent safety factor.

The first of these new cars was delivered to the Santa Fe. Hooked on behind two regular coaches and a fast engine, the car was given its final test run at speeds as high as 81 miles an hour.

William E. Van Dorn of Pasadena, from whose brain the suspension idea sprang, and Cortland T. Hill, grandson of the late J. J. Hill of the Great Northern, head the company manufacturing the cars. They have been developing the idea for several years. Two more such cars, to be delivered to the Great Northern and Burlington Railroads early next year, are under construction.

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## 1164 ENROLLED IN TECH DEFENSE COURSES

Instruction received in the Institute's engineering defense training courses is speeding production in vital Southern California industries according to a survey of employers recently completed by Professor Franklin Thomas, head of the Tech program. Thomas revealed that 1164 men were currently enrolled in defense courses, or considerably more than the total in regular undergraduate and graduate studies in the daytime program. In addition, 800 have already completed courses given earlier in the year.

It was emphasized that no academic credit is given for the special defense courses, and they cannot be applied as work towards any degree. Certificates of completion are awarded, however, and these may be useful in securing employment or obtaining civil service credit.

## RESEARCH FOUNDATION WILL HANDLE PATENTS

Serving a need which has long been felt at the Institute, the California Institute Research Foundation has been organized to handle patentable inventions developed by the Institute staff.

The purpose of the foundation is to defray the costs of patent applications and to make business arrangements for putting the inventions to commercial use after agreement with the inventor as to his share of possible profits.

### NON-PROFIT ORGANIZATION

The Research Foundation is a non-profit organization; any net financial gain beyond the agreed percentage to the inventor which may come to the corporation will be devoted to the furtherance of scientific teaching and research at the Institute. As a legal entity, the corporation is entirely separate from the California Institute of Technology.

The problems which the Research Foundation is seeking to solve will no longer be left to handle themselves as in most important institutions. The method the Institute is using to solve these problems was first used in the relationship of the Smithsonian Institute and a New York organization, the Research Corporation, in connection with the inventions of Dr. Cotrell of Stanford. Experience in the field of patent protections indicates that this plan is the best for Institute, inventor, and public alike.

The Institute, under its character as a non-profit educational organization, cannot legally take on a business for profit.

The inventor is under the handicap of lack of knowledge of patent procedure and lack of time to handle negotiations with licensees. The Foundation plan puts the responsibility into the hands of capable patent attorneys and those who are well trained to do the job most efficiently.

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## MILLIKAN AWARDED ORDER OF JADE

Dr. Robert A. Millikan, Chairman of the Executive Council of the Institute, received the Order of the Jade of the Republic of China, highest decoration conferred by the Chinese government upon civilians for distinguished service to that country, at a banquet held in the Fiesta Room of the Ambassador Hotel Dec. 2.

Three other Southern Californians were named by the Chinese government for the honor. They were Dr. Charles Keyser Edmunds, president emeritus of Pomona College; Dr. Rufus B. von Klein Smid, president of the University of Southern California, and Harry Chandler, Los Angeles publisher.

## NEWS SHORTS

Professor William E. Hocking, Alford Professor of Philosophy and Chairman of the Philosophy Department of Harvard University, will visit the Institute early in 1942. Author of several books, Hocking has been a member of the Harvard faculty since 1914. His son, Richard, took graduate work at Caltech, and is now teaching at UCLA. During his visit, Professor Hocking will give two philosophy lectures at the Athenaeum and two seminars.

\* \* \*

Percy H. Boynton, Professor Emeritus of American Literature at the University of Chicago, will serve as a visiting professor in the Humanities Department for the second term of 1942. Professor Boynton will also deliver a series of lectures on American fiction.

\* \* \*

The Pasadena Board of Education recently paid tribute to the late Dr. George Ellery Hale by naming one of the elementary schools in the city system in his honor. Dr. Hale was Director of the Mount Wilson Observatory from 1904 to 1923, and Honorary Director until death in 1938. During all that period he was closely associated with the Institute's activities, and also in the civic and educational life of Pasadena.

\* \* \*

Some concern is felt for the safety of Dr. Rene Engel, former Caltech professor and at last reports engaged in chemical engineering work for the Marsman Company in Manila. Dr. Engel was active in the Free France movement in the Philippines before the outbreak of hostilities there.

\* \* \*

Dr. Robert D. Gray, head of the Caltech Industrial Relation Department, returned to Pasadena in November after serving for several weeks in Chicago as technical advisor to the five-man fact-finding committee appointed by President Roosevelt to attempt to adjust the threatened railway strike. The original recommendation of the committee was not accepted, but certain modifications were later agreed to.

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## ANSWERS TO PUZZLES

On Page 11

1. Davidson
2. 25½ days.
3. 2 miles per hour.

## SCIENTISTS PLAN NEW COSMIC RAY STUDY

Theories of Caltech scientists about the origin of cosmic rays will be further investigated in the near future by experiments in Mexico and the United States, it was revealed recently.

Dr. Robert A. Millikan, Dr. H. Victor Neher and Dr. W. H. Pickering announced plans for these additional experiments in a report to the publication, Science.

They set forth in their report that their hypothesis as to the mode of origin of cosmic rays makes it possible the prediction of five definite vertically incoming cosmic ray bands.

As the observer moves north from the magnetic equator each of these five bands should begin to reach the earth at a particular latitude and continue reaching it at all more northerly latitudes, the savants declared.

### FIVE DISCOVERIES

The report sets forth five major discoveries by workers in Caltech's Norman Bridge Laboratory of Physics as follows:

1. More than 60 per cent of all incoming cosmic ray energy is of the nature of incoming charged-particle bullets, each of energy of between 2 billion electron volts and 15 billion electron volts.

2. Dr. S. H. Neddermeyer and Dr. Carl D. Anderson's discovery of the production of nuclear impacts within the atmosphere of mesotrons which serve as the chief carriers of the cosmic-ray energy down to the lower levels of the atmosphere.

3. Dr. Ira S. Bowen's remarkable discovery that atoms, when out in interstellar space, are able to undergo atomic transformation forbidden to them within stars.

4. Dr. Bowen's and Dr. Wise's discovery that in ring nebulae, trillions of miles away from the exciting star, and therefore presumably reflecting conditions in interstellar space, there are five of the atoms: helium, carbon, nitrogen, oxygen, and silicon, each of which is 10 times more abundant than any other atom save oxygen.

5. Dr. C. C. Lauritsen's and Dr. William A. Fowler's discovery in Kellogg Radiation Laboratory that a part, at least, of the rest-mass energy of an atom has the power under suitable conditions of transforming itself directly into the creation of a positive negative charged particle pair.

**Don't Forget  
Fifth Annual  
ALUMNI DANCE  
SATURDAY, FEBRUARY 7**

## ASSOCIATION CRITICS GET BIG CHANCE

Stu Johnson '26, Alumni Association Membership Chairman, certainly put himself on the hot spot with a recent letter to Tech graduates who had once been members of the Association but had failed to send in 1941-42 dues, challenging them to tell what was wrong with the Alumni group, and guaranteeing a personal answer. No sooner had the letters reached the homes of the recipients than the replies started scorching back. Surprisingly enough, some of the most caustic comments were accompanied by dues, but most of them had something definite to say about what they wanted or didn't want done. Some typical replies are presented herewith, and we hope Stu will be able to find answers for them.

"Mr. F. W. B. is at this point in Honolulu (Pearl Harbor) but we are sure he wishes membership." Mrs. F. W. B. Jr.

"Why don't you offer a non-resident membership for about 50c per year. All it would cost you is the Alumni bulletin.

About 50c is all it is really worth. I can't afford \$2.00 for sentiment alone." K. S. P.

"Just what is an alumnus anyway? Am I really one? I am perhaps in error, but I had always supposed that a person was an alumnus of the university or college where one put in his four years of undergraduate work. That would make me an alumnus of the University of Utah. Am I also an alumnus of Cal Tech by virtue of having taken work in the graduate school (received my Ph.D. in 1930?"—and more of same— D.B.M.

"Haven't you heard about the new income taxes? Next year at this time you'll be lucky to find a man with \$2.50. I was saving for Uncle Sam, but your heart-rending appeal touched me to the depths of my pocket book." D. S.

"Well? What have you to offer?"

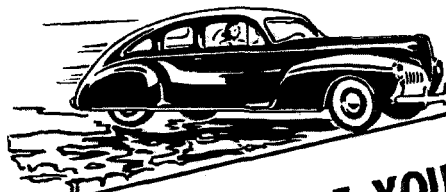
T. G. G.

"Stu—thanks for sending me the reminder that my dues are due. Not much news up here except that we are sure of war, blackouts, death and TAXES. Best regards." M. W. E.

"I believe I missed last year because of serious illness—was laid up for a long period of time. And further believe that this was the first year I have ever been delinquent in dues—for which my apologies

(Continued on next page)

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## GIVE YOUR CAR A FRESH START

are due. Hope that this atones for past delinquencies." W. J. B.

"My son, Lieut. C. N. S., U.S.M.C., will be too busy for some time to come to do anything about your letter. Therefore, I am taking the liberty of answering for him, so that you will understand his failure to answer you." E. M. S.

"Stu Johnson '26: Still a sophomore? Nuts! Grow up!" R. W. C. (But he enclosed \$6.00 for the Life Membership plan.)

"Dear Stu: Yes, you said it. It is a heluva letter! And you should be ashamed—the more so because you speak for a fine school. You base your approach on the philosophy that loyalty, regard, and appreciation are measured only in dollars!

"I disagree. Cash herewith is sent in spite of your philosophy rather than because of it. Are you hunting cover? If not, here's another shot: Why pick on us who

have sometimes paid (maybe as often as we could) instead of checking your lists to get some who haven't?

"All right, I'll name one—a classmate of mine at Throop who says he isn't even honored (?) by any Alumni requests. Maybe he won't thank me for telling, but he's Professor S. B. Morris, Dean, Dept. of Engineering, Stanford University.

"Is this where you get off?" N. A. B.

"Thank you for reminding me." G. K. W.

"Have been a member of the Alumni Association as long as was possible, including 3 years in Egypt. Here is \$2.50." S. U. B.

"Sorry I haven't sent it in before." C. W.

"Forgot, sorry, but don't get so tough!" D. N. C.

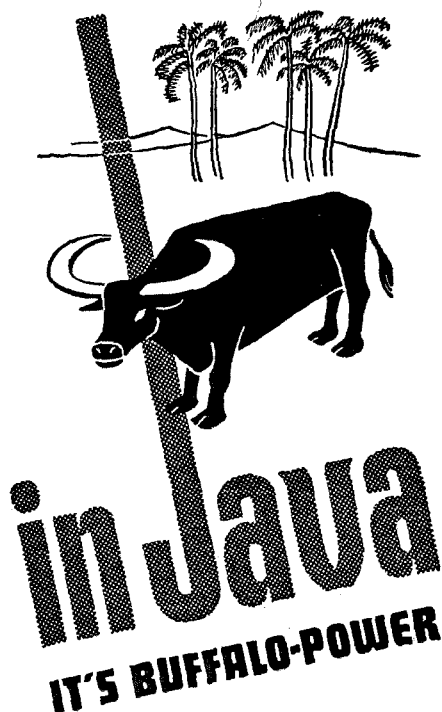
"With regards to membership dues I am reminded of the old adage about the turnip. All junior officers are in the same boat: If

the world was on sale for a dime, none of us could buy a tin whistle." J. A. D. (Lt., U.S.A.)

"Dear Stu: You have shamed me into writing. I plead guilty to neglecting to answer your previous letters and, since you wish to know why, here is the straight dope. Last year I was out of school working and living like a Japanese to save money to come back this year. In spite of this I find it spread out pretty thin and just can't allow myself to spend even \$2.50 on something not absolutely essential. This does not mean that I do not want to join the Association; quite the contrary. But it does mean that I will have to put it off till next year, at any rate, when I hope that the shoe will not pinch quite so tight. I'm sure that you will understand the situation, and I hope that you will forgive my discourtesy in neglecting to answer before. Thanking you for your patience, I remain." L. D.

"Dear Stu: I think the Alumni Association is a swell organization and as for the Alma Mater—I'm definitely prejudiced for Cal Tech in any arguments over colleges. It's tops with me.

"The reason I haven't joined the Alumni is the same old story—no time. I wish I could join and take part and help out. I'm glad to contribute money for any worthwhile causes. But my time is completely used up with research work and some outside activities that seem to me of more basic importance—putting the Alumni Association in sort of a luxury class as far as I'm concerned. I belong to a number of other organizations whose meetings more than take up all the time I have for meetings. I haven't even been able to attend the local meetings of Tech alumni although I've been receiving notices regularly. I visit Tech and renew acquaintances about twice a year as is. If it will be a worthwhile help to you for me to contribute some dues or something, I'll be glad to do it, but I'm out as far as contributing any time or going to meetings. Do you have activities like granting scholarships or loans, etc., for which you could use money and in which I could help out? Not that I'm floating in the stuff (I just have a post-doctorate fellowship at present), but I have more of it to spare than time. If you've waded this far, thanks." D. D. V.



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ELECTRICITY SAVES TIME AND LABOR



## CHAPTER NEWS

### SAN FRANCISCO

November 26, 1941

Since it is about time for another issue of the Alumni Review, perhaps this report will arrive in time to get our San Francisco Chapter into print again.

Our first fall dinner meeting, planned by our President, Louis Erb, took place on October 24th at Hellwig's Restaurant in San Francisco.

After a fine dinner, there was a talk by Richard E. Hambrook '21. As General Plant Manager of the Pacific Telephone & Telegraph Company, Northern California and Nevada Area, Mr. Hambrook was able to give us much interesting information on the problems confronting the Telephone Company due to the national emergency. This work in the main consists of provision of special protection of regular and emergency equipment against any eventuality and of the planning and setting up of new equipment for defense work.

(Continued on next page)