THE MONTH AT CALTECH

Paul Keenan presents Dean Franklin Thomas with the Construction Industries Achievement Award.

Man of the Year

DR. FRANKLIN THOMAS, Dean of Students and Professor of Civil Engineering, was named "Man of the Year" by more than 1000 representatives of the southern California construction industry at their 17th annual banquet in Los Angeles last month.

Dr. Thomas was presented with the Construction Industries Achievement Award "for having done the most to further the interests of industry and the entire community."

"He has contributed much toward maintaining the industry's greatest collective asset—trained minds of men of broad wisdom," said Paul C. Keenan, chairman of the selection committee, in making the award.

Dr. Thomas was one of the pioneers in the campaign to bring adequate water supplies to southern California. He has been a director of the Metropolitan Water District since its formation in 1928 and was vice-chairman of the board from 1929 to 1947. In 1948 he was elected chairman of the Colorado River Board of California. He served as president of the American Society of Civil Engineers in 1949. He has been professor of Civil Engineering at Caltech since 1915, and has served as consultant on a number of flood control and sanitation projects for the city of Los Angeles and for Los Angeles and Orange Counties.

Scientific Manpower

IN AN INFORMAL ADDRESS before the Los Angeles Section of the Institute of Radio Engineers last month President DuBridge delivered some straight talk on the current and critical shortage of scientific and engineering manpower. We quote:

1. By the most conservative estimates, the present engineering population in this country is about 400,000 — divided 300,000 in industry, 90,000 in government agencies and 10,000 in education.

2. The present *shortage* is about 95,000; i.e., there are 95,000 military and civilian jobs now vacant.

3. Between now and 1955 the country will need about 33,000 new engineers each year. Hence the accumulated need by 1955 will be for an engineering population at that time of nearly 630,000.

4. The number of engineers we may actually have in 1955 can be accurately predicted. It is the number we now have (400,000) plus the number now in engineering schools who will graduate by 1955. Making no allowance whatsoever for losses in the meantime, this adds up to 474,000—156,000 short! What's more, this shortage is increasing at the rate of some 16,000 per year.

By doing a little slip-stick work of my own, I come up with the following picture:

1. If we allow for death, retirement, losses to non-technical military service, calling up of reserves and other diversions to non-technical work, the present rate of *supply* of new engineers is actually *less* than the expected annual losses. In other words, the actual ac-

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tive engineering population in 1955 will be smaller than what we have today. In fact it will be 20,000 less (380,000 as compared to 400,000). We are thus *losing ground* at the rate of 5,000 per year.

2. But the anticipated needs have also been grossly *underestimated*. The technical requirements of the new 1.5 billion dollar a year program of military development (three times larger than 1950) have only begun to be felt. The military production program is rapidly climbing. The Atomic Energy Commission has been instructed to initiate a vast 5 billion dollar program of expansion. These national security programs alone could easily demand 30,000 more engineers a year for the next four years. Thus it could easily be true that by 1955 the number of engineers actually needed will be nearly 700,000. And we will actually *have* less than 400,000.

It is this potential shortage of 300,000, plus the fact that we are actually losing ground rather than gaining each year, that really represents the true dimensions of our problem, in my opinion.

But the numerical shortage is only a symptom of a deeper ailment. We as a nation have grown dependent on scientists and engineers and we don't know it and refuse to admit it. So, with one hand we appropriate billions of dollars for work that only scientists and engineers can do, and with the other hand we slap them in the face and accuse them of causing all the world's ills—which we then call on them to help cure. As a symptom of all this, the House of Representatives the other day slashed the budget of the National Science Foundation by 77%. This is the one agency of government set up to produce more scientists and engineers and to produce rather than consume basic knowledge.

Are we then wholly helpless to do anything about this crisis? I suggest three things:

1. We *can* expose this nonsense about technology being the cause of the world's ills, about scientists being unconcerned about human welfare. We can let it be known that human welfare is the major goal for all of us and that we as scientists and engineers stand ready to join hands with all men of good will everywhere to advance that goal. And we have been *doing* it!

2. We can carry this same message to high school students—initiate an information campaign to tell high school students and teachers that the field of science and engineering offers great and exciting challenges for the future; that scientists and engineers can be, and for the most part *are*, good citizens too. We can tell them that the best citizen is the useful citizen, the one who is using his talents to their fullest. We can invite these kids to visit our plants and factories and laboratories and show them how exciting science and technology can be.

3. Finally I'd like to suggest something very definite we can do right here in southern California. Let us say that southern California industry is going to need 100 engineers more each year than are now in sight. (I'll choose a modest number to avoid scaring you!) Why shouldn't the engineering societies get together and raise, by industrial contributions, a scholarship fund to send to engineering schools each year 100 boys who can not go without financial help, or for whom a financial incentive would turn the trick. For $200,000 a year one could offer 100 four-year scholarships averaging $2000 each—$500 a year—to the 100 most promising applicants. And my guess is that for each winner about 3 to 5 others would have their interest sufficiently aroused by the contest so that they would find other sources of funds and go to college anyway. If we in southern California started such an enterprise it might be copied in other areas. If properly promoted, such scholarship funds might well help to reverse the tide of declining interest in science and engineering, would make the voice of the scientist and engineer heard again—and eventually help to avert a real national calamity.

Van Maanen Fellowship

THE INSTITUTE last month announced the establishment of a graduate fellowship in astronomy as a permanent memorial to Dr. Adriaan van Maanen, Mount Wilson astronomer from 1912 until his death in 1946. Fellowships will be awarded every other year, on recommendation of the Institute's Observatory Committee.

Dr. van Maanen founded the Students' Fund, Inc. in 1927, as a revolving loan fund to aid promising students. He administered its business almost single-handed until 1940, and solicited subscriptions from prominent citizens in Pasadena and Los Angeles. After his death the directors of the corporation renamed it the Van Maanen Fund, Inc. When the corporation was dissolved recently its assets—amounting to about $15,000—were presented to Caltech, making possible the establishment of the new graduate fellowships.

Clayton Lecture

DR. ROBERT T. KNAPP, Professor of Hydraulic Engineering, is to deliver the annual James Clayton lecture before the Institution of Mechanical Engineers, meeting in London, England, on April 18.

Dr. Knapp will speak on "Cavitation Mechanics and Its Relation to the Design of Hydraulic Equipment," and will repeat the lecture at another Institution meeting in Edinburgh on April 21.

The Institution, founded in 1847 for the advancement of knowledge in mechanical engineering, is similar to the American Society of Mechanical Engineers. It honors distinguished engineers and scientists throughout the world by inviting them to deliver the Clayton lecture.

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While he's in Great Britain Dr. Knapp will visit the Admiralty hydraulics laboratories and the Universities of Wales and Cambridge—and before he comes back to Caltech he'll tour hydrodynamics laboratories and facilities in Zurich, Madrid, Paris and Grenoble.

Combatting Communism

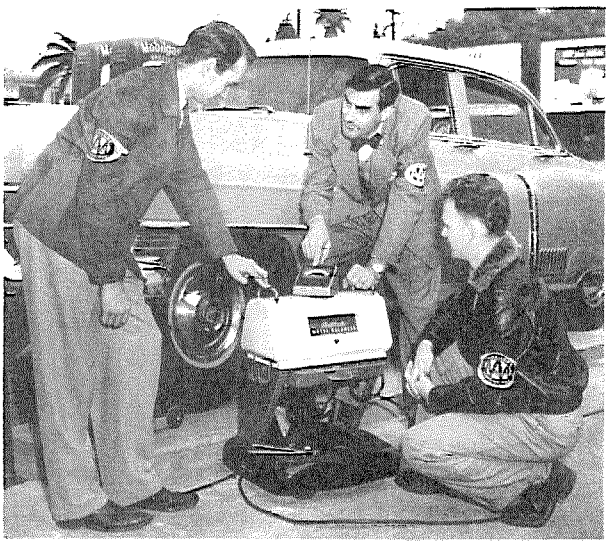
NINE SOUTHERN CALIFORNIA colleges and universities last month instituted a concerted program to combat "Communist infiltration" in their schools. Meeting under the leadership of the State Senate Committee on Un-American Activities, the presidents and other officials of Caltech, the University of California, Claremont, Scripps, Occidental, Redlands, Loyola, Pomona, Whittier, and the University of Southern California, unanimously agreed to appoint one person at each school to serve as a liaison between the school and the committee in ascertaining what Communist activity exists on each campus.

"It is the first time in the United States that such a plan has been attempted," said Senator Hugh M. Burns, chairman of the State Senate Committee on Un-American Activities, who plans soon to call together the presidents of the northern California colleges and universities for a similar purpose.

Economy Run

CALTECH STUDENTS did such a good job on last year's Mobilgas Economy Run that they're going to act as official American Automobile Association observers again on the 1952 run, which starts on April 14.

The Economy Run is a test conducted under the auspices of the AAA to determine the performance and gas consumption of stock autos manufactured in the United States.



Peter Kyropoulos, Assistant Professor of Mechanical Engineering (center), explains operation of electronic wheel balancer which will be used to test cars participating in 1952 Economy Run.

Forty-five Caltech students have been chosen (out of 100 applicants) to go on the 1952 Run. Each student's application has had to be checked and approved by the Dean, because this year's Run will be a long trip to Sun Valley, which will keep students away from classes for a week. For the past month the student-observers have been making trial runs with the test cars to familiarize themselves with their job. At the start of the run each man will be assigned to a particular car, and will be reassigned at each overnight stop.

Because every effort is made to see that the contest reflects the conditions under which the average motorist drives, the observer must watch carefully to see that no special advantages accrue to the driver, who, while a non-professional, is admittedly an expert.

Some 60 different places on each car are sealed and only an AAA official may break one of these seals. Whenever a seal is broken the observer "must not leave the car or take his eyes from the unsealed part until it is resealed," according to the regulations. He must be the last to leave the car and before doing so he must lock all windows, doors, and the trunk compartment and keep the keys on his person.

Ford Fellowship

DR. GEORGE K. TANHAM, Assistant Professor of History, is one of 246 college teachers awarded 1952-53 fellowships by the Ford Foundation's Fund for Advancement of Education. Initiated last year, these faculty fellowships are "based on the belief that a year devoted to study, research, observation or experiment will renew and enrich the intellectual lives of the recipients of the awards and help them to become better teachers of undergraduates."

Dr. Tanham plans to spend his year studying military history at the University of Chicago, the War College in Washington, D. C., and Princeton University—and to spend the remaining time doing general cultural reading at Oxford University in England.

During Dr. Tanham's absence, Dr. John Weir, Associate in Psychology, will serve as acting Master of Student Houses at the Institute.

Government Suit

U. S. ATTORNEY GENERAL J. Howard McGrath brought suit against Caltech last month, alleging that it was, of all things, "hindering national defense."

The Institute, however, was merely one of a number of defendants named in the action, which was aimed at all landowners along the Santa Margarita River in San Diego County, and is intended to adjudicate water rights in the area. Federal officials have apparently sponsored the action so that the future water supply for Camp

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Pendleton, the big Marine base at Oceanside, Calif., can be settled.

Caltech comes into this picture through its Palomar Observatory. Though this is miles away from the Santa Margarita River it does fall, in part, in the Santa Margarita watershed. The government suit maintains that all water at the Observatory is the rightful property of Camp Pendleton—and, by diverting such water to its own use, the Institute is impeding the war effort.

In reply to the suit, the Institute's lawyers maintain that the only water available at Palomar is "that which falls in the form of rain or snow and that which issues from the ground in springs." They contend that the Institute has every right to use such water—and Camp Pendleton, 40 miles away from the Observatory, could hardly get much material benefit from the water in question.

Honors and Awards

DR. GEORGE W. BEADLE, chairman of the Institute's Biology Division, has been appointed to the National Science Foundation's Divisional Committee for the Biological Sciences. This committee is one of three established by the Foundation to serve it in an advisory capacity on questions concerning its activities in promoting and supporting basic research and education in the sciences.

DR. HARRISON S. BROWN, Professor of Geochemistry, last month received the American Chemical Society's $1,000 award in pure chemistry—one of the highest honors in American chemistry—for outstanding contributions to our knowledge of the composition of meteorites, their significance relative to the age and origin of the solar system and the elements, and particularly for devising new and highly precise methods for determining the abundance of trace elements in these bodies.

ROBERT D. GRAY, director of the Institute's Industrial Relations Section, has been elected first vice-president of the Pasadena Chamber of Commerce and Civic Association.

Special Lectures

AS VISITING PROFESSOR of Astrophysics, Dr. S. Chandrasekhar, of the Yerkes Observatory, will deliver six special lectures at the Institute in April.

A leading mathematical astrophysicist, Dr. Chandrasekhar's fields of interest include the internal constitution of stars, white dwarf stars and stellar atmospheres. He is largely responsible for introducing the aerodynamical theories of turbulence and convection into astronomy.

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A native of India, he received his Ph.D. in theoretical physics and a Doctor of Science degree in astrophysics at Cambridge University, England, where he was a Fellow of Trinity College. He joined the Yerkes Observatory as a Research Associate in 1936 and was named Distinguished Service Professor in 1946.

Jolly Old Gentleman

DR. SAMUEL T. MCKINNEY, who established the Mary Earl McKinney Essay and Seminar Scholarships for improving English expression among technical students, died in Los Angeles last month at the age of 90. A retired physician and surgeon, Dr. McKinney set up the scholarships in honor of his mother, at Caltech, Rensselaer Polytechnic Institute, U. S. C., Stanford and Pepperdine College. At Caltech the scholarship takes the form of the annual McKinney Prize Contest in English, held regularly since 1946.

In addition, for many years he sent $50 bills to various teachers at Christmas time. He started this practice after he heard an English professor observe that "teachers have plenty of holiday time to travel; too bad they don't ever have any money." So, along with his Christmas gifts, Dr. McKinney would send a note saying, "Here's $50. Take a little trip and have some fun." The notes were always signed: "A Jolly Old Gentleman."

Summer Conference

THE INSTITUTE'S Industrial Relations Section has announced its fifth series of summer Management and Personnel Conferences, to be held on the campus from June 15 to 20 and June 22 to 27. Conferences on Wage and Salary Administration, and on Selection and Development of Potential Supervisors will be held from June 15 to 20 and those on Management and Supervision of Office Personnel, and on Executive Development and Organizational Planning will be held from June 22 to 27.

The conferences are open to men and women and include morning, afternoon and evening sessions. Rooms will be made available to registrants in the Student Houses and meals will be provided at the Athenaeum.

Vesper Trophy

THE HOWARD G. VESPER Basketball Trophy for 1952 was awarded this month to Norman E. Gray, 23-year-old senior in Electrical Engineering, for the second successive year. The trophy, which was established in 1950 by Howard Vesper '22, is presented annually to that member of the basketball squad most qualified from the standpoint of sportsmanship, improvement, moral influence, and scholarship.