

# THE MONTH AT CALTECH

## Project Vista

**T**HE INSTITUTE has been granted a short-term lease on the guest-house portion of McCornack General Hospital in Pasadena for a special national defense project.

The project is being undertaken at the joint request of the Army, Navy and Air Force under a contract with Army Ordnance. The buildings will house and provide office space for personnel engaged solely in studies and analytical work. Development of equipment is *not* involved and no laboratory work of any sort will be conducted—but the exact purpose of the project is classified and cannot be revealed.

Caltech faculty members and personnel borrowed temporarily from other institutions will comprise the group working on the project, which will be known as Project Vista. It is expected to be completed by next January, when the Caltech lease on its portion of the hospital, formerly the Vista del Arroyo Hotel, will be terminated.

## Science Advisor

**P**RESIDENT L. A. DUBRIDGE, already a member of the Scientific Manpower Advisory Committee of the National Security Resources Board, was chosen last month to serve on two new national defense projects.

He has now been appointed to a special committee of 11 scientists to advise President Truman and Mobilization Director Charles E. Wilson in matters relating to scientific research and defense. The Science Advisory Committee, set up by President Truman within the Office of Defense Mobilization, will advise on progress in defense scientific research problems, and transmit the views of scientists on defense matters.

Also last month Dr. DuBridge accepted the invitation of General Dwight D. Eisenhower to serve as a member of the new National Manpower Council established at Columbia University. This 15-man council, financed by a \$100,000 grant from the Ford Foundation, has been set up to identify and evaluate the major areas where significant manpower wastes now occur; to determine methods for improving present use of the nation's manpower resources.

## Air Force R.O.T.C.

**T**HE INSTITUTE has been selected as a site for one of 62 new Air Force R.O.T.C. Units, which will be launched with the freshman class entering college next fall.

"The Institute has always stood ready to serve national defense in time of need," said Dr. DuBridge. "At this time, therefore, it is glad to make its facilities available

to the United States Air Force for use in providing technically trained officers.

"The need for officers with adequate scientific and engineering background is critical and the shortage is severe. We are confident that a large number of Caltech students will welcome this opportunity to prepare themselves to serve their country."

This will be Caltech's second R.O.T.C. unit. The first was established in 1916 and disbanded in 1929. The Institute had a Navy V-12 program during World War II.

The Air Force program will be staffed by three officers and three airmen. The Senior officer, who will be appointed Professor of Air Science and Tactics, and the other officers, who will have appropriate academic ranks, will teach material prescribed nationally.

The first two years of the program will consist of basic courses in air science and military drill, with more specialization in the last two years. The freshman-sophomore group will have two class hours and one drill period weekly, while junior-senior men will be in class four hours and have one drill period a week.

Upon completion of the four-year course, the graduates will be commissioned second lieutenants in the U.S. Air Force Reserve, and will be subject to call to active duty at any time.

Students will not live in barracks and will wear the blue air force uniforms—which will be provided them—only for air force classes and drill. After completing two years they will be deferred from induction into the army under the prospective selective service law as long as they maintain good standing in the air unit as well as Caltech.

Reserve officer candidates normally will be required to spend part of the summer between their junior and senior years training at an air force base.

Students enrolling in the R.O.T.C. program must meet the standard Caltech requirements for admission. Present students will not be eligible except in special cases, but any C.I.T. freshman, except those with major physical disabilities, may join the unit on a voluntary basis. Resignation from the program is possible at any time.

## National Academy

**D**R. H. P. ROBERTSON, Professor of Mathematical Physics now on leave from the Institute, has been elected to the National Academy of Sciences. He is the twenty-fifth member of the present Institute staff to be elected to membership in the National Academy—one of the highest scientific honors in the country.

Dr. Robertson's work in mathematical physics has

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been largely devoted to the Einstein theory of relativity, and he has made important contributions to cosmology and the theory of the expanding universe. During World War II Dr. Robertson worked on problems of elasticity, hydrodynamics and shock wave propagation. In 1946 he received a Medal for Merit for his solutions of complex technical problems in the fields of bomb ballistics, penetrations and patterns and enemy secret weapons.

Dr. Robertson received his Ph.D. degree from Caltech in 1925 and studied in Gottingen and Munich as a National Research Fellow for two years. After he returned to this country he served on the faculties at Caltech and at Princeton, and has been Professor of Mathematical Physics at the Institute since 1947. He is currently in Washington, serving as Research Director of the Weapons Evaluation Group of the Department of Defense.

Two other Caltech alumni, William Shockley '32, and Wililam G. Young, Ph.D. '29, were elected to membership in the National Academy at the same time as Dr. Robertson. (See page 34).

## Dudley Medal

**P**ROFESSORS DONALD S. CLARK and Pol E. Duwez are to be awarded the Charles B. Dudley Medal of the American Society of Testing Materials at the society's June meeting in Atlantic City next month. This, the highest award of the society, is made for a paper of outstanding merit constituting an original contribution on research and engineering materials. The award goes to Professors Clark and Duwez for their paper, "The Influence of Strain Rate on Some Tensile Properties of Steel", which was presented before the society in June, 1950.

Professor Donald S. Clark, Associate Professor of Mechanical Engineering at the Institute, received his B.S., M.S., and Ph.D. degrees at Caltech and has been on the faculty here since 1934.

Professor Pol E. Duwez is Associate Professor of Mechanical Engineering at the Institute, and Chief of the Materials Section of the Jet Propulsion Laboratory. He has been on the Institute staff since 1942.

## Wilson Retires

**D**R. RALPH E. WILSON, Staff Member of the Mount Wilson and Palomar Observatories, retired last month after a long and distinguished scientific career.

He has spent most of his career in research on the motions of the stars and has achieved world-wide recognition as an authority on the subject. He took a leading part in preparing the monumental "Boss General Catalogue," which records the angular motions of more than 33,000 stars and he recently completed a compilation of all known velocities of the stars measured with the spectroscope.

He has been associated with the Mount Wilson Observatory since 1938, when he moved to Pasadena from Albany, N. Y., where he had served since 1918 in the Department of Meridian Astronomy of the Carnegie Institution. During World War II he was a consultant to the Office of Scientific Research and Development on the development of altimeters and oxygen apparatus. During World War I he was the American representative on the Committee of Allies at Santiago, Chile, and also performed technical work for the Bureau of Aircraft Production in Dayton, Ohio. Dr. Wilson received the gold medal of the Danish Academy of Sciences in 1926.

## The CE Field Trip

by Alfred C. Ingersoll  
Instructor in Civil Engineering

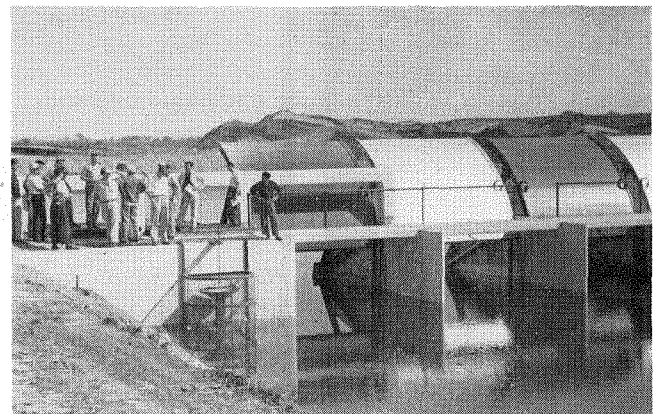
**E**VERY YEAR, close to the period between second and third terms, the graduate students in civil engineering set off on a four-day jaunt called "The Grand Tour of the Lower Colorado River Basin."

This trip, inaugurated some three decades ago by Dean Franklin Thomas, is one of the most extensive inspection tours offered at any school of civil engineering in the country.

Students spend a day and a half inspecting the workings of the Imperial Valley Irrigation District; another day inspecting Parker Dam and the Colorado River Aqueduct; and the last day visiting recently-completed Davis Dam and—as a grand finale—Hoover Dam and Power Plant.

This year's roster included twelve regular civilian C. E. grads, four of the special Army advanced students, one senior and two instructors, C. W. McCormick and the writer. Transportation was provided in the form of the Caltech carryall (a sort of beefed-up station wagon), and three private automobiles.

All vehicles left the campus Wednesday morning, March 28. Toward mid-afternoon the caravan entered the Coachella Valley, the richest date-producing area—Scripps and Oxy to the contrary notwithstanding—in the U.S., and the first tangible evidence of benefits from the Colorado River.



Civil engineers at one of the check gates in the All-American Canal.

## THE MONTH . . . CONTINUED

Thursday morning saw the start of the inspection tour proper. Expertly guided by one of the chief engineers of the Imperial Irrigation District, the student group inspected various features of the All-American Canal, which provides irrigation water for some 612,000 acres in the Imperial Valley, the largest irrigation district in the United States.

The next stop was at Hydroelectric Plant No. 4 where there is a drop of some 54 feet in the level of the canal. One of the two turbines was removed for repairs and the students were allowed to climb inside the scroll case, in which the water is normally conducted to the turbine, and even inside the upper end of the draft tube, through which the water leaves. Many of the group counted this the high point of the whole trip.

The final point of the irrigation tour was Imperial Dam and the large desilting basins at the head of the All-American Canal. Although the greater part of the silt burden of the Colorado River is removed in Lake Mead above Hoover Dam, there are about 8 million cubic yards of silt per year entering the canal works.

That afternoon the group headed across the desolate desert for Gene Camp, the community of operating and maintenance personnel at the east end of the Metropolitan Water District's Colorado River Aqueduct.

The food at Gene Camp deserves some kind of special mention. Such was the quantity and quality thereof that the single men were requesting application blanks for employment by the Metropolitan District at Gene

Camp and the married men were arranging a special educational tour for their wives to go to Gene Camp and take cooking lessons from the chef!

The menu for breakfast on Friday morning will serve as a fair example. Each table seating eight men was loaded with a huge pot of steaming coffee, four or five quarts of milk, two serving bowls of grapefruit and five or six different boxes of breakfast food. Presently a platter of bacon was brought on, with eight bundles of bacon, each comprising five or six of the ordinary strips. Next came a platter of fried eggs and finally, platter after platter of piping hot flapjacks were brought on and consumed with a half-gallon of Vermont maple syrup. Each man was then given an apple to eat as he waddled out the door!

Friday's operations consisted of short excursions from Gene Camp, scheduled carefully so as to be back at the mess hall in ample time for each meal. In the morning the group inspected the Gene Pumping Plant, where the aqueduct water receives its second boost of three hundred feet. It was particularly interesting to the students from Caltech since the giant pumps, each handling 200 cubic feet per second, were designed and tested in the Hydrodynamics Laboratory on the Tech campus.

The next item was an inspection of Parker Dam, which forms Lake Havasu, the intake reservoir of the Colorado River Aqueduct. This dam was built by the Bureau of Reclamation with funds provided by the Metropolitan Water District. The Bureau operates the dam and, in fact, the dam and reservoir remain the property of the government. As the power plant was closed for security reasons, the principal features of interest were the spillways and the great steel gates controlling the water flowing over them. Each of the five gates is 50 feet square and built like a railway bridge lying on its side. Each weighs some 225 tons and withstands water forces about ten times as great.

Friday afternoon's guided wanderings took the group to Gene Lake, the intake reservoir for Gene Pumping Plant. The eye-catcher here was a small constant-angle arch dam. The striking property of this type of dam is that the downstream face is vertical at the center of the dam, rather than sloping away as in the customary gravity or constant-radius arch section. In this case it is not an optical illusion. Standing on the crest at the center of the dam, one sees the downstream face apparently dropping straight down for 150 feet or so, and it actually *does* just that!

Finally, on Saturday afternoon, a trip through Hoover Dam provided a fitting climax to the entire trip, after the multitude of evidence of the purposes and uses of the dam which had been seen in the preceding days. Following an exhaustive tour through the entire plant, the inspection tour drew officially to a close. As a forceful element in their civil engineering education, the Grand Tour had enabled them to see the products of their chosen profession, integrated in man's complex 20th century society.



*Inspecting pumps in the Gene Pumping Plant of the Metropolitan Water District.*