



### RUSSELL PORTER DIES

**D**R. RUSSELL W. PORTER, design artist for the Hale Telescope and nationally known "father of amateur astronomy," died February 22 of a heart attack at his home in Pasadena. Although retired as Research Associate in optics and instrument design at Caltech, he was active up to the time of his death, and was busy with drawings for a Palomar spectrograph a few days before he was stricken. He was 77 years old.

Trained as an architect at M.I.T., Dr. Porter turned first to Arctic exploration. He made eight expeditions between 1894 and 1906, discovering a number of new islands and mapping more than 500 miles of new coastline. On one adventure he was lost for two years with a small party of men.

After some years as a practicing architect at Port Clyde, Maine, Dr. Porter taught briefly at M.I.T. and then went to the Bureau of Standards during World War I. It was immediately after this that he began designing telescopes and writing the articles that aroused national interest in amateur astronomy.

In 1928, Dr. George Ellery Hale called him to Pasadena to help with the 200-inch. His three-dimensional drawings of the instrument's components, so vivid that the function of each part could instantly be grasped, and so exact that it was often claimed they could serve as blueprints, eventually became nationally known.

After twenty years' work, it was Dr. Porter's wish that he might live to see the stars through the Hale telescope; and his wish was satisfied. A few weeks before his death he said, "I've seen enough to know the telescope is going to be even better than we had thought."

Co-author of the book, *Amateur Telescope Making*, Dr. Porter was to have been awarded the honorary degree of Doctor of Science by Middlebury College, in his native Vermont, this spring.

### STERLING DINNER

**A**BOUT 200 CALIFORNIA Institute Associates and faculty members gathered at the California Club on February 24 to honor Dr. J. E. Wallace Sterling, president-elect of Stanford University, and Mrs. Sterling.

# THE MONTH AT CALTECH

Dr. Sterling, now Director of the Huntington Library and for many years the Edward S. Harkness Professor of History and Government at Caltech, leaves for his new job around April 1.

Principal speaker at the dinner was Bohus Benes, nephew of the late President Eduard Benes of Czechoslovakia, and Czechoslovakian Consul at San Francisco from 1942 until 1948. Discussing the Russian threat to peace, Mr. Benes urged a strong union of Western democracies supporting a program of military preparedness, a healthy economy, and a positive policy for winning the masses of Europe to the democratic cause.

### ROCKET RECORD

**ON** FEBRUARY 24 a WAC Corporal rocket—originated, designed and developed at Caltech's Jet Propulsion Laboratory—set new records for altitude and speed at the White Sands Proving Ground in New Mexico. Carried up to a height of 20 miles in the nose of a German V-2, the WAC Corporal, launched by remote control, reached an altitude of 252 miles, and a speed of 5,000 miles an hour. The previous altitude record of 114 miles, and speed record of 3,600 miles an hour, were registered by a V-2 at White Sands on December 17, 1946.

Caltech scientists worked a year to develop the WAC Corporal—actually the second high-altitude rocket designed at JPL. It followed the pattern of the original WAC Corporal, designed from 1944 to 1946, but it posed some pretty special problems of its own. Propellents had to be devised to free it from the parent rocket, which was traveling almost a mile a second at launching time. The V-2 had to be controlled to facilitate the remote-control launching of the smaller rocket. Because there was virtually no air at the altitude at which the WAC Corporal was launched, it was necessary to develop some forms of control for the rockets other than aerodynamics. (Wings, tails and fins would have little effect in the rarefied atmosphere.) And combusive elements that would operate at high altitudes had to be developed.

According to Brig. Gen. Philip G. Blackmore, commanding officer at the White Sands Proving Ground,

this was "the greatest height ever reached by a man-made object . . . the rocket was for all practical purposes outside the earth's atmosphere."

"The success of this flight," he said, "opens up new vistas for scientific research in the field of guided missiles and exploration of the unknown regions of the atmosphere."

### THE CHEMISTRY OF SMOG

**D**R. ARIE J. HAAGEN-SMIT, Professor of Bio-Organic Chemistry in the Biology Division, furnished the Los Angeles County Air Pollution Control District with a new lead in its attack on the smog problem this month. Applying the technique which he developed, and used so successfully in flavor studies of pineapple (E & S—January '49), Dr. Haagen-Smit, in an analysis of air samples from this area, found "surprisingly large quantities" of substances known as organic peroxides.

Organic peroxides, which result from incomplete combustion, are known to be extremely irritating. Though they have never before been reported as significant air pollutants, they may well be the most important cause of eye irritation in the Los Angeles area. Determined efforts for several years to find the eye irritant in smog—notably by the Stanford Research Institute, on behalf of the oil industry—at one time indicated that elementary sulphur might be to blame. But the Haagen-Smit studies, preliminary as they are, found almost no trace of sulphur.

Opening up a whole new field of investigation into the smog problem, Dr. Haagen-Smit is now working out a test technique to be used by District researchers.

### PRAY TO GEOLOGY

**L**LOYD C. PRAY, National Research Council Fellow at the Institute since 1946, has been appointed Instructor in the Division of Geological Sciences, beginning July 1.

A graduate of Carleton College, Pray came to Caltech in 1941 for advanced studies in geology, and received his M.S. in 1943. He then joined the U.S. Geological Survey, leaving in 1944 for a two year stretch in the Navy. At the end of the war he returned to the Institute to continue his studies toward a doctorate.

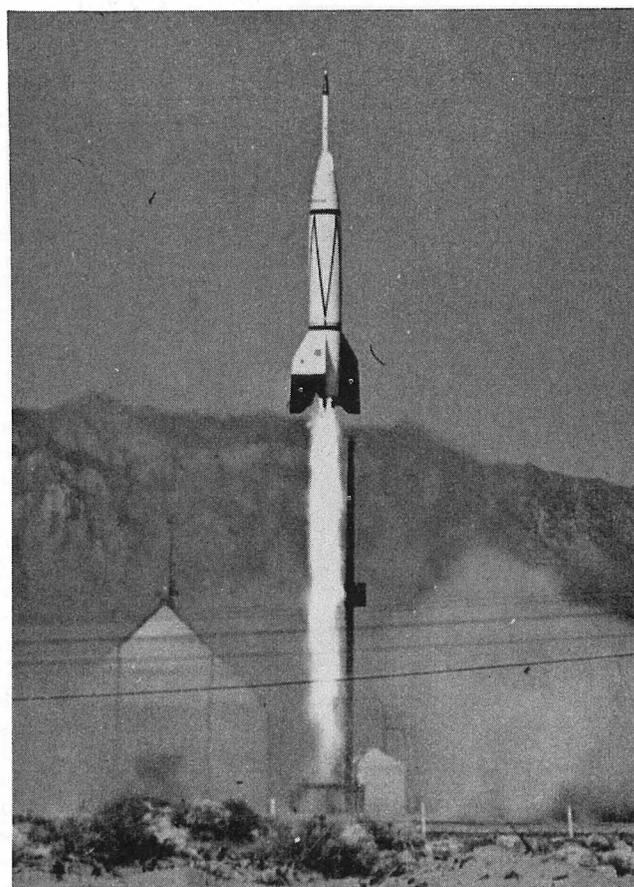
An able and energetic student, interested in general geology, Pray will be a valuable reinforcement for the Division's strong program of field instruction.

### SUMMER SESSIONS

**T**HE INDUSTRIAL RELATIONS Section of Caltech is announcing its second annual series of summer courses in Management and Personnel Training. The schedule:

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| June 19-June 24: | Negotiation and Administration of Union Contracts |
| June 26-July 1:  | Employment  |
| July 5-July 9:   | Training of Employees and Supervisors             |
| July 10-July 15: | National Income and Its Distribution              |
| July 17-July 22: | Integrating a Personnel Program                   |

Conference leaders will include Lawrence A. Appley, President of the American Management Association; L. Clayton Hill, Professor of Industrial Relations, School of Business Administration, University of Michigan; Gilbert Brighthouse, Chairman of the Department of Psychology, Occidental College; Martin S. Firth,



*Take-off of two-stage rocket which set a new altitude record (252 miles) last month at White Sands.*

Director of Program Research and Development, General Motors Institute; M. I. Gershenson, Chief of the Division of Labor Statistics and Research of the State of California; Leo Wolman, Professor of Economics, Columbia University; and from Caltech—Richard O. Sensor, Assistant Professor of Industrial Relations; Ray E. Untereiner, Professor of Economics; Robert D. Gray, Director of the Industrial Relations Section; and Arthur H. Young, Industrial Relations.

### THE EDGE OF THE UNIVERSE?

**D**R. IRA S. BOWEN, director of the Palomar and Mt. Wilson observatories, announced last month that the 200-inch Hale telescope has proved its power by photographing nebulae situated a billion light years (about 6,000,000,000,000,000,000 miles) from the earth.

Dr. Edwin S. Hubble, research director of the observatories, make the observation during regular tests with the 200-inch mirror. In order to determine the distance accurately, the photograph, together with other Palomar test pictures, will be compared with photographs of the same area, taken by the 100-inch Mt. Wilson telescope, which show objects half a billion light years away.

The supposed edge of the known universe is one billion light years from the earth. One billion light years is also at the end of the full power of the 200-inch telescope. This is the true importance of Dr. Bowen's announcement—that the 200-inch is already doing what was expected of it, even though it wasn't expected to be doing it until final adjustments are completed some time next fall.