



After the successful launching of the Explorer I—William H. Pickering, director of the Jet Propulsion Laboratory; J. E. Froehlich, director of the Laboratory's satellite project; and Caltech President L. A. DuBridge.

The Month at Caltech

Explorer

Caltech scientists played a vital role in the successful launching of the first U.S. satellite, the Explorer. After the combined efforts of Caltech's Jet Propulsion Laboratory and the Army Ballistic Missile Agency, a Jupiter C launching vehicle shot the satellite into space on January 31. The missile was fired in a southeasterly direction from Cape Canaveral, Florida, down the ocean missile lane in the direction of South Africa.

A team of JPL scientists under the direction of William H. Pickering, head of the Laboratory, managed to do the job in just 80 days from the time the Department of Defense directed ABMA and JPL to go ahead with the project. Dr. J. E. Froehlich, chief of JPL's design and

powerplants department, was put in charge of the high-speed stages of the multistage vehicle, the satellite, the satellite instrumentation and the collecting of information gathered by the satellite.

The basic vehicle for launching the satellite was already in existence. JPL and ABMA had redesigned the rocket originally intended for the Army proposal, "Operation Orbiter," into the Jupiter C and had made successful firings with it. This main stage vehicle weighed about 65,000 pounds and was more than 60 feet long and about 6 feet in diameter. Attached to the top were two more stages containing high-speed clusters of solid propellant rockets. The fourth stage consisted of the satellite package redesigned by JPL and fitted into the cylindrical shell. Part of the instrumentation

consists of two radio transmitters which broadcast information about the occurrence of cosmic rays outside the earth's atmosphere, measurements of micrometeorites, and temperatures of the inner instrumentation and outer skin of the satellite.

One of the most useful types of information expected to be gained from the satellite in its 90-minute trips around the earth is a more precise measurement of distances between continents. This is done by simultaneous observation of the satellite from two stations. By measurement of the angles to the satellite, plus knowledge of the satellite's position, scientists can calculate back to the distance between the stations.

By careful measurement of the rate of precession, accurate calculations of the precise shape of the earth can be made—to find out how much of it is flattened at the poles and to what degree it bulges at the equator. Also, by measurement of changes in the satellite orbit, the density of the air through which the satellite is passing can be calculated.

Plans are now being made for the launching of a second satellite with much more involved instrumentation. JPL has made an official announcement that the launching will take place before April 1.

Eastman Professorship

George W. Beadle, chairman of the division of biological sciences, has been appointed Eastman Visiting Professor at the University of Oxford, England, for 1958-59. The Eastman Professorship was founded in 1929 by George Eastman to bring senior American scholars to Oxford University for a year. In the past, the appointment has gone to such men as Felix Frankfurter, Arthur H. Compton, John Livingstone Lowes, Linus Pauling, Wallace Notestein, and Harold C. Urey. The current (1957-58) Eastman Professor is George Kennan, former American Ambassador to Russia, and a member of the Institute for Advanced Study at Princeton.

Leaders of America

Clarence B. Randall, special consultant to President Eisenhower in the field of foreign economic policy, visited the Institute on February 10 and 11 as the first 1958 guest in the YMCA's Leaders of America program. Mr. Randall is not a newcomer to the campus; he delivered the commencement address here in 1955.

Mr. Randall, who is now a director of Inland Steel, was president of the company for a number of years and has also served as chairman of its board. He has been a special consultant to President Eisenhower since 1956.

The second visitor in the Leaders of America program will be the Reverend Martin Luther King, president of the Montgomery, Alabama, Improvement Association, and leader of the negro bus boycott in Montgomery. Dr. King will be on campus from February 25-27. Dr. Sarvepalli Radhakrishnan, vice-president of India, is scheduled to

be here from April 2-4. And, as the final visitor in this year's program, Victor Reuther, assistant to the president of the CIO, will arrive on campus on May 12.

Plumian Chair

Fred Hoyle, visiting professor of astronomy at Caltech, and Fellow of St. John's College, Cambridge, has been appointed Plumian Professor of Astronomy and Experimental Philosophy at the University of Cambridge. The appointment is a lifetime chair, established by Thomas Plume (1630-1704), who left most of his wealth to the University for the founding of an observatory, the chair of astronomy and a home for the professor. The first occupant of the Plumian Chair was Roger Cotes, in 1707. Successive occupants have been Robert Smith in 1716, Sir George B. Airy in 1828, James Challis in 1836, Sir George H. Darwin in 1883, Sir Arthur Eddington in 1913, and Sir Harold Jeffreys in 1946.

National Conference

President DuBridge was the principal speaker at a national conference on "America's Human Resources to Meet the Scientific Challenge" at Yale University this month. Sponsored jointly by President Eisenhower's Committee on Scientists and Engineers and the William Bent Foundation, the meeting brought together 100 key representatives of science, education, industry, government, mass communications, labor, and religious and minority groups to examine America's competitive position in world science and technology. Other Caltech representatives were Harrison Brown, professor of geochemistry, who was chairman of a panel discussion on "The Scientific Revolution: Challenge and Promise"; and Frederick C. Lindvall, chairman of Caltech's engineering division and president of the American Society of Engineering Education.

Nuclear Petition

Linus Pauling, chairman of the division of chemistry and chemical engineering at Caltech, acted as spokesman for more than 9,000 scientists last month when he presented a petition opposing nuclear weapons tests to Dag Hammerskjold, Secretary General of the United Nations. The signers included 36 Nobel prize winners, 101 members of the National Academy of Sciences, 216 Members of the Soviet Academy of Sciences and 35 members of the Royal Society of London.

Ten Caltech scientists signed the petition: Frits Went, professor of plant psychology; A. H. Sturtevant, professor of genetics; Howard J. Lucas, professor of organic chemistry; Verner Shomaker, professor of chemistry; E. T. Bell, professor of mathematics emeritus; Max Delbruck, professor of biology; Seth B. Nicholson, staff member of the Mount Wilson and Palomar Observatories; Matthew L. Sands, associate professor of physics; Harden McConnell, associate professor of physical chemistry; and W. Barclay Ray, assistant professor of geology.