theories on the origin of giant cosmic ray showers, establishing the "peak" of their occurrence at approximately 16,000 feet.

3. Staging the first stratosphere balloon flights at the equator seeking information on mesotrons, rays produced by collision of a cosmic ray and nucleus of an atom in the atmosphere, Drs. William P. Jesse, of the University of Chicago, and Paulus A. Pompeia, of the University of São Paulo, Brazil, have already recovered one flight which is now being studied and are continuing their investigations.

The University of Chicago expedition, aided by the Nelson Rockefeller Committee on Cultural and Commercial Relations between the American Republics, started two months ago. Its members included Dr. Pompeia, of the University of São Paulo, who had been at the University of Chicago for the last year; Professor Norman Hilberry, now of New York University, and other members of the scientific staff of the University of Chicago.

The expedition had as its scientific objectives procurement of data from equatorial locations and elaboration of experiments conducted in the United States at various elevations.

The Oroya investigations were similar to those conducted in the Denver mountain parks, cooperatively by the University of Denver, the Massachusetts Institute of Technology, Cornell University and the University of Chicago. At the Oroya site, however, the investigators were able to get the same equipment to a point a thousand feet higher than any mountain in this country. The resulting pictures of tracks of cosmic ray particles show production of groups of positive and negative mesotrons and lay the basis of possible analysis of the particles.

At the Oroya site, the same permanent magnet was used as in high-altitude plane flights made two years ago at Chicago for cosmic ray investigations. With the advantage of longer time and less cramped conditions for observations, evidence corroborating indications from the airplane observations was procured.

The Hilberrys set up three observation stations on El Misti, at 7,500, 15,500 and 19,200 feet, using a mule train to reach their posts and carrying oxygen, though they did not find it necessary to use it. The same height for observations was reached in the Himalayas nine years ago, but reaching this height required two weeks against a day and a half in the Andean location. The El Misti base was at Arequipa.

The chief finding of the El Misti investigation was the greatest abundance of giant showers of cosmic rays at approximately 16,000 feet and laying of groundwork for reliable estimates of the maximum energy in primary cosmic ray particles. The theory had been that the showers of cosmic rays developed as they came down through the atmosphere. With observations made at the 16,000-foot or peak-level, this theory was corroborated. The maximum energy in the primary cosmic ray particle is estimated by physicists at approximately ten billion times the energy released by a radium ray, or enough energy in a single atom to lift one's finger off the table.

The balloon flights staged by Drs. Pompeia and Jesse at São Paulo were designed to investigate further the hypothesis that the cosmic ray particle entering the earth from outside the atmosphere is the proton; and to discover whether mesotrons are produced with higher energy at the top of the atmosphere near the equator than at the top of the atmosphere over Chicago.

Other flights have been made from the equator, but these are the first flights designed for mesotron information. The results will be compared with results of similar flights in Texas and Chicago to determine the comparative energies in various parts of the ceiling of the atmosphere.

COMMISSION TO CHINA ON MALARIA CONTROL

AT the request of the Chinese Government, this country will send a commission of medical and sanitary officers and entomologists to control malaria and supervise sanitation and medical care of 250,000 Chinese laborers to be employed in the construction of a railroad in the Chinese Province of Yunnan. The commission is appointed by Surgeon General Thomas Parran and will be headed by Dr. V. H. Haas, of the Public Health Service. It will consist of some sixteen American members.

The malaria control will be undertaken in one of the most highly malarious sections of China. In addition, general sanitary and medical supervision of the workers will be undertaken by the commission. Approximately $1,140,000 has been supplied the project by this government under terms of the Lend-Lease Act. Salaries of laborers and of medical and sanitary officers supplied by the Chinese Government will be paid by China. The $1,140,000 will pay for salaries and expenses of the American members of the commission and for drugs and chemicals and medical supplies.

The Rockefeller Foundation was asked to assist by making available the services of some of its personnel. D. E. Wright, a sanitary engineer on the staff of the International Health Division, has been assigned for full-time service with the commission. Dr. Marshall C. Balfour, regional director for the International Health Division in the Far East, is serving intermittently as consultant. There will also be cooperation with the laboratory for malaria investigations at Chefang on the Burma Road.

Members of the commission will leave for China at

intervals beginning on September 21, when Dr. Haas will leave San Francisco by clipper. It is expected the commission will operate for about a year.

THE FIFTIETH ANNIVERSARY OF THE UNIVERSITY OF CHICAGO

THE closing events of the celebration of the fiftieth anniversary of the University of Chicago will be held from September 22 to 29. The exercises will center about the subject of "New Features in Education and Research." Details of the program have been printed in the issues of SCIENCE for July 11 and August 15.

Attendance is expected to reach ten thousand. The American Association for the Advancement of Science will meet at the university during the week. Many scientific men from this country and abroad, including many refugee scholars, are expected to be present.

At the anniversary convocation on September 29 President Robert M. Hutchins will make an address and thirty-four honorary degrees will be conferred. The academic festival will end with a luncheon for the visiting delegates of more than four hundred colleges, universities, research institutions and learned societies. Speakers after the luncheon will be President James B. Conant, of Harvard University; President Robert G. Sproul, of the University of California, and President Mildred McAfee, of Wellesley College.

Preceding the special convocation on September 27, President Homer P. Rainey, of the University of Texas, and President Hutchins will speak at the annual alumni assembly; Professor Louis Gottschalk will speak at the Phi Beta Kappa dinner, and official delegates from colleges and universities will attend a reception given by deans of the university.

On Sunday, September 28, an anniversary service of commemoration and thanksgiving will be held in Rockefeller Memorial Chapel, followed by a reception for the delegates given by President and Mrs. Hutchins. President Hutchins will be among the speakers on a special broadcast of the University of Chicago Round Table on the nationwide red network of the National Broadcasting Company at 1:30 P.M. At 8:30 P.M. a special festival concert by the Chicago Symphony Orchestra under the direction of Dr. Frederick Stock will be given in Rockefeller Memorial Chapel.

The festival will follow five days devoted to the meetings of learned societies (September 22 to 26), in which more than a hundred and sixty scientific workers and scholars, including the thirty-four who will be the recipients of honorary degrees, will describe the results of their works.

SYMPOSIA AT THE ATLANTIC CITY MEETING OF THE AMERICAN CHEMICAL SOCIETY

AN extensive program of symposia has been arranged by the various divisions of the American Chemical Society for the Atlantic City meeting, which will be held from September 8 to 12. They are as follows:

Division of Agricultural and Food Chemistry, Gerald A. Fitzgerald, *chairman.* "New Analytical Tools for Biological and Food Research." (Joint symposium with the Divisions of Biological Chemistry and Medicinal Chemistry), G. A. Fitzgerald, presiding.

Division of Biological Chemistry, Herbert O. Calvery, *chairman.* "Physicochemical Methods in Protein Chemistry." (Joint symposium with the Division of Physical and Inorganic Chemistry), D. A. MacInnes, presiding. "The Chemistry of Aging," Anton J. Carlson, presiding. "New Analytical Tools for Biological and Food Research." (Joint symposium with the Division of Agricultural and Food Chemistry and Medicinal Chemistry.)

Division of Chemical Education, R. D. Reed, *chairman.* "Professional Training of Chemists or Chemical Engineers," R. D. Reed, presiding.

Division of Fertilizer Chemistry, H. B. Siems, *chairman.* "Phosphates." (Joint symposium with the Division of Industrial and Engineering Chemistry.)

Division of Industrial and Engineering Chemistry, B. F. Dodge, *chairman.* "Unit Processes," R. Norris Shreve, presiding. "Symposium on Phosphates." (Joint symposium with the Division of Fertilizer Chemistry.) "Electrical Insulation Materials," R. N. Evans, presiding.

Division of Medicinal Chemistry, R. J. Fosbinder, *chairman.* "New Analytical Tools for Biological and Food Research." (Joint symposium with the Divisions of Agricultural and Food Chemistry and Biological Chemistry.)

Division of Paint, Varnish and Plastics Chemistry, G. G. Sward, *chairman.* "Progress in High Polymer Plastics," S. L. Base, presiding.

Division of Physical and Inorganic Chemistry, J. G. Kirkwood, *chairman.* "Physicochemical Methods in Protein Chemistry." (Joint symposium with the Division of Biological Chemistry.) "Magnetism and Molecular Structure," P. W. Selwood, presiding. "Elementary Reactions," F. O. Rice, presiding.

Division of Rubber Chemistry, R. H. Gerke, *chairman.* "Rubber for Defense," R. H. Gerke, presiding.

SCIENTIFIC NOTES AND NEWS

DR. WILLIAM LLOYD EVANS, professor of chemistry and chairman of the department of the Ohio State University, will deliver on September 10 the presidential address before the American Chemical Society meeting at Atlantic City. He will speak on "Some Less Familiar Aspects of Carbohydrate Chemistry."