two different systems of terraces of Pleistocene age are found within the city of Los Angeles. Many other examples might be enumerated of evidences of the youth of the geologic and topographic features around Los Angeles, and along this part of the California coast in general.

Thus there are many reasons to expect frequent evidences of seismic activity in this region, but owing to the local character of most of the lines of structural weakness, extensive disturbances are not probable. The Great Earthquake Rift, or San Andreas Fault zone lies fully forty miles north of Los Angeles with several granite mountain ranges in between as buffers. Therefore the Los Angelenos may console themselves that they are not in the main earthquake belt.

Ralph Arnold

New York

AUGUSTO RIGHI

Often the death of a great personality in one of the fields of pure science is only felt directly by the small band of fellow workers in that field, while the passing away of one who has contributed but little original knowledge and has merely popularized the work of investigators makes a disproportionate impression on the general public, but in the death of Augusto Righi, professor of physics in the University of Bologna, and senator of the Kingdom of Italy, both the professional scientist and the amateur have suffered an irreparable loss. Righi combined in an inimitable way the ability to popularize the great central truths of his science with the genius of the born investigator. His published contributions in physical research cover the period of nearly fifty years and number nearly two hundred and fifty papers. Almost none of these papers are published in collaboration with other physicists, but represent his own individual work.

The present writer was privileged to spend part of one year as a guest in Righi's laboratory in Bologna. It was at the period when the first experiments of Sir J. J. Thomson and his pupils at Cambridge were providing the foundation for the beautiful structure of the electron theory which has since been reared. Righi had been carrying on investigations along lines which made him quick to seize the significance in his own problems of the work of the Cambridge School, and there was unmistakable evidence in his laboratory of great investigative activity—every evidence but for one fact: Righi never seemed to be working—he always seemed to have leisure to discuss other peoples' problems and to attend to the direction of the research of his numerous graduate students. Commenting on this one day to Righi the present writer learned that it was his custom to do all of his own investigative work in the three or four hours of the day before breakfast when he had his laboratory wholly to himself.

His treatment of his graduate students followed the German method rather than that which seems to characterize our own methods. He rarely published the results obtained in his laboratory jointly with the student but rather gave freely of his time and advice and let the student be the sole sponsor of his own work. A notable example of this is furnished in the well-known relation between Guglielmo Marconi and Augusto Righi—Righi, the friend and co-worker of Hertz and the teacher of Marconi, the pioneer in the adaptation of the epoch-making discovery of Hertz to telegraphy. Righi's friends appear to have been jealous lest he should fail to receive proper credit for his part in making wireless communication possible; but not so Righi himself, who cared little for popular applause and actually enjoyed a fuller measure of it in his own country than ordinarily falls to the lot of the pure scientist. His own attitude towards science is well expressed in his own words in an address before one of the many societies of which he was president.

> I refer to the pure science of physics, that science which does not occupy itself too much with matters of the practical application of its discoveries and does not trouble itself about the material advantages which may accrue to him who happens to make these discoveries, but above all else sets itself the task of establishing the great laws which govern the phenomena of the inanimate universe.

To this great task Righi devoted natural abilities singularly adapted to the needs of his science in the period of his greatest productive activity, when our views as to the nature of electricity and of matter were undergoing a fundamental reorganization.

Righi was a serious and well-trained thinker brought up in the old school and one who was too experienced to be led astray by brilliant generalizations which lacked sound experimental confirmatory evidence, and yet withal he possessed in some measure those gifts which we are most likely to associate with the poet or with women than we are with a man in an exact science—the gifts of imagination and intuition. That these two qualities were necessary in the building up of the electron theory nobody will deny. They are possessed by the living Thomson, Rutherford and a few of their co-workers and they were possessed by the dead Righi, and his name will stand with theirs in the history of his science.

AUGUSTUS TROWBRIDGE

SCIENTIFIC EVENTS

THE CENTENARY OF SIR JOSEPH BANKS

THE commemoration of the centenary of Sir Joseph Banks, Bart., who died on June 19, 1820, has been celebrated by the Linnean Society. According to the report in *Nature*, Dr. B. Daydon Jackson read the first communication on "Banks as a Traveller," speaking of his four overseas voyages—first, the visit to Newfoundland in H.M.S. *Niger*, on board which his friend Constantine Phipps, afterwards Lord Mulgrave, was a lieutenant; next, the adventurous voyage of the *Endeavour*, Lieutenant Cook commander, when Banks so amply proved his value in many untoward events; third, the voyage to Iceland; and fourth, his trip to Rotterdam in 1773, when he was still eager for an expedition to the north. The second paper, by Dr. A. B. Rendle, was entitled "Banks as a Patron of Science." Banks's life from his return to England in 1771 until its close in 1820 was that of an enthusiastic, liberal, and generally far-sighted patron of science. A friendship began with King George, which steadily increased, and Banks was consulted on important matters of very various kinds. He became botanical adviser to the King in relation to the Royal Gardens at Kew, which developed under Banks's guidance, becoming the repository of plants of economic and ornamental value from all parts of the world. Banks initiated or encouraged voyages of exploration, and kept up an extensive correspondence with men interested in science overseas. His house in Soho Square was the rendezvous of students and men of all classes interested in schemes of philanthropy or science; his magnificent library and herbarium were at the service of other workers, and after his death were bequeathed to the British Museum. For forty-two years he was president of the Royal Society. He was very closely, though indirectly, associated with the origin of the Linnean Society. Mr. James Britten, in the third paper, began by remarking that much of his paper was based upon the daily use of Banksian specimens for nearly half a century in the British Museum. The author showed that the popular belief that Banks left all his botanic work to his secretaries and curators, Solander and Dryander, was a mistaken one, and that Banks displayed great botanic acquirements. The president remarked that official records of the British Museum testified to the active interest taken by Banks in all matters connected with its advancement, and that keepers and trustees alike referred to him for his advice and decision. Certain objects closely connected with Banks were exhibited.

THE EPIDEMIC OF INFLUENZA IN ENGLAND

A FURTHER report on the great influenza epidemic has been issued by the Registrar-General. According to the abstract in the London *Times* the report states that the deaths allocated to influenza during 1918 numbered 112,329, the males being 53,883 and the females 58,446. The males included 7,591 non-civilians, and, deducting these, the deaths of civilians corresponded to a mortality of 3,129 per 1,000,000 civilian population.