

studying the extensive (Auger) showers, and the properties of their penetrating component. Soon afterwards, he developed the cloud chambers which were to be successfully operated at the Alpine laboratory of Testa Grigia to investigate the characteristics of the nuclear disintegrations induced by cosmic rays: Mura and his co-workers determined the strong nuclear properties of the 'shower' particles emitted from the disintegrations. This research, and later work on the production of neutral pions and on the development of the nucleon cascade, shared with other investigations carried out in the same years in different countries the merit of bringing about the present understanding of the phenomenological aspects of the cosmic radiation: namely, that the extensive, the penetrating and the mixed showers are but different offspring of the high-energy nucleon-nucleon collision, the most catastrophic phenomenon of Nature.

It was with the intention of collecting information relevant to the behaviour of high-energy particles that he and his colleagues engaged in the study of phenomena underground. They demonstrated the groundlessness of reports from other investigators suggesting that the muons might give rise to previously unknown sub-atomic particles: the assumption of non-electromagnetic interaction properties of the muons could thus be discarded.

After this work, Mura was no longer able to participate directly in the experimental activity: in his last years his ailing body prevented him from contributing more than advice, criticism and interpretation of results. His interest in physics remained, however, unabated; and to the very end of his life he continued to discuss scientific subjects either in letters or with gatherings of his collaborators around his hospital bed.

The association of most of Mura's work with such an exacting and delicate instrument as the cloud chamber was not casual. He was at heart a respectful student of Nature, and elected to depend on a research tool presenting a straightforward kind of evidence of Nature's ways. His particular excellence as a physicist lay in his relentlessly critical mind, striving to uncover whatever truth, if any, might be hidden under uncritically accepted, misleading or exaggerated statements.

This earnest approach to the object of scientific research did not prevent him from being good-humoured and witty; and this indeed was his prevailing mood in performing his duties and in his contacts with people. He made an ideal partner in team-work, because he sincerely believed that everyone tries always to do his best. He never complained of his fate, of which he must have been deeply aware.

GIORGIO SALVINI

NEWS and VIEWS

Artificial Meteors

It is reported from the United States that in an experiment devised by the U.S. Air Force Research Station at Cambridge, Massachusetts, artificial meteors in the form of aluminium pellets were released by an Aerobee rocket at an altitude of 54 miles over New Mexico on October 16. It is probable that some of the meteors, which were ejected from the rocket by means of shaped charges of explosive, may have achieved speeds in excess of the velocity of escape from the Earth's gravitational field. A photograph taken with a Baker Super-Schmidt meteor camera is said to have shown one of these meteors travelling at a speed greater than 33,000 miles per hour, with a brightness of stellar magnitude -2 . Observations of the temperature (luminosity) and rate of vaporization of artificial meteors, the composition and mass of which are known, are likely to be of use for determining the density of the Earth's atmosphere at great heights. Radar observations of the ionized trail of such meteors may also be expected to throw light on processes occurring in the ionosphere.

Electrical Engineering at The Queen's University, Belfast : Prof. P. L. Burns

PROF. P. L. BURNS, who retires from the chair of electrical engineering in The Queen's University of Belfast at the close of the present session, received his engineering education at the University of Manchester, where, during the First World War, he was associated with Lord Rutherford in the problem of the detection of submarines. His practical training was obtained in the then British Westinghouse Co. at Trafford Park, Manchester. He entered the teaching profession in 1918, being successively in

charge of the electrical engineering departments at Hull Technical College and at Rutherford College, Newcastle upon Tyne, before being appointed in 1924 to the position of head of the Department of Electrical Engineering and Physics of the Belfast College of Technology and extra-mural professor of electrical engineering in The Queen's University of Belfast. This position he held until 1955 when, with the formation of the Joint Authority for Higher Technological Studies, he became the first holder of the university chair in his subject, being still associated with the Belfast College of Technology as director of higher studies in electrical engineering.

Prof. Burns's tenure of the chair has been marked by steady developments in both the University and the Technical College sides of the department, in all of which his skill as a teacher found full scope. His interest in the students has not, however, been confined to their academic studies, for he has interested himself in all their activities. For a considerable period during and after the War he commanded the Signals Unit of the Senior Training Corps, for the formation of which he had been responsible. He was elected president of the University Rugby Club, and his cheerful and enthusiastic figure is a familiar sight on the touch-line at all university matches. Prof. Burns carries into his retirement the best wishes of his colleagues and of the long line of students who came under his influence, many of whom now hold positions of high responsibility in industry.

Dr. J. C. West

DR. J. C. WEST, who has been appointed to succeed Prof. P. L. Burns, entered the Department of Electrical Engineering at the University of Manchester in October 1940, and graduated