University of Lund, where he studied mathematics, physics and chemistry, Kullenberg graduated in 1928. Ten years later he gained his doctorate with a thesis, "Stark Effect of Hydrogenic Fine-Structure". Demonstrator in physics at the University of Lund during 1933–37; on the staff of the Swedish Hydrographic–Biological Commission for a number of years; a staff member of Gothenburg Oceanographical Institute since 1939; a lecturer in oceanography at the University of Gothenburg since 1942; associate professor there since 1948, and a member of the Swedish Board of Fisheries since 1949, Kullenberg has been his country's delegate to the International Council for the Exploration of the Sea since that year. Since 1947 he has been a member of the Academy of Arts and Sciences of Gothenburg, and was, in 1954, elected to the Royal Swedish Academy of Sciences. In 1947 he won the 10,000 Kr. Sixten Heyman Prize, and three years later the Walberg Gold Medal. Kullenberg is the author of publications on the Stark effect, on inertia currents in the sea, on internal waves, the water exchange in estuaries and channels, marine sediments, and the techniques of core sampling in the ocean depths. Widely and rightly famed for his important invention of the piston-corer which has made it possible to take long undistorted sediment cores from great depths, it was upon Kullenberg's calculations of the shapes of long trawl cables that the crowning success of the Danish *Galathea* Expedition in bringing up life from 10,190 m. depended.

Earthquake in the Aegean Sea

A STRONG earthquake with its epicentre near lat. 36° 24′ N., long. 25° 26′ E. occurred on July 9. The epicentre is in the Aegean Sea near the Island of Thira, or Santorin, which has some 15,600 inhabitants. It is reported that more than forty people were killed and several injured as a result of the earthquake, which caused considerable damage, particularly on the western side of the Island. A *tsunami* accompanying the earthquake, and initiated by ground movement on the sea-bed, is reported to have attained a vertical height of 12 ft. and to have travelled as far as Kalymnos, Astipalaia, Andiparus and Iraklion (Crete). The shock was felt in Athens, and was recorded at the Royal Observatory, Edinburgh, at 03h. 17m. 31s. G.M.T. Aftershocks continued for some days after the first earthquake.

The Solar Event of February 23

THE solar outburst that occurred on February 23, 1956, beginning at about 3.32 U.T., was certainly a very remarkable event. A large flare was observed in India (Kodaikanal) and Japan (Mitaka), and the Japanese observers report that the flare was seen in white light as a bright spot near the limb—a very rare observation. World-wide cosmic-ray effects set in within fifteen minutes, and the increase of the intensity of low-energy cosmic rays was greater than any previously reported. The nucleonic flux at sea-level in Britain appears to have increased by a factor of more than 40. Synchronous with the arrival of the cosmic-ray flux, there occurred a disturbance of the lower ionosphere on the night-side of the Earth of a type that does not seem to have been observed before. The reflexion ceiling for very low-frequency waves was lowered and the attenuation increased in a few minutes to beyond the normal day-time values. This effect must be attributed to particles penetrating down at least to the *D*-level, and it is thus to be thought of as connected with the cosmic-ray increase. The data concerning this event that have been obtained in the United Kingdom are published in the May issue of the *Journal of Atmospheric and Terrestrial Physics*.

Reduction of Expenditure in the Department of Scientific and Industrial Research

IN a written answer on July 5 to a question in the House of Commons, the Parliamentary Secretary to the Ministry of Works, as representing the Lord President of the Council, said that the reduction of £150,000 in the published estimate for the Department of Scientific and Industrial Research was made up of £33,000 through slowing up the rate of recruitment of staff; £20,000 through reduced grants for industrial research; a reduction of £49,000 in capital and general expenses of departmental establishments, chiefly through economies in purchases of equipment and consumable stores; and a reduction of £20,000 by delaying the commencement of a new bore-hole for the Geological Survey. Increases in test fees and other similar charges would yield a further £70,000; but against these economies, expenditure on scientific grants was increased by £42,000, of which £37,000 was for nuclear physics.

Mathematics in Industry

IN the *American Mathematical Monthly* of February, Thornton C. Fry, of the Bell Telephone Company, writes on "Mathematics as a Profession Today in Industry". To-day we educate to-morrow's mathematicians, and our curriculum should be adapted to to-morrow's needs; we cannot forecast these needs in detail, but by extrapolation from what has happened during the past fifty years, we may be able to foresee general lines of development. We shall make new things, standards of precision will be more stringent, and over-all planning for a total situation will be at least as important as concentration on accuracy in functional components. Such tasks demand collective knowledge and the exploitation of collective knowledge demands collective action. The requisite breadth and depth of technical competence can be supplied only by a team of experts, fully equipped and co-ordinated. What is the proper place of the mathematician in such a team? He should not be there as a problem solver; that is not his job, but the job of a machine. He should be there to formulate problems, to analyse relations, to strip off the superficial flesh and lay bare the essential structure. Fry illustrates this by reference to the central position occupied by mathematicians in the 'Nike' project, and draws the inference that industry requires mathematicians of the highest class to serve as superior consultants in planning operations; they are not to be called in merely to solve petty problems. To train such mathematicians, teachers must first understand the requirements; secondly, they must economize in time, so that training does not consume the fruitful years of the young mathematician. Fry suggests that algebra might be taught along with or even before arithmetic, that calculus and complex variable could be introduced in the ninth school-year, and that this could be done without any increase in the time allotted to mathematics in the schools. He admits that this is not an easy programme; many teachers in Britain favour the early introduction of calculus, but few would advocate any serious study of algebra before a firm grasp of arithmetic had been ensured.